RTView Enterprise Monitor® User's Guide

Version 4.2

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Contents

Preface

Welcome to the *RTView Enterprise Monitor® User's Guide*. Read this preface for an overview of the information provided in this guide and the documentation conventions used throughout, additional reading, and contact information. This preface includes the following sections:

About This Guide

The *RTView Enterprise Monitor® User's Guide* describes how to install, configure and use RTView Enterprise Monitor.

Audience

This guide is written for database and network administrators who are familiar with administering and managing databases.

Document Conventions

This guide uses the following standard set of typographical conventions.

Convention	Meaning
italics	Within text, new terms and emphasized words appear in italic typeface.
boldface	Within text, directory paths, file names, commands and GUI controls appear in bold typeface.

Courier	Code examples appear in Courier font:
	`amnesiac > enable`
	`amnesiac # configure terminal`

< >	Values that you specify appear in angle brackets: **interface <ipaddress>**

Additional Resources

This section describes resources that supplement the information in this guide. It includes the following information:

Release Notes

The following online file supplements the information in this user guide. It is available on the SL Technical Support site at http://www.sl.com/support/.

Examine the online release notes before you begin the installation and configuration process. They contain important information about this release of RTView Enterprise Monitor.

SL Documentation

For a complete list and the most current version of SL documentation, visit the SL Support Web site located at http://www.sl.com/services/support_rtviewdocs.shtml.

Support Knowledge Base

The SL Knowledge Base is a database of known issues, how-to documents, system requirements, and common error messages. You can browse titles or search for keywords and strings. To access the SL Knowledge Base, log in to the SL Support site located at http://www.sl.com/support/.

Contacting SL

This section describes how to contact departments within SL.

Internet

You can learn about SL products at http://www.sl.com.

Technical Support

If you have problems installing, using, or replacing SL products, contact SL Support or your channel partner who provides support. To contact SL Support, open a trouble ticket by calling 415 927 8400 in the United States and Canada or +1 415 927 8400 outside the United States.

You can also go to http://www.sl.com/support/

CHAPTER 1 Introduction to RTView Enterprise Monitor

This section describes RTView Enterprise Monitor®. This section includes:

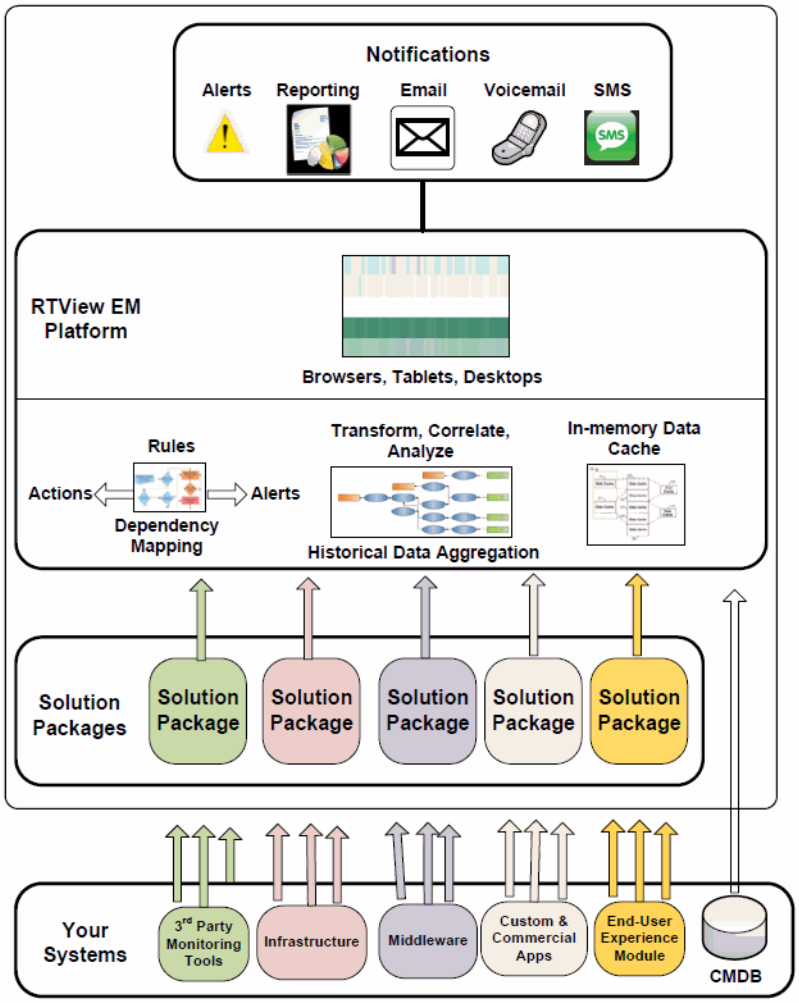
Overview

RTView Enterprise Monitor® is a monitoring platform that provides single-pane-of-glass visibility of aggregated real-time and historical information about the performance of complex multi-tier applications, including custom-built applications. RTView Enterprise Monitor has the ability to drill-down to the software-component level to help you determine the root cause of issues affecting application performance.

RTView Enterprise Monitor enables application support teams to:

- Provide a single, real-time interface to the end-to-end performance of complex or distributed applications.
- Provide early warning of issues and automate corrective actions tied to alerts, to reduce the number of trouble tickets.
- Leverage historical trends to anticipate possible application degradation and enable preventive care.
- Quickly pinpoint the root cause of issues and initiate repair.
- Reduce costs and minimize lost revenue related to system downtime and degradation.
- Improve performance against SLAs, customer expectations and brand promises.
- Improve business decisions that are tied to application performance.
- Lower the total cost of managing applications.

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



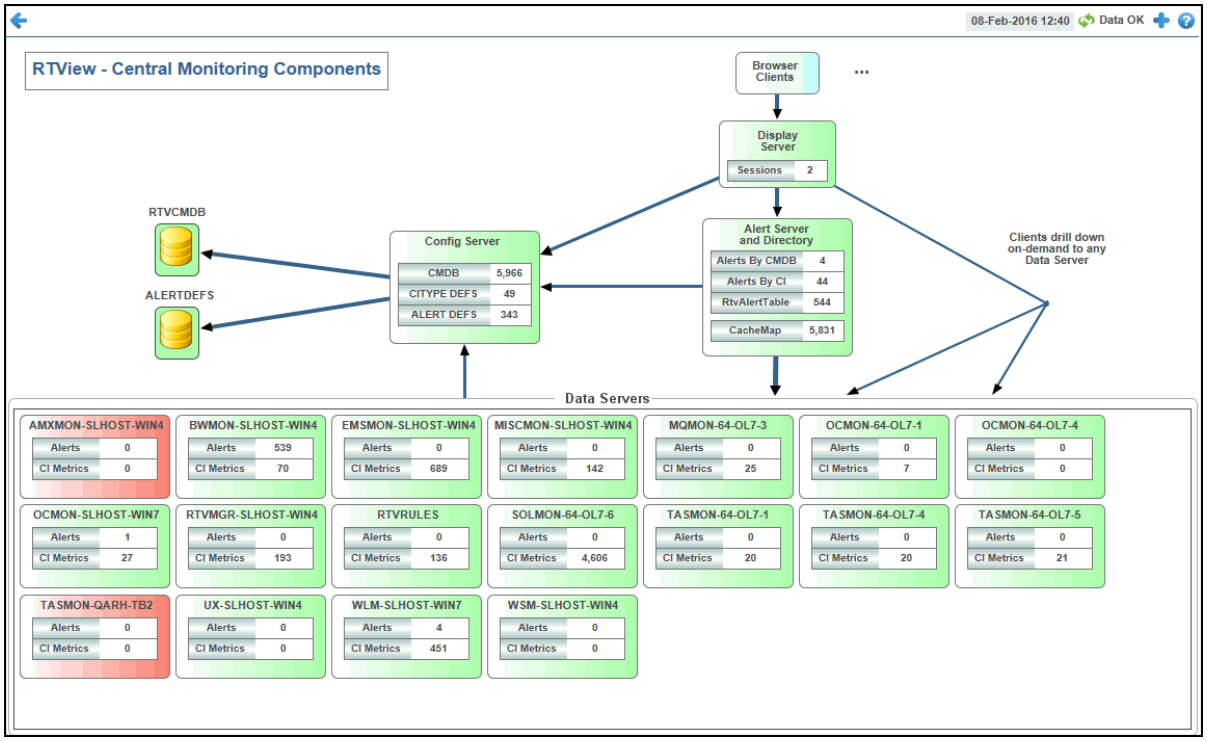
The RTView Enterprise Monitor platform can gather information using agents, or in an agent-less manner, from a variety of critical sources. The information helps you determine whether the components of your multi-tiered application are performing correctly. Key performance data can come from an application server, Web server, messaging middleware, databases, application log files or instrumentation, as well as from other monitoring tools that report infrastructure metrics, and other key dimensions of application performance such as end user experience or transaction performance.

When you install the RTView Enterprise Monitor platform, it includes Solution Packages which configure the interface for the metrics of interest. For example, you might have a package for monitoring application servers that are part of your deployed application. When you install the Solution Package for that application server, RTView Enterprise Monitor automatically:

- Gathers the important performance metrics for that server.
- Manages the historical archiving of those metrics.
- Provides pre-defined alerts that notify you of critical conditions.
- Provides views of the pertinent application data that help you analyze problems with that application server if one is indicated by an alert.

Architecture

The following figure illustrates the main components of the RTView Enterprise Monitor platform (in the upper panel) and installed Solution Packages (in the lower panel) which are gathering and processing performance metrics. The diagram below is actually a real-time system architecture diagram which is accessible from the RTView Enterprise Monitor user interface. Each rectangle is a Java server process running in a JVM which can be configured to run on the same host or on separate hosts. The boxes are green when the process is running and red when stopped. Each server process can be configured for high availability by providing a backup server with failover and failback options.



RTView Enterprise Monitor Platform

The RTView Enterprise Monitor platform consists of a Display Server browser client, the Configuration Server and the Alert Server. This documentation also refers to the Configuration Server and the Alert Server as the Central Servers.

- **Display Server**: The Display Server is a Java process which must be running to support browser-based access. This configuration also requires an application server. Tomcat is most commonly used in RTView Enterprise Monitor, however other application servers are supported. A preconfigured Tomcat server is included with RTView Enterprise Monitor. The selected application server must then run the RTView servlet which handles client requests and receives updates from the Display Server. The Display Server receives requests from the servlet and accesses the Central and Solution Package Data Collection Servers for the data. The Display Server is then responsible for the generation of the HTML, AJAX and Flash-enabled Web pages which display the real-time information. The Display Server also supports clients which are not Flash-enabled.
- The RTView servlet and Display Server are also responsible for user and role-based entitlements.
- **Configuration Server**: This server process can act as the proxy for all database connections to the system and maintains information relevant to the *Service Data Model*, System Configuration information, and alert configuration. The Service Data Model consists of a list of all CI's (Configuration Items relevant to the performance of a Service) and the Services which they affect. It also contains the four-level structure of the organization: Owners, Areas, Groups, and Services. All this information can be in one or more databases, or be generated dynamically from the data.
- **Alert Server**: This server process maintains an internal cache of aggregated alerts and their current state. It performs the correlation and propagation of alerts to the items in the Service Data Model which are affected by an alert. It also serves as a directory map and directs requests from clients to the appropriate Solution Package when a user requests detailed performance metrics produced from those Packages.

Solution Packages

RTView Enterprise Monitor includes a variety of Solution Packages which gather metrics from infrastructure, middleware, instrumented applications, JVM, log files, and third party monitoring products. Several Solution Packages are available with the platform. RTView Enterprise Monitor also provides a means for creating Custom Solution Packages--which can be configured without programming--to gather most any piece of performance information with a wide array of built-in data adapters. SL support has many templates for Custom Solution Packages that can be delivered to users or customized as a service.

A Solution Package provides these main pieces of functionality to the RTView Enterprise Monitor platform:

- **Data Access**: The Solution Package gathers the performance metrics relevant to the technology being monitored. The data may be gathered by either synchronous or asynchronous direct connections to a technology, or by receiving information from RTView agents deployed on the hosts of the monitored technology.
- **Data Caching**: Performance metrics are stored in in-memory data caches to supply quick access to the most current performance metrics.
- **Data History**: Long-term performance metrics can be stored in a JDBC-enabled relational database. The Solution Package allows for the configuration of the rules for data compaction and management of long-term data persistence.
- **Alert Event Access:** If the Solution Package is connecting to another monitoring system, it can gather alert events from that system, bring those events into the RTView Enterprise Monitor platform and allow alert management to be performed in the RTView Enterprise Monitor platform. Optionally, the Solution Package can be configured to synchronize alert states between the two systems.
- **Alert Rules Engine**: The Solution Package can be configured with alert rule definitions which are processed real-time on the Solution Package Data Servers. Dynamic updates to these alert rule definitions, such as changing alert rule thresholds or policies, can be managed through the RTView Enterprise Monitor "Alert Administration" interface. When alerts are activated by these alert rule definitions, they are sent to the RTView Enterprise Monitor Alert Server to be aggregated with other Solution Package alerts.
- **Data Viewing**: Each Solution Package comes with designated displays which can be accessed by the RTView Enterprise Monitor platform to show the performance metrics in summary and drill-down views.
- **Solution Package Servers**: Each Solution Package involves two servers. These servers are typically installed at locations where access to the technology performance data is optimal.
- **Data Server**: After the Solution Package has been configured, this Java process is run to begin accessing the data, storing data to internal memory caches, running the alert rules and providing data to the Historian process.
- **Data Historian**: The process manages the storage of information into a relational database and runs the rules relevant to managing this persisted data.

System Requirements

For browser support, hardware requirements, JVM support and other system requirement information, please refer to the **README_sysreq.txt** file from your product installation. A copy of this file is also available on the product download page.

Installation

This section describes how to download and install RTView Enterprise Monitor.

The SL Download Center provides access to the RTView Enterprise Monitor via **.zip** file, **RTViewEnterpriseMonitor_<version>.zip**, which includes all available RTView Enterprise Monitor Solution Packages.

To install the RTView Enterprise Monitor platform, download the archive and extract the file.

If you currently have any version of RTView installed, you must install the RTView Enterprise Monitor platform into a directory separate from any existing RTView installations. The same zip archives provided in the download can be used on any supported platform. Any subsequent Packages that are used with the platform are also provided in a **.zip** file which should be extracted into this same directory.

Windows

On Windows systems, using the extraction wizard of some compression utilities might result in an extra top-level directory level based on the name of the **.zip** file. The additional directory is not needed because the **.zip** files already contain the **RTViewEnterpriseMonitor** top-level directory. This extra directory should be removed before you click **Next** to perform the final decompression.

UNIX/Linux

To convert text files on UNIX/Linux systems to the native format, use the **-a** option with unzip to properly extract text files. Then, to fix execution permissions for all ***.sh** scripts, go to the **RTViewEnterpriseMonitor/rtvapm** directory and execute:

. ./rtvapm_init.sh

Multi-Machine Installations

If you would like to distribute your RTView Enterprise Monitor across multiple systems, extract and install the RTView Enterprise Monitor onto the system where you will run the Central Servers. Then install one or more RTViewDataServerSP deliverables on any additional system(s) where you would like to run a Solution Package project. See "Configure Remote Solution Package Project" for details about using the RTView DataServerSP. You can further distribute the solution package data collection by installing the RTViewDataCollectorSP deliverable on any additional system(s) to collect solution package data and send it to one or more Solution Package Data Servers. See "Configure Sender / Receiver" for more information on using the RTViewDataCollectorSP.

Documentation

To access online help for any of the Monitor displays select the help (**?**) button in the top right corner.

Application Server

The RTView Enterprise Monitor includes a pre-configured Apache Tomcat installation which hosts all of the servlets necessary to run the Monitor on port 8068. If you do not want to use the included Apache Tomcat installation, instructions are provided to install the necessary servlets to your Application Server. Note that running the Configuration Application on your Application Server requires extra configuration.

Solution Packages

The RTView Enterprise Monitor contains all available Solution Packages. Each Solution Package is in a directory under **<installation directory>/RTViewEnterpriseMonitor/rtvapm**. For example, the Solution Package for TIBCO Enterprise Message Service(TM) is in the **emsmon** directory (**RTViewEnterpriseMonitor/rtvapm/emsmon**). Most Solution Packages are configured via the Configuration Application. For those that are not included in the Configuration Application, property file examples are available in the **conf** subdirectory of each Solution Package.

Upgrading the Monitor

This section describes the steps necessary to upgrade existing RTView Enterprise Monitor applications. It is organized by version. To upgrade your application, follow the steps for each version between the version you are upgrading from and the version you are upgrading to. Note that this section does not include upgrade information for Solution Packages. This section includes:

EM 4.1

There are no upgrade steps required for EM 4.1.

EM 4.0

Solution Package for TIBCO ActiveMaxtrix and the Solution Package for TIBCO BusinessWorks version 6

The ports used by the sample projects for the Solution Package for TIBCO ActiveMaxtrix and the Solution Package for TIBCO BusinessWorks version 6 have changed. Projects created in previous releases will continue to use the old ports. Users of these solution packages should just be aware the ports have been changed in the new sample projects as follows:

- For BusinessWorks Monitor the new port prefix is **45**. This results in the following default port assignments:

dataserver data port 4578

dataserver JMX port 4568

datserver SC port 4570

dataserver rtvhttp port 4575

dataserver rtvagent port 4572

dataserver sender data port 4576

dataserver sender JMX port 4566

displayserver data port 4579

displayserver JMX port 4569

historian JMX port 4567

database (hsqldb) JMX port 4561

- For ActiveMatrix Monitor the new port prefix is **44**. This results in the following default port assignments:

dataserver data port 4478

dataserver JMX port 4468

datserver SC port 4470

dataserver rtvhttp port 4475

dataserver rtvagent port 4472

dataserver sender data port 4476

dataserver sender JMX port 4466

displayserver data port 4479

displayserver JMX port 4469

historian JMX port 4467

database (hsqldb) JMX port 4461

Custom Solution Package

The custom solution package example has been removed from EM. Contact SL technical support for information on creating custom solution packages.

Existing custom solution packages will continue to work as they did before. It is recommended, but not required that existing custom solution packages make the following changes. These changes are needed in order to be compatibe with the new Configuration Application. Custom solution packages will continue to work as before without these changes, but data servers containing custom solution packages without these changes should not be configured via the Configuration Application:

1. Move the following server level properties from **conf\rtvapm.sp.properties** to **conf\rtvapm.sp.compat.properties**:

- all ports
- all proctag properties
- sender.sl.rtview.sub=$rtvAgentName
- sl.rtview.alert.persistAlertEngineName
- sl.rtview.sub=$domainName

2. Put the custom solution package directory under **RTVAPM_HOME** or **RTVAPM_USER_HOME**. If under **RTVAPM_HOME**, the solution pacakge name must end in **mon** for the "RTView Configuration Application" to detect it.

This will add the custom solution package to the list of available solution packages in the Configuration Application.

3. Add **rtvadmin\sp.meta.json** under **lib** with the following - the "RTView Configuration Application" will use this as the display name for your solution package:

```
{
  "displayname": "The Display Name for your SP"
}
```

4. Copy **src\rtfiles\rtvconfig.sp.xml** to **lib\rtvadmin** so the "RTView Configuration Application" can read its CI Types.

Property File Handling and Configuration Application

Property file handling has been modified in order to support the Configuration Application. Existing applications will continue to work as before with no changes. However, customers should be aware of the following if they want to merge their old properties into the new version of emsample.

In previous releases, each solution package defined its own ports, sender target and server identification properties. These properties have been removed from the solution package properties and should be defined in the project properties instead. The emsample project been updated to include these properties which have been set to the same values that they inherited from the solution package properties in previous releases (except for TIBCO ActiveMatrix and TIBCO Businessworks version - see note above). Upward compatibility support is included for projects created previous to EM 4.0. In EM 4.0, the **rtview.properties** files in all sample projects were replaced with **project.properties** files. Any project with an **rtview.properties** file is recognized as a project created with a previous release. In that case, RTView will automatically read in the old ports, sender target and server identification properties for all solution packages in the **rtview.properties** file. Therefore, projects created

with previous of EM will continue to run with no modifications. However, projects containing an **rtview.properties** file cannot be configured using the new "RTView Configuration Application". The **emsample\conf\emcommon.properties** file has been replaced by **emsample\conf\project-common.properties** which is read just before **project.properties** at the end of the property file list. The **emcommon.properties** file will still be read, but the properties in it will be overridden by the properties in **project-common**.

Merging properties from an old version of emsample to the new release has 2 parts. First there are the central and common settings. Second there are the solution package server setting.

There are two options for merging old central server and common properties from a previous release into the new version of emsample.

The first option for applying central server settings from a previous version is to use the "RTView Configuration Application" to reapply the settings. This is more work, but has the benefit of allowing you to use the Configuration Application moving forward. If you haven't done much to customize emsample central servers, this won't be a big effort. To do this, run the new version of emsample, bring up the Configuration Application and apply all configurations that were part of your previous emsample project. See Chapter 2, "Configuration and Deployment" for more information on how to configure your central servers using the "RTView Configuration Application".

The second option for applying central server settings from a previous version is to use your old properties files. This has the downside that you will not be able to use the Configuration Application to configure your common properties or central servers. To use this option, do the following:

1. Start with the new emsample.

2. Copy the old **conf\emcommon.properties** into the new **emsample\conf** directory.

3. In the new emsample, delete **conf\project.properties** and **conf\project.properties.json**.

4. Copy the old **servers\central\central.properties** and the old **servers\central\rtview.properties** into the new **emsample\servers\central** directory.

5. In the new emsample, delete **servers\central\project.properties** and **servers\central\project.properties.json**.

There are three options for merging old solution package server properties from a previous release into the new version of emsample.

The first option for applying solution package server settings from a previous version is to use the "RTView Configuration Application" to reapply the settings. If you have a lot of connections, this isn't really practical, but if you only have a few, it could be worthwhile since you'll be able to use the Configuration Application for everything moving forward. To do this, run the new version of emsample, bring up the Configuration Application and apply all configurations that were part of your previous emsample project. See Chapter 2, "Configuration and Deployment" for more information on how to configure your solution package servers using the "RTView Configuration Application".

The second option for applying solution package server settings from a previous version is to use your old properties files instead of the Configuration Application. This has the downside that you cannot use the Configuration Application moving forward. To do this, do the following in each solution package project directory under **emsample\servers**:

1. Start with the new emsample

2. Copy the properties files from the old solution package server directory into the new solution package server directory including the old **rtview.properties**.

3. Remove the **project.properties** and **project.properties.json** from the new solution package project directory.

4. Add your properties files to the appropriate lines in **servers\rtvservers.dat**.

The third option for applying solution package server settings from a previous version is a combination of the above. This has the benefit of allowing you to use the "RTView Configuration Application" without having to re-enter all of your connections.

1. Start with the new emsample.

2. Copy the properties files from the old solution package server directory into the new solution package project directory. Do NOT copy the old **rtview.properties** into the new solution package project directory.

3. Edit the properties file you just copied over to comment out or remove all non-connection properties.

4. Run emsample and use the Configuration Application to apply all settings from your previous project except connections. See Chapter 2, "Configuration and Deployment" for more information on how to configure your solution package servers using the Configuration Application.

5. Add your properties files from step 2 to the appropriate lines in **servers\rtvservers.dat**.

6. Moving forward, new connections can be added via the Configuration Application or by hand editing the properties file from step 2, whichever is more convenient. However, only connections added via the Configuration Application will be editable in the Configuration Application.

NOTE: The following files are read and written by the Configuration Application and should never be manually edited: **project.properties**, **project.properties.json**, **conf\project-common.properties** and **conf\project-common.properties.json**.

EM 3.8

Refer to the following instructions as appropriate. If:

- "Your project contains a project.properties file"
- "You are upgrading from RTView Enterprise Monitor 3.7"

Your project contains a project.properties file

If you are upgrading from versions previous to RTView Enterprise Monitor 3.8, and your project contains a **project.properties** file, be aware that this file will be used even if it is not specified on the command line. To avoid this, rename or remove your **project.properties** file.

You are upgrading from RTView Enterprise Monitor 3.7

Users of v3.7 might need to update your three existing database table names to the new names. If you used the Historian auto-creation you will already have the correct table names. The following are examples:

- Oracle

```
alter table MYSQL_BYTES_TABLE rename to MYSQL_BYTES;
alter table MYSQL_CRUD_TABLE rename to MYSQL_CRUD;
alter table MYSQL_QUERIES_TABLE rename to MYSQL_QUERIES;
```

- DB2

```
RENAME TABLE MYSQL_BYTES_TABLE TO MYSQL_BYTES;
RENAME TABLE MYSQL_CRUD_TABLE TO MYSQL_CRUD;
RENAME TABLE MYSQL_QUERIES_TABLE TO MYSQL_QUERIES;
```

- MySQL

```
RENAME TABLE MYSQL_BYTES_TABLE TO MYSQL_BYTES;
RENAME TABLE MYSQL_CRUD_TABLE TO MYSQL_CRUD;
RENAME TABLE MYSQL_QUERIES_TABLE TO MYSQL_QUERIES;
```

- SQL Server

(replace "database_name" with the name of your database)

```
use database_name
go
exec sp_rename '[MYSQL_BYTES_TABLE]', '[MYSQL_BYTES]'
exec sp_rename '[MYSQL_CRUD_TABLE]', '[MYSQL_CRUD]'
exec sp_rename '[MYSQL_QUERIES_TABLE]', '[MYSQL_QUERIES]'
go
```

- Sybase

```
sp_rename 'MYSQL_BYTES_TABLE', 'MYSQL_BYTES';
sp_rename 'MYSQL_CRUD_TABLE', 'MYSQL_CRUD';
sp_rename 'MYSQL_QUERIES_TABLE', 'MYSQL_QUERIES';
```

EM 3.6

Sender/receiver deployments

If you are using the sender/receiver deployment and upgrading projects from versions previous to RTView Enterprise Monitor 3.6, you need to modify properties files after upgrading in the following cases:

1. If the project properties files overwrite the **sender.sl.rtview.sub=$rtvAgentTarget** property, change it to use the new **sender.sl.rtvapm.dataxfr.target** property using the URL you specified for the **$rtvAgentTarget**. For example:

sender.sl.rtview.sub=$rtvAgentTarget:'localhost:3172'

would be changed to

sender.sl.rtvapm.dataxfr.target=id=default url=localhost:3172 packages=all

2. If the project properties file adds additional targets using the **sender.sl.rtview.cache.config** property, change it to use the new **sender.sl.rtvapm.dataxfr.target** property using the URL you specified for the **$rtvAgentTarget** and a new unique ID. For example:

sender.sl.rtview.cache.config=pck_rtvagent_sender.rtv
$rtvAgentTarget:'otherhost:3172'

would be changed to

sender.sl.rtvapm.dataxfr.target=id=target2 url=otherhost:3172 packages=all

If your project properties file did not overwrite either of the above, the default sender/receiver properties values were used and therefore no changes are needed.

For details, see "Configure Sender / Receiver" on page 38.

Multi-use Service names

Enterprise Monitor has been enhanced to support using the same service name in multiple Groups and in multiple Environments. With the new changes, all entries must have an associated Environment. Previously saved CMDB entries that do not have an associated Environment can no longer be edited or viewed in the **CMDB Administration** display although they are still visible in the **Service Summary** displays.

To support using the same service name in multiple Environments, the schema for the RTVCMDB database has been changed to add the **Environment** column to the table index. Existing projects from previous releases will continue to work against an RTVCMDB database without this index. However, if you have an existing project and you want to take advantage of this new feature, you need to add the **Environment** column to the table index and fill in an Environment for any entries where it is blank.

EM 3.5

Note: In EM 3.5 and later, the **emsample** project is already configured to include the diagram generator and no setup is required.

Users upgrading projects from versions previous to EM 3.5 should do the following to add the Diagram Generator to the project you created in an earlier release:

1. Add the following line to **<project_dir>\servers\central\rtview.properties**:

rtvapm_package=dg

2. Copy **RTVAPM_HOME\dg\dbconfig\rtvdiagram.script** to **<project_dir>\DATA**.

3. Add the following lines to **<project_dir>\servers\central\server.properties**:

server.database.6=file:../../DATA/rtvdiagram

server.dbname.6=rtvdiagram

4. Add the Diagram Admin displays to your navigation tree or to **<project_dir>\servers\central\custom_views_navtree.xml**:

```
<node label="DG Admin" mode="" display="rtv_dir_dgadmin">
    <node label="Nodes" mode="" display="rtvdiagram_admin_node"/>
    <node label="Links" mode="" display="rtvdiagram_admin_link"/>
    <node label="Diagram Props" mode="" display="rtvdiagram_admin_diagramprops"/>
</node>
```

EM 3.3

Users upgrading projects from versions previous to EM 3.2 should remove the **rtv_appmon_panels.xml** file from their project directory if they want to use the tab framework that was introduced in EM 3.0.

EM 3.2

There are no upgrade steps required when upgrading from EM 3.1 to EM 3.2.

EM 3.1

Refer to the following instructions as appropriate. If you:

- "Created an EM project using a previous release"
- "Created a custom Solution Package"
- "Are not using standard RTView Enterprise Monitor run scripts"

Created an EM project using a previous release

No changes are required to projects created in previous versions. However, we strongly encourage you to modify your **central.properties** and **rtview.properties** files for each Solution Package you are using with the following changes (described below). This will make it easier for you to merge changes to the **central.properties** file in future releases. See the current **central.properties** file for an example of how each Solution Package section should look after you make these changes.

1. For each Solution Package you are using, remove the following properties from **central.properties** (where **pck** is the name of the package and **PCK-LOCAL** is the name of the Data Server hosting that Solution Package):

sl.rtview.cmd_line=-rtvapm_packages:pck
sl.rtview.cp=%RTVAPM_HOME%/pck/lib/rtvapm_pck.jar

# CI Type Defs
ConfigCollector.sl.rtview.xml.xmlsource=rtvconfig.pck.xml 0 rtvconfig.pck.xml 0 1
ConfigCollector.sl.rtview.cache.config=rtv_config_cache_source_xml.rtv $package:pck

# Navigation
uiprocess.sl.rtview.xml.xmlsource=pck_navtree.xml 0 pck_navtree.xml 0 1
uiprocess.sl.rtview.xml.xmlsource=pck.navinfo.xml 0 pck.navinfo.xml 0 1
uiprocess.sl.rtview.cache.config=rtv_tabtree_cache_source_comp.rtv $package:pck

AlertAggregator.sl.rtview.cache.config=rtv_alerts_source.rtv $rtvDataServer:PCK-LOCAL
AlertAggregator.sl.rtview.cache.config=rtv_cistats_source.rtv $rtvDataServer:PCK-LOCAL
lertAggregator.sl.rtview.cache.config=rtv_cimap_source.rtv $ciType:XYZ
$rtvDataServer:PCK-LOCAL

2. For each Solution Package you are using, add the following property to **central.properties** (where **pck** is the name of the package and **PCK-LOCAL** is the name of the Data Server hosting that Solution Package):

AlertAggregator.sl.rtvapm.cisource=dataserver=PCK-LOCAL packages=pck

---

Note: You can only have one **cisource** line per Data Server. If a single Data Server is hosting multiple Solution Packages, you can specify a comma-separated list of Solution Packages. If you do not want to include all CI Types for a package on a Data Server, use the **types** syntax instead of Solution Packages. See the **sl.rtvapm.cisource** property in Appendix C, "Properties" section for details about **cisource** property syntax.

---

3. For each Solution Package, add the following property to the **rtview.properties** file (where **pck** is the name of the Solution Package):

rtvapm_reference=pck

Created a custom Solution Package

No changes are required unless you upgraded your project as described above. However, we encourage you to use the new properties file scheme to make it easier to merge changes to the **central.properties** file in future releases. Add a new file to the **conf** directory in your custom Solution Package named **rtvapm.pck.ref.properties** (where **pck** is the name of your Solution Package). Add the following lines to your new properties file (filling in your package name for **pck**). Also upgrade your project as listed above.

sl.rtview.cmd_line=-rtvapm_packages:pck
sl.rtview.cp=%RTVAPM_HOME%/pck/lib/rtvapm_pck.jar

# CI Type Defs
ConfigCollector.sl.rtview.xml.xmlsource=rtvconfig.pck.xml 0 rtvconfig.pck.xml 0 1
ConfigCollector.sl.rtview.cache.config=rtv_config_cache_source_xml.rtv $package:pck

# Navigation
uiprocess.sl.rtview.xml.xmlsource=pck_navtree.xml 0 pck_navtree.xml 0 1
uiprocess.sl.rtview.xml.xmlsource=pck.navinfo.xml 0 pck.navinfo.xml 0 1
uiprocess.sl.rtview.cache.config=rtv_tabtree_cache_source_comp.rtv $package:pck

Are not using standard RTView Enterprise Monitor run scripts

If you are not using the standard RTView Enterprise Monitor run scripts, no changes are required if you did not upgrade your project as described above. However, we encourage you to upgrade your project to make it easier to merge changes to the **central.properties** file in the future. Look at the changes in **common\bin\rtvapm_common.bat/sh** and apply the same changes to your custom scripts. These scripts have been enhanced to look for **rtvapm_reference** in the **rtview.properties** file and, for all found, to add the **RTVAPM_HOME\pck\conf\rtvapm.pck.ref.properties** file to the command line.

EM 3.0

Users upgrading projects that were created prior to EM 3.0.x must to do the following to get the new navigation framework:

1. Merge the following properties from the new **emsample/servers/central/central.properties** into your central.properties file:

- Everything in the NAVIGATION section:

##

NAVIGATION

# list of solution packages to include on the components tab in the order they should be shown within each Tech/Vendor
uiprocess.sl.rtview.sub=$rtvPackages:wls,wsm,jbossmon,tomcat,bwmon,bw6mon,emsmon,tasmon,tbemon,ocmon,mqmon,oramon,db2mon,hawkmon,jvm,rtvprocs,hostbase,vmwmon,acwmon,solmon,uxmon

```
# list of Technologies in the order they should be shown
uiprocess.sl.rtview.sub=$rtvTechs:'Application / Web
Servers,Middleware,Databases,Processes,Hosts / VMs,Connectors,Other'

# list of Vendors in the order they should be shown
uiprocess.sl.rtview.sub=$rtvVendors:'TIBCO,Oracle,IBM,Open Source,Other'

# CUSTOM tab
uiprocess.sl.rtview.xml.xmlsource=custom_views_navtree.xml 0 custom_views_navtree.xml
0 1
uiprocess.sl.rtview.cache.config=rtv_tabtree_cache_source.rtv
$rtvNavTreeFilename:custom_views_navtree.xml $rtvNavTabName:Custom
```

- Everything under Navigation in the Solution Package sections for each Solution Package you are using. For example, this is the Navigation section for emsmon:

```
# Navigation
uiprocess.sl.rtview.xml.xmlsource=emsmon_navtree.xml 0 emsmon_navtree.xml 0 1
uiprocess.sl.rtview.xml.xmlsource=emsmon.navinfo.xml 0 emsmon.navinfo.xml 0 1
uiprocess.sl.rtview.cache.config=rtv_tabtree_cache_source_comp.rtv $package:emsmon
```

2. Copy the following files from the new **emsample/servers/central** directory to your project directory:

- **custom_view.rtv**
- **custom_views_dir.rtv**
- **rtv_custom.xml**
- **custom_views_acc.rtv**
- **custom_views_navtree.xml**
- **rtv_appmon_panels.xml**

3. In your **project directory/webapps** directory, run **update_wars** to rebuild the war file and redeploy **emsample.war** to your application server.

4. If you have added custom nodes to **rtv_appmon_navtree.xml** in your projects, replace the nodes in **custom_views_navtree.xml** with your custom nodes. Your custom nodes will show up on the **CUSTOM** tab in the new navigation framework. See "Modify the CUSTOM Tab" on page 78 for details about configuring the **CUSTOM** tab.

Users upgrading custom Solution Packages created prior to EM 3.0.x must do the following in order to include their Solution Package displays on the Components tab:

1. Create a new XML file named **<package>.navinfo.xml** file where **<package>** is the same prefix you used in your **navtree.xml** file. This file defines the Heading, Technology and Vendor to use in the **Components** tree. See the R**TVAPM_HOME/projects/emsample/custom/src/rtfiles/custom.navinfo.xml** for an example of how to use it.

2. If your Solution Package does not contain a **navinfo.xml**, create named **<package>_navinfo.xml** with the Solution Package nodes you previously added to **emsample/servers/central/rtv_appmon_navtree.xml**.

3. Add your Solution Package package name to this line in **central.properties** (the same value as **<package>** in Steps 1 and 2:

```
# list of solution packages to include on the components tab in the order they should be shown within each Tech/Vendor
uiprocess.sl.rtview.sub=$rtvPackages:wls,wsm,jbossmon,tomcat,bwmon,bw6mon,emsmon,tasmon,tbemon,ocmon,mqmon,oramon,db2mon,hawkmon,jvm,rtvprocs,hostbase,vmwmon,acwmon,solmon,uxmon
```

4. If the **navinfo.xml** file created in Step 2 contains a Technology or Vendor that is not already in the following properties in **central.properties**, add them:

```
# list of Technologies in the order they should be shown
uiprocess.sl.rtview.sub=$rtvTechs:'Application / Web Servers,Middleware,Databases,Processes,Hosts / VMs,Connectors,Other'

# list of Vendors in the order they should be shown
uiprocess.sl.rtview.sub=$rtvVendors:'TIBCO,Oracle,IBM,Open Source,Other'
```

See "Creating Custom Solution Packages" on page 1329 for more information.

EM 2.3

The size of the CIName column was increased from 50 to 255 characters to account for large CI Names being included in the CMDB database table.

Follow the alter table sql sentence to apply to your supported DB platform(s).

DB2:

```
ALTER TABLE "RTVCMDB"
ALTER COLUMN "CIName" SET DATA TYPE VARCHAR(255);
```

Oracle:

```
ALTER TABLE "RTVCMDB"
MODIFY "CIName" VARCHAR2(255) NOT NULL;
```

SQL Server:

```
ALTER TABLE [RTVCMDB]
ALTER COLUMN [CIName] VARCHAR(255)
```

MySQL:

```
ALTER TABLE "RTVCMDB"
MODIFY "CIName" VARCHAR(255);
```

SyBase:

```
ALTER TABLE "RTVCMDB"
MODIFY "CIName" VARCHAR(255) NOT NULL
```

EM 2.0

Key Metrics

Key Metrics (KM) is a new feature added in RTView Enterprise Monitor 2.0.0 that allows users to see how close a metric is approaching its threshold over a period of time. This allows you to both proactively anticipate "Key Metrics Views" performance problems BEFORE the alert threshold is crossed as well analyze the circumstances that led up to error conditions AFTER you got an alert. For details, see "Key Metrics Views".

When upgrading from previous releases, perform the following steps to add KM to your project:

1. Add the following to the **rtview.properties** file in your central directory (In **emsample**, **servers\central\rtview.properties**):

 # Include km package

rtvapm_package=km

2. Add the following to your navigation tree (in **emsample**, **servers\central\ rtv_appmon_navtree.xml**):

```
<node label="Key Metrics Views" mode="" display="rtv_dir_km">
      <node label="Service KM Heatmap" mode="" display="rtv_km_current_heatmap"/>
      <node label="Service KM Table" mode="" display="rtv_km_current_table"/>
      <node label="Service KM History" mode="" display="rtv_km_history_heatmap_sh"/>
     <node label="Service KM History (Alt)" mode="" display="rtv_km_history_heatmap"/>
</node>
```

EM 1.5.0.0

Metric Explorer

The Metric Explorer (MX) is a new feature added in RTView EM 1.5.0 that allows end-users to create custom dashboards. For details, see "Metric Explorer" on page 186. To add MX to your existing application, perform the following steps:

1. Add the following to the **rtview.properties** file, located in the directory where you are running the Central RTView Enterprise Monitor servers: **rtvapm_package=mx**

2. Add the following to your navigation tree:

```
<node label="Metric Explorer" mode="" display="mx_dir">
 <node label="Metric Explorer" mode="" display="rtv_mx_view"/>
</node>
```

3. Add the RTVMX database as described in Steps 2 and 4 in "Configure Databases of the Central Servers" on page 49.

EM 1.3.0.0

Alert Notifications

In previous releases, alert notifications were executed in the Solution Package Data Servers, but now notifications are done centrally. In order to support this, the following properties from **rtvapm\common\conf\rtvapm.properties** have been removed or replaced. If you have modified any of these properties in **rtvapm\common\conf\rtvapm.properties** or overridden them in your properties file, you will need to make the following modifications:

- **sl.rtview.alert.alertcommand** - use **sl.rtview.notifiercommandnew** instead. Also set the same value on the sl.rtview.**notifiercommandfirstsevchange** property if you want to receive a notification the first time the severity changes on an alert. If you do not want to receive notifications the first time the severity changes on an alert, set **sl.rtview.notifiercommandfirstsevchange** to a blank value.
- **sl.rtview.alert.renotficationcommand** - This property is no longer supported.
- **sl.rtview.alert.renotificationmode** - This property is no longer supported.
- **sl.rtview.alert.renotficationtime** - This property is no longer supported.
- **sl.rtview.alert.renotifyonsevchangedmode** - This property is no longer supported. This property previously defaulted to **1**. If you set it to **0**, set the **sl.rtview.notifiercommandfirstsevchange** to a blank value. If you set it to **1**, set the **sl.rtview.alert.notifiercommandfirstsevchange** to the same value as **sl.rtview.notifiercommandnew**. With this configuration, you will get a notification the first time the Severity changes. If you want to be notified every time the Severity changes, use the **sl.rtview.alert.notifiercommandchanged** property and set **sl.rtview.alert.notifiercolumns** to **Severity**.
- **sl.rtview.alert.commentcommand** - This property is no longer supported. To receive notifications when the comment changes, set the **sl.rtview.alert.notifiercommandchanged** to the value you previously used for the **commentcommand** property. Set the **sl.rtview.alert.notifiercolumns** property to **Comments**.
- **sl.rtview.alert.alertclearedcommand** - This property is no longer supported. Use the **sl.rtview.alert.notifiercommandcleared** property instead.

CHAPTER 2 Configuration and Deployment

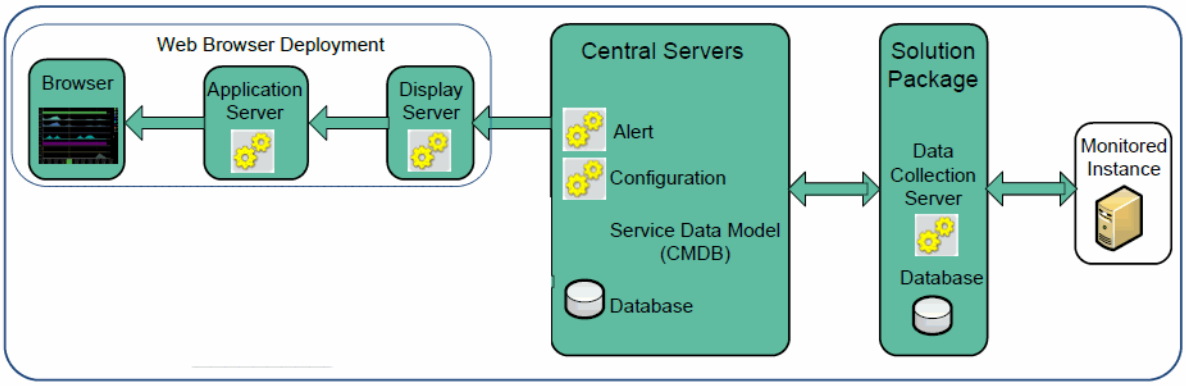
This section describes how to configure RTView Enterprise Monitor. This section includes:

Overview

This section summarizes how you configure RTView Enterprise Monitor. This section includes "Basic Steps," next.

For the most part, you configure RTView Enterprise Monitor by using the "RTView Configuration Application". Some Solution Packages are configured via properties file instead. The following figure illustrates the main functional RTView Enterprise Monitor components. In this figure, the components are situated where they might reside when multiple machines are used in a production environment. Lines connecting the rectangles indicate the components are connected in a production environment. Green indicates the component is a subject of the current configuration steps, white indicates the component is not.

For example, this Configuration section does not address the application server, nor the Monitored Instance, therefore they are white.



Note that for best performance in a production environment, the Data Collection Server resides close to the data sources (Monitored Instances).

The term *server* refers to a Java process (not a physical machine). And the Web Browser Deployment requires an application server and a Display Server.

Basic Steps

Some of the configuration steps described here are required (where noted) and others are optional.

Project Directory

These instructions are executed in the project directory, **RTViewEnterpriseMonitor/emsample**.

- **Step 1 (required):** "Configure Central Servers"**.** This section describes how to configure the Central Servers. At the conclusion of these steps you will have access to RTView Enterprise Monitor displays via Web browser. The displays will contain JVM monitoring data for RTView Enterprise Monitor processes, gathered by the RTView Manager Solution Package that comes with RTView Enterprise Monitor. The displays will not yet contain monitoring data for other Solution Packages. This Step is required.
- **Step 2 (required):** "Configure Solution Package Projects". This section describes how to configure a Solution Package for RTView Enterprise Monitor. At the conclusion of these steps your Solution Package-specific displays will contain monitoring data from the Solution Package. This Step is required.
- **Step 3 (optional):** "Configure Service Data Model"**.** This section describes how to configure the RTView Enterprise Monitor Service Data Model. At the conclusion of these steps you will have a "single-pane-of-glass" view in which data from your Solution Packages are visible in all relevant RTView Enterprise Monitor displays. This Step is optional.
- **Step 4 (optional):** "Configure Databases of the Central Servers"**.** This section describes how to setup a production database. At the conclusion of these steps your RTView Enterprise Monitor deployment will use the production database rather than the default HSQLDB database. This Step is optional.
- **Step 6 (optional):** "Configure User and Role Management"**.** This section describes how to setup user access control for RTView Enterprise Monitor. At the conclusion of these steps defined roles will determine user access to your RTView Enterprise Monitor deployment. This Step is optional.
- **Step 7 (optional):** "Configure High Availability"**.** This section describes how to configure high availability for RTView Enterprise Monitor. At the conclusion of these steps your HA configuration will prevent the loss of data and alerts in the event of a failover. This Step is optional.

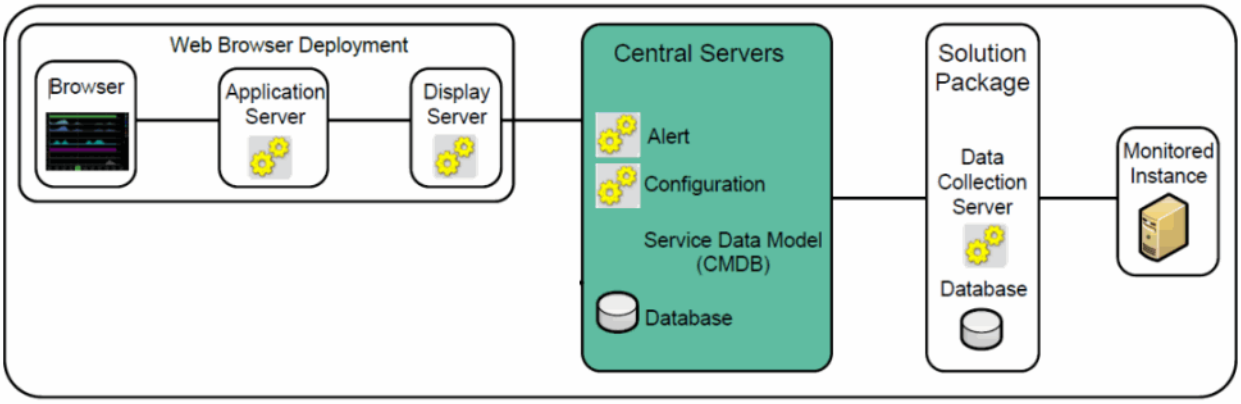
Optionally, also see:

- **Step 8 (optional):** "Alert Configuration"**.** This section describes how to configure alert behavior such as alert notification, as well as the RTVRULES Solution Package. This Step is optional.
- **Step 9 (optional):** "User Interface Configuration"**.** This section describes how to configure the RTView Enterprise Monitor user interface. This Step is optional.

Configure Central Servers

This section describes how to configure the Central Servers. These instructions assume you installed the RTView Enterprise Monitor platform. When you have finished this part of the RTView Enterprise Monitor Configuration, the client will have access to RTView Enterprise Monitor displays via Web browser. The displays will contain JVM monitoring data for RTView Enterprise Monitor processes, gathered by the RTVMGR Solution Package that comes with RTView Enterprise Monitor. The displays will not yet contain monitoring data for other Solution Packages. This Step is required.

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



At this point you have:

- Verified "System Requirements".
- Completed instructions in "Installation" for the RTView Enterprise Monitor.

To configure the Central Servers:

- "Start the Central Servers"
- "Open the Central Servers Project"
- "Choose Solution Package Data Servers"

Start the Central Servers

To start the Central Servers:

1. Set the JAVA_HOME environment variable to the location of your Java installation.
2. Execute the **start_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, to start the Central Servers.

   Note: If you encounter error messages, execute the **validate_install.bat/sh** script. For details, see "RTView EM Scripts".
3. Execute the **start_data_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, to start the Data Servers.
4. Point a browser to the RTView Enterprise Monitor:

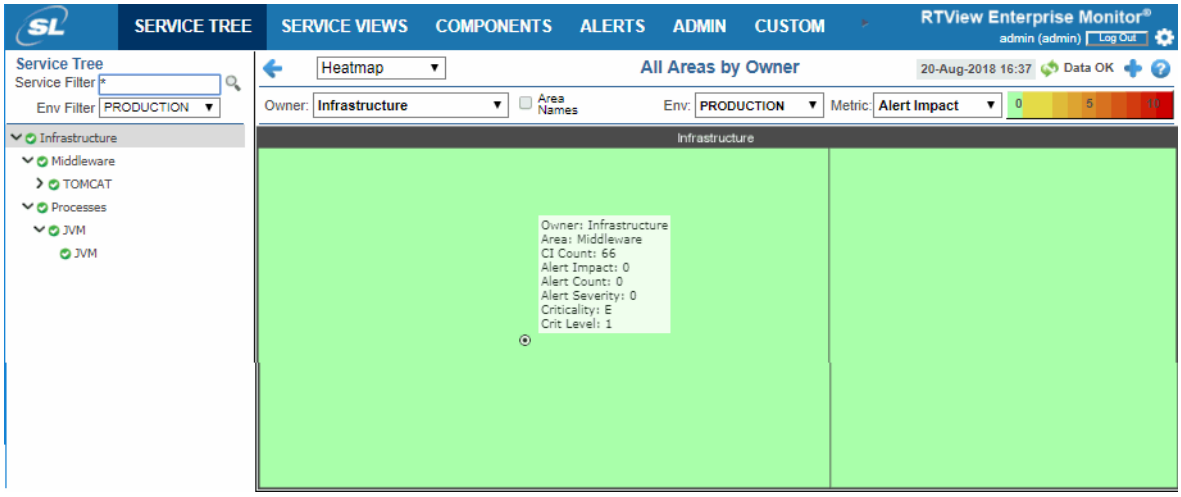
http://localhost:8068/emsample

The RTView Enterprise Monitor Login dialog opens.

5. Login:

User: **admin**
Password: **admin**

The **SERVICE TREE** tab **All Areas by Owner** display opens by default.

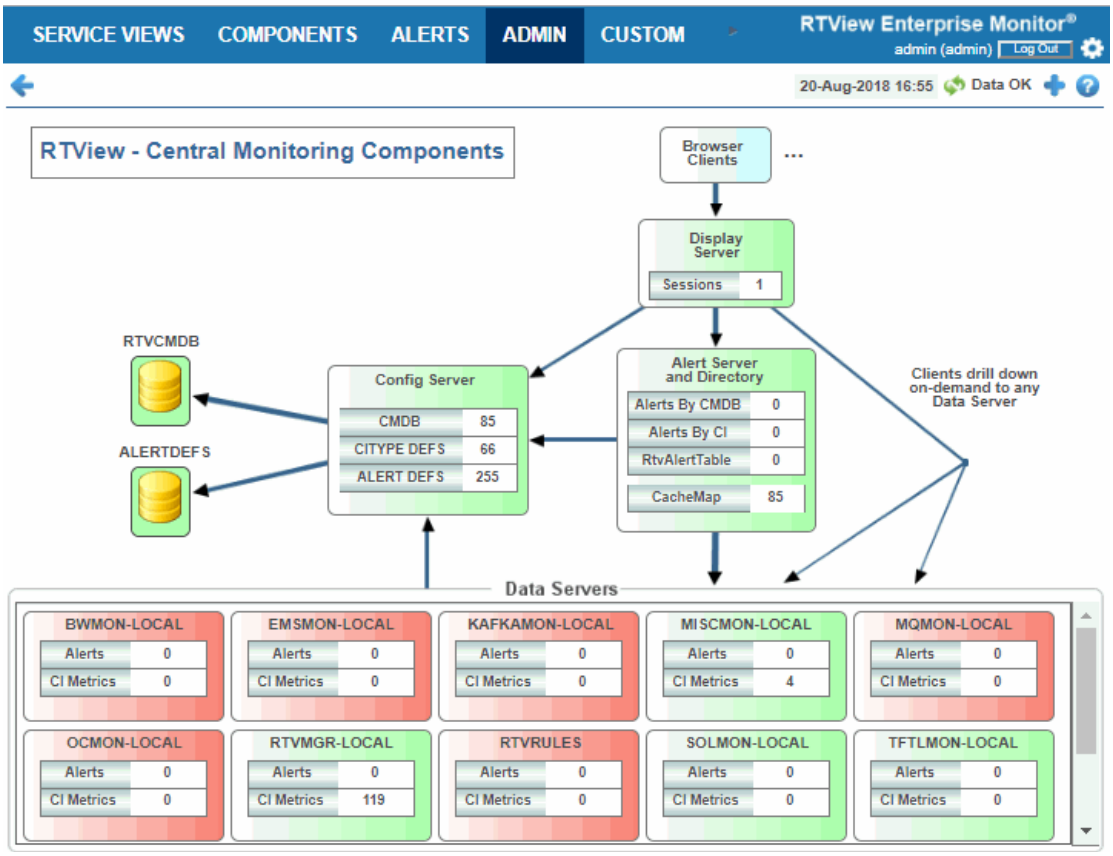


6. Verify that the **JVM Process** displays are populated with data by selcting **Processes/JVM** in the navigation tree (left panel). At this point the default CMDB database structure and a single Owner, **Infrastructure**, are shown.

Note: The Solution Package for RTView Server Manager, which monitors RTView applications and collects JVM data, is preconfigured and enabled by default.

7. Select the **ADMIN** tab (in title bar), select **Architecture/**"System Overview" in the navigation tree (left panel) and confirm that the following objects are green (indicating the processes are running):

- **Configuration Server**
- **Alert Server**
- **Display Server**
- Each data server that has a corresponding Solution Package installed



Open the Central Servers Project

Do the following to open the Central Servers project in the RTView Configuration Application:

1. In the RTView Enterprise Monitor, click the cogwheel (title bar, right side) to open the RTView Configuration Application.

Note: The cogwheel is only visible if you are logged in as an adminministrator. Also, you might need to disable your browser popup blocker. If you are not logged in as an adminministrator or cannot disable your popup blocker, open the RTView Configuration Application at the following URL:

http://localhost:8068/emsample_rtvadmin

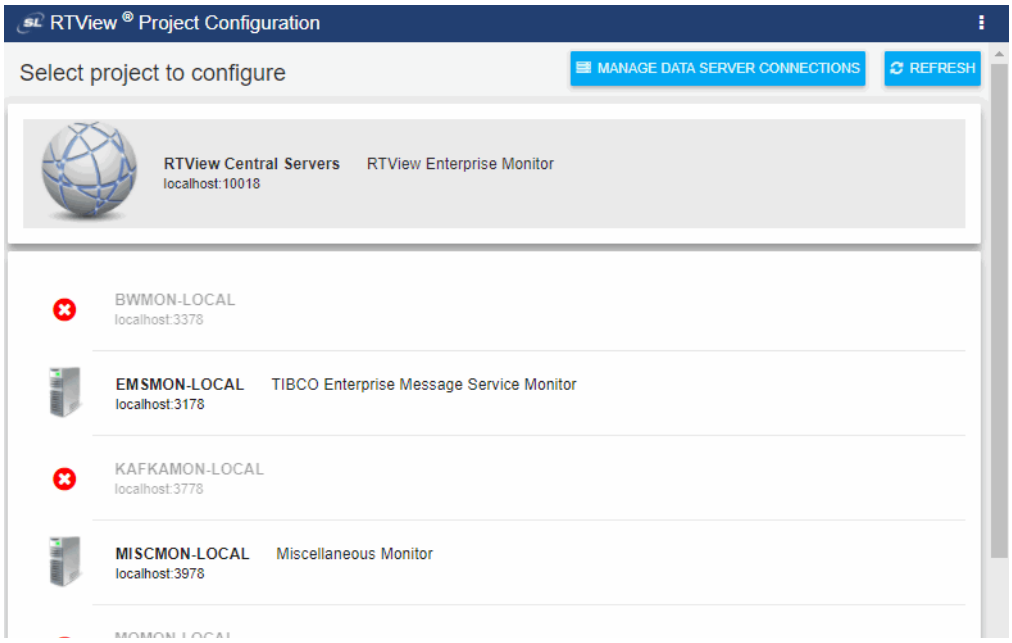
Login:

User: **rtvadmin**

Password: **rtvadmin**

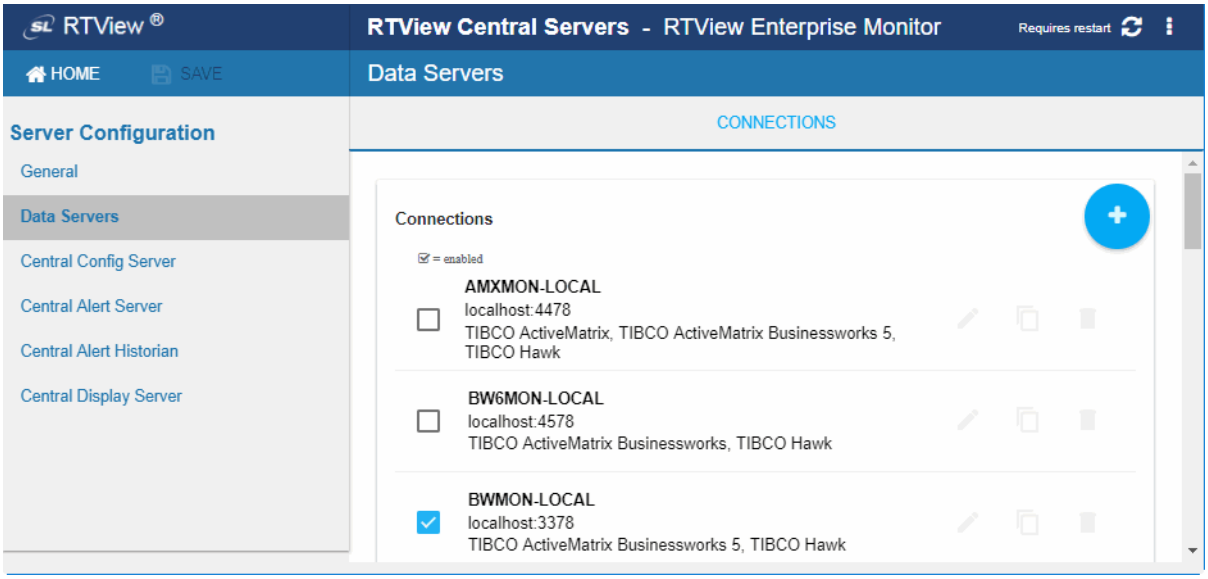
The RTView Configuration Application **HOME** page opens.

Note: The **HOME** page is where you select the project you wish to configure and also to restart data servers to apply your settings.



2. Select **RTView Central Servers** (at top) to open the **RTView Central Servers** configuration page.

   LINUX Users Tip: LINUX users might see inconsistently aligned labels in displays. To resolve inconsistently aligned labels in displays: Select **Display Server** in the navigation tree (left panel) and turn on **Enable Cross Platform Fonts**.



Tip: Click HOME (in title bar) to return to the **HOME** page.

Choose Solution Package Data Servers

To disable undesired Solution Package data servers:

1. "Open the Central Servers Project", select **Data Servers** in the navigation tree and uncheck each data server checkbox ☑ that you don't need. (The **COMPONENTS** tab in the Monitor only includes displays for Solution Packages in enabled Solution Package servers, so disabling those you don't want removes uneeded displays from the **COMPONENTS** tab.)

   For example, in the previous figure the first two data server connections are disabled and the third is enabled.

2. SAVE your changes, then click HOME to return to the **HOME** page and verify that the solution package data servers you unchecked are shown as disabled.

3. Open the **rtvservers.dat** file, located in the **RTViewEnterpriseMonitor/emsample/servers** directory, and locate a Solution Package Server(s) you wish to enable. Uncomment (delete the **#**) on the Data Server line for each of the Solution Package Servers you left enabled in the Data Servers list you just edited. For example, to enable the Solution Package Server for TIBCO EMS we uncomment the highlighted section in the following figure.

   If you would like to store history for this Solution Package Project, also uncomment the historian line.

```
### EMSMON
#
emsmon          ./emsmon        dataserver      rundata
#emsmon         ./emsmon        historian       runhist -ds
```

4. Save the **rtvservers.dat** file.

5. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

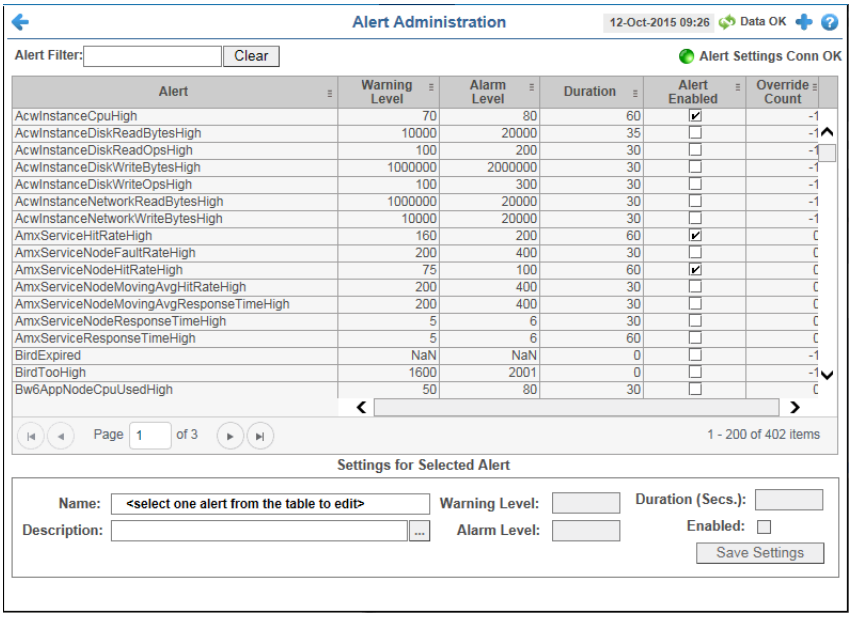
6. Execute the **start_data_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, to start all of the Solution Package Data Servers.

7. Click HOME to return to the RTView Configuration Application **HOME** page and verify that the only servers shown are those you left enabled in the Data Server list and that they are all connected.

8. In the RTView Enterprise Monitor **Architecture -** "System Overview" display, verify that the enabled servers are shown as connected.

To summarize the current state of your RTView Enterprise Monitor deployment, the:

- RTVMGR-LOCAL Data Server is green and receiving JVM monitoring data from RTView Enterprise Monitor processes, as indicated by the non-zero value in the **CI Metrics** field.
- Data Servers that are green indicate they are running. However, they are not yet receiving monitoring data, as indicated by the zero (**0**) value in the **CI Metrics** field. When you connect these Data Servers to their respective Monitored Instances, the **CI Metrics** fields will change to positive numbers.
- **Administration** - "Alert Administration" display (as shown in the following figure) contains default alerts for all installed Solution Packages. The alerts are not yet enabled. Alerts are activated after you connect RTView Enterprise Monitor to your production Data Servers and enable the alerts.



This step completes validation of your Web Deployment.

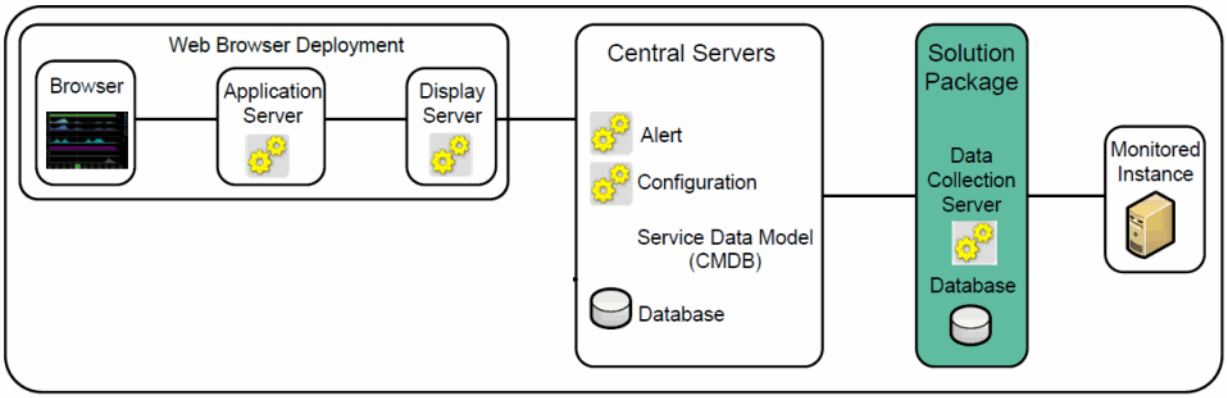
Proceed to "Configure Solution Package Projects".

Configure Solution Package Projects

This section describes how to configure a Solution Package for RTView Enterprise Monitor. When you have finished this part of the RTView Enterprise Monitor configuration, your Solution Package-specific displays will contain monitoring data from the Solution Package Data Collection Server. This Step is required.

This section includes "Optional Additional Configurations" on page 35.

The following figure illustrates the RTView Enterprise Monitor component that is the subject of this section: the Solution Package.



At this point you have:

- Verified "System Requirements".
- Completed instructions in "Installation" for the RTView Enterprise Monitor.
- Completed instructions in "Configure Central Servers".
- Configured a local RTView Enterprise Monitor deployment. That is, displays such as the **All Management Areas -** "Area Heatmap" are populated with JVM data from RTView Enterprise Monitor servers and the CMDB database (which has only the default Owner, **Infrastructure**).

To configure a Solution Package Project:

- "Open the Solution Package Project"
- "Add Connections"

Open the Solution Package Project

1. In the RTView Enterprise Monitor, click (upper right) to open the RTView Configuration Application login page.

Note: The icon is only visible if you are logged in as admin. You also might need to disable your browser popup blocker. If you are not logged in as admin or cannot disable your popup blocker, open the RTView Configuration Application at the following URL:

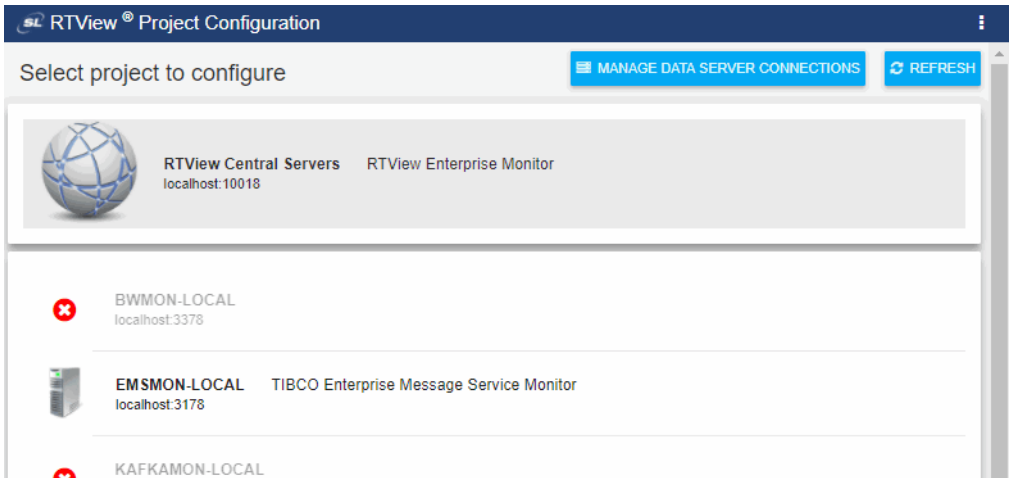
http://localhost:8068/emsample_rtvadmin

2. Login:

   User: **rtvadmin**

   Password: **rtvadmin**

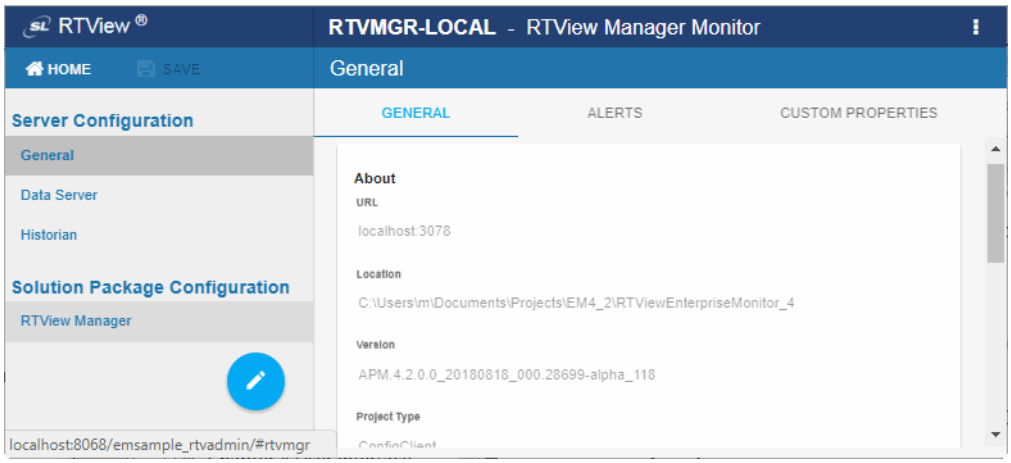
The RTView Configuration Application **HOME** page opens.



3. Scroll down and select the project you want to configure.

If this message appears: "This solution package is not configurable in this application", see the **Configuration Parameters You Need** and **Properties File Configuration** sections in the chapter for that Solution Package, then return here.

The configuration page for the project you selected opens.

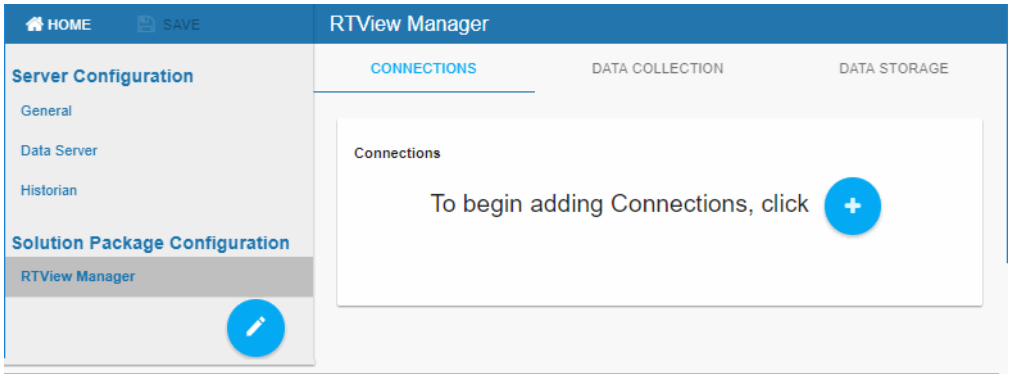


Tip: Click HOME (in title bar) to return to the **HOME** page.

4. Under Solution Package Configuration in the navigation tree (left panel), select the project you wish to configure.

Add Connections

1. "Open the Solution Package Project" and select your solution package project in the navigation tree (left panel). For our example we select RTView Manager, as shown in the following figure. The solution package **CONNECTIONS** tab opens by default.



2. In the **CONNECTIONS** tab, enter the path to the directory containing the jars for your Solution Package in the **Classpath** field.

   Note: Some Solution Packages do not have a **Classpath** field (as shown above for RTView Manager). If this is the case skip this step.

3. Click  to add a connection. The connection fields vary for different Solution Packages. See the **Configure Data Collection** section in the chapter for your Solution Package if you need information on how to fill out these fields. Fill in the connection fields and click **SAVE** to close the connection dialog.

   Repeat for each connection you want to add.

4. When you finish adding connections 

(in title bar) your changes, then click 

to return to the HOME page.

5. Repeat the previous steps for each Solution Package Server you want to configure.

6. Execute the **stop_data_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_data_servers** script to restart all of your Solution Package Data Servers.

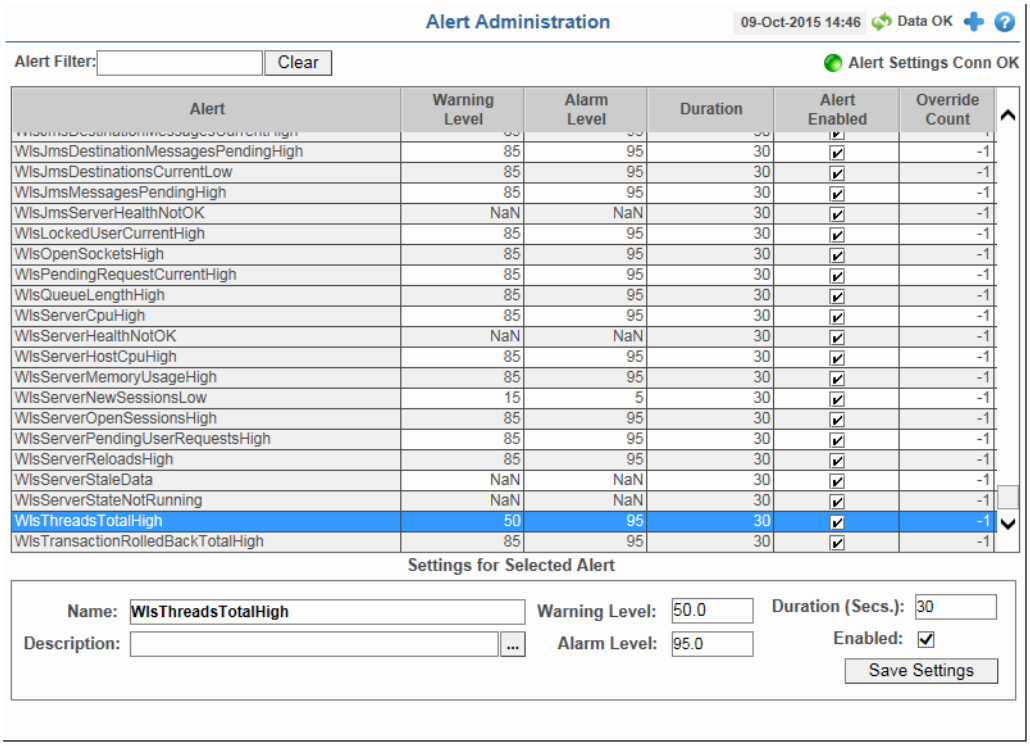
   Note: If you encounter error messages, execute the **validate_install.bat/sh** script. For details, see "RTView EM Scripts".

7. Open the **Administration** - "Alert Administration" display and locate alerts for your Solution Package Data Server. They all start with **AlertPrefix**. For example, the WebLogic alert prefix is **Wls**.

   a. Identify an alert for your Solution Package that is likely to activate and set the alert **Warning Level** to zero (**0**) and the **Alarm Level** to ten (**10**). This ensures the alert thresholds are exceeded and you can verify your Solution Package configuration. For example, for WebLogic we set the **WlsThreadsTotalHigh** alert **Warning Level** to zero (**0**) and the **Alarm Level** to ten (**10**). Keep in mind that eventually your alert thresholds should be changed to more meaningful values within your system.

   b. Select **Enabled** to enable the alert.

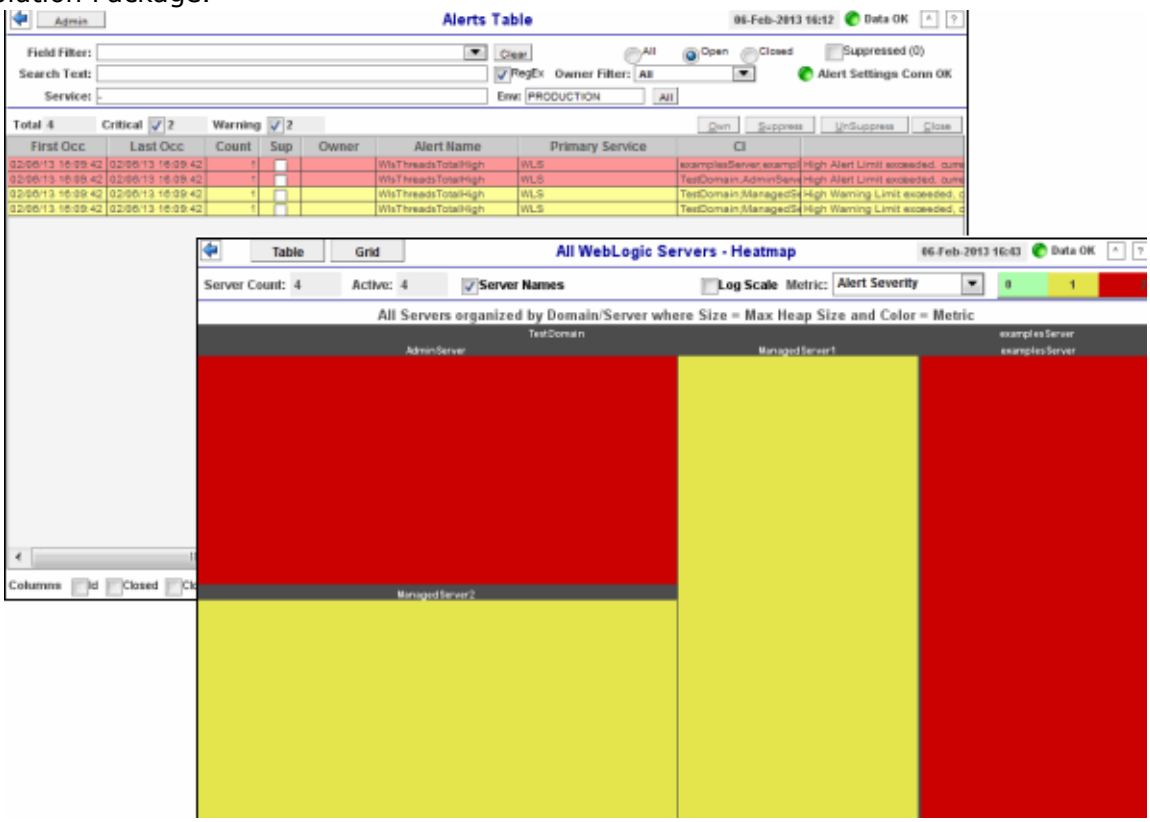
   c. Click **Save Settings** and **OK**.



d. Open the **Alert Views -**"RTView Alerts Table" display and verify you see warning alerts for the alert you just modified and enabled. For example, when the WebLogic thread count goes above zero (**0**) and above ten (**10**) the **WlsThreadsTotalHigh** warning and alarm alerts, respectively, are activated and visible in the **Alert Views -** "RTView Alerts Table" display.

e. Open the **All Servers Heatmap** display for your Solution Package. For example, for WebLogic we open the **All (WebLogic) Servers Heatmap** display (go to **COMPONENTS Tab/Application/Web Servers/Oracle WebLogic/WebLogic Servers/All Servers Heatmap**). The heatmap contains monitored data for your Solution Package, including the status for the alert you just lowered the threshold on and enabled.

If you encounter issues, see the **Troubleshooting** section in the chapter for your Solution Package.



This completes your Solution Package configuration. Solution Package-specific displays contain monitoring data from your environment. For example, if you just configured the WebLogic Solution Package, displays such as the **All WebLogic Servers - Heatmap** are populated with data from your WebLogic servers. You do not yet see the data in displays such as the **All Management Areas -** "Area Heatmap" as the Service Data Model (CMDB) is not yet configured.

If you need a Data Server to collect Solution Package data on a system that your RTView Enterprise Monitor system cannot otherwise access, see "Configure Sender / Receiver," next.

To configure the CMDB, see "Configure Service Data Model" on page 40.

Optional Additional Configurations

This section describes the following optional Solution Package configurations:

- "Configure Remote Solution Package Project":
- "Configure Sender / Receiver," next: This type of deployment is useful in cases where you need a Data Server to collect Solution Package data on a system that your RTView Enterprise Monitor system cannot otherwise access.

If you do not need these configuration options, proceed to "Configure Service Data Model" on page 40.

Configure Remote Solution Package Project

This section describes how to install, configure and run the RTViewDataServerSP deliverable for use with RTView Enterprise Monitor.

Multi-Machine Installations

If you would like to distribute your RTView Enterprise Monitor across multiple systems, extract and install the RTView Enterprise Monitor onto the system where you will run the Central Servers. Then install one or more RTViewDataServerSP deliverables on any additional system(s) where you would like to run a Solution Package project which includes a Data Server to collect Solution Package data and an optional Historian to store data.

Installation

The SL Download Center provides access to the RTView Enterprise Monitor via **.zip** file, **RTViewDataServerSP _<version>.zip**. To install the RTViewDataServerSP, download the archive and extract the file.

Configure the Solution Package Project For RTView Enterprise Monitor

These steps are performed on the system where you installed the RTViewDataServerSP.

1. Set the JAVA_HOME environment variable to the location of your Java installation.

2. Open **RTViewDataServerSP/projects/project-common/rtvservers.dat** in a text editor and add **-propfilter:ConfigClient** to the end of the data server and historian lines as follows:

default . dataserver rundata -propfilter:receiver **-propfilter:ConfigClient**
#default . historian runhist -ds -**propfilter:ConfigClient**

3. If you want to use the Historian to store your Solution Package data to a database, uncomment the historian line by removing the **#** at the beginnning of that line.

4. Save **RTViewDataServerSP/projects/project-common/rtvservers.dat**.

5. Execute the **start_server** script located in the **RTViewDataServerSP** directory. This will start a Solution Package Data Server on port **3278** with Jetty Eclipse on port **3270**. If these ports conflict with other processes running on your system, you can change the first 2 digits of the ports with the **-portprefix:** command line argument.

6. Open a browser to **http://localhost:XX70** to open the "RTView Configuration Application" and login as **rtvadmin**/**rtvadmin** where **XX** is **32** if you did not change the port prefix in the previous step or the port prefix you specified in the previous step. Select the **RTView Server** project. In the **General** (in the navigation tree)-**>GENERAL** tab, fill in the **Display Name** and **Description**. These will be used to identify this project when you connect to it from the RTView Central Servers. If you changed the port in the previous step, go to the **General->GENERAL** tab and enter the **Port Prefix** so that you do not need to specify it on the command line every time you run.

7. Click the pencil icon in the navigation bar to add the Solution Packages you want to run in this Data Server project. Click **Save** to close the Solution Packages dialog.

8. Click 

to save your changes and 

to return to the **HOME** page.

9. Execute the **stop_server** script, located in the **RTViewDataServerSP** directory, followed by the **start_server** script to restart the Data Server. This is needed to apply the changes you just made in the RTView Configuration Application.

Connect to the Solution Package Project from Enterprise Monitor

These steps are performed on the system where you are running the Enterprise Monitor Central Servers. They assume you have already installed and configured the Central Servers.

1. "Open the Central Servers Project" and select **Data Servers** in the navigation tree (left panel). The **CONNECTIONS** tab opens.

2. Click  to add a new data server connection and fill in the fields as follows:

- **Name** - The name to use for the Data Server connection. This must be unique.
- **URL** - The URL to connect to the Data Server. This can either be in the form host:port or in the form **http://host:port/rtvdata**. By default, RTViewDataServerSP hosts the rtvdata servlet in Eclipse Jetty. You can access it at **http://host:XX70/rtvdata** where host is the name of the host where you are running the RTViewDataServerSP project and **XX** is either **32** or the alternative port prefix you configured.
- **Connection Enabled** - set to true
- **Solution Packages or CI Types** - If you want to include all CI Types for the Solution Packages in your Data Server, select Solution Packages. This will show the Solution Packages dialog where you can select all of the Solution Packages in your Data Server. If you want to inlucde a subset of CI Types for the Solution Packages in your Data Server, select CI Types. This will show the CI Types dialog where you can select all CI Types you want to include in your Data Server.
- **Monitor Data Server** - Check if you want to monitor this Data Server and enter the JMX host and port. The port will be **XX68** where **XX** is either **32** or the port prefix you configued.
- **Monitor Historian** - Check if you want to monitor this Historian and enter the JMX host and port. The port will be **XX67** where **XX** is either **32** or the port prefix you configued.

3. Click **SAVE** to close the **Add Connection** dialog.

4. Click 

to save your changes and 

to return to the **HOME** page.

5. Execute the **stop_central_servers** script located in the **RTViewEnterpriseMonitor/bi**n directory followed by the **start_server** script to restart the Central Servers. This is needed to apply the changes you just made in the Configuration Application. You should now see the server you just added in the **HOME** page and it should be connected.

6. Select **RTView Central Servers** which opens to the **General->COMMON** tab.

7. Under **Copy Common Configuration to Remote Servers**, select the server you just added and click **COPY**. This will copy the common properties to your RTViewDataServerSP project so that it will use the common Historian and Alert Threshold database connections.

8. Return to the system where you installed the RTViewDataServerSP project and execute the **stop_server** script located in the **RTViewDataServerSP** directory followed by the **start_server** script to restart the Data Server. This is needed to pick up the common properties you just copied.

This completes the Configure Remote Solution Package Project.

Configure Solution Package Connections and Settings

Follow the instructions under "Configure Solution Package Projects" to configure your Solution Packages.

Configure Sender / Receiver

If you wish to deploy the Solution Package as a sender/receiver configuration, continue with instuctions in this section. Otherwise, skip these steps and go to "Configure Service Data Model".

This section describes how to configure the sender/receiver deployment for a Solution Package. This type of deployment is useful in cases where you need a Data Server to collect Solution Package data on a system that your RTView Enterprise Monitor system cannot otherwise access.

The sender Data Server collects Solution Package data and stores the data in its local Solution Package caches. The sender then sends the cached data to the receiver Data Server. Note that the receiver Data Server can also be configured to collect data, and the sender does not generate alerts or store history (those occur on the receiver). You can configure a single sender to send to multiple receivers and/or multiple senders to send to a single receiver.

Note: The Solution Package for Oracle Coherence requires one sender per receiver and the receiver should not be configured to both collect and receive data.

Depending on the network architecture and accessibility of the hosts that are to execute the sender and the receiver, there are two options for sending data to a receiver Data Server:

- Connect Via Hostname or IP and Port: With this option you connect to the receiver Data Server using the host name or IP address and port number. This option requires a higher degree of accessibility between sender and receiver as the sender communicates with the receiver via a socket connection.
- Connect Via RTVAgent Servlet: With this option you connect to the receiver Data Server using the RTVAgent Servlet. This option requires an application server running in the receiver host with the RTVAgent Servlet deployed. The sender uses HTTP to send data to the receiver RTVAgent Servlet which uses a socket connection to send the data to the receiver Data Server.

Receiver Data Server Setup

These instructions assume you completed the instructions in "Configure Solution Package Projects" for the Data Server you will be using as a receiver.

1. Execute the **stop_data_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_data_servers** script to restart Solution Package Data Servers.

2. Senders can either send data to the host and port of the receiver data server or to the rtvagent server.

- If the sender(s) will connect via host and port, make note of the port prefix (on the **General** tab of the "RTView Configuration Application"). The receiver will accept sender data on port **XX72** where **XX** is the port prefix assinged in the "RTView Configuration Application". When you fill in the target url for the sender, you will use **host:XX72** where **host** is the hostname or IP address of the system where the receiver is running and **XX** is the port prefix.
- If the sender(s) will connect via rtvagent servlet, go to the receiver's "Project Directory" and run the **make_wars** script. This will generate a war file ending in **_rtvagent.war**. If you are using the preconfigured Tomcat that came with the Monitor, no further actions are needed. If you are using your own application server, install the **rtvagent** war file to your application server. When you fill in the target URL for the sender you will use **http://host:port/warfilename** without the **.war** extension where **host** is the host where the application server is running and **port** is the application server's port. For the preconfigured Tomcat that comes with the Monitor, the port is **8068**. For example **http://myhost:8068/emsmon_rtvagent**.

Proceed to "Sender Data Server Installation and Setup," next.

Sender Data Server Installation and Setup

These instructions assume that you have setup the receiver Data Server.

1. Extract the **RTViewDataCollectorSP_version.zip** file on the system where you will be running the sender. The RTViewDataCollectorSP must be the same version as the receiver.
2. Execute the **start_collector** script in the **RTViewDataCollectorSP** directory.
3. Open a browser to **http://localhost:3270/rtvadmin** and login as **rtvadmin**/**rtvadmin**.
4. Select **RTView Data Server** in the top level page.
5. In the **Project** page, click on the  to and add each Solution Package for which you would like this sender to collect data.
6. Click **SAVE**.
7. Execute the **stop_collector** script in the **RTViewDataCollectorSP** directory followed by the **start_collector** script to restart the collector.
8. Refresh the browser login page and login again as **rtvadmin**/**rtvadmin**.
9. Select **RTView Data Server** in the top level page.
10. Select the **Server Configuration**>**Data Server**>**SENDER** tab.
11. Select the **target1 Sender Target** to edit it and fill in the URL for the receiver as noted in the receiver setup.
12. **SAVE** to close the Sender Target dialog.

13. Select the first Solution Package in the navigation bar and fill in the **CONNECTIONS** tab as described in the documentation for that Solution Package. Repeat for each Solution Package in the navigation bar.

14. **SAVE** your settings.

15. Execute the **stop_collector** script in the **RTViewDataCollectorSP** directory followed by the **start_collector** script to restart the collector.

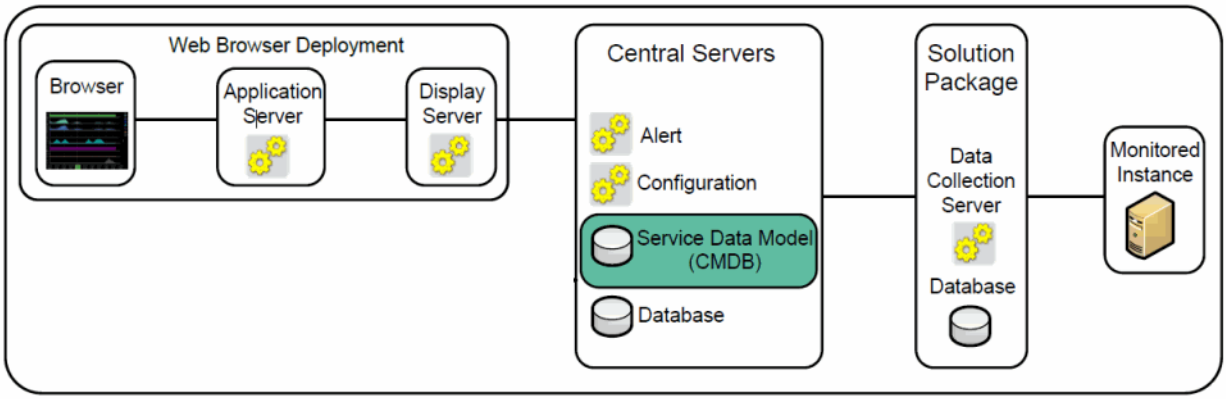
Proceed to "Configure Service Data Model" on page 40.

Configure Service Data Model

This section describes the RTView Enterprise Monitor Service Data Model (also referred to as the CMDB), and its configuration. The CMDB is a database containing the hierarchical map of associations between all Configuration Items (CIs), Environments, Services, Groups, Areas and Owners in your system. When you have finished this part of the RTView Enterprise Monitor configuration you will have a "single-pane-of-glass" view in which data from all your Solution Packages are visible in all relevant RTView Enterprise Monitor displays. When the CMDB is not configured, Solution Package data is only visible in displays that are specifically for that Solution Package.

Configuration of the Service Data Model is optional.

The following figure illustrates the RTView Enterprise Monitor component that is the subject of this section: the CMDB database.



To configure the Service Data Model you determine how the structure of your organization fits into the CMDB hierarchy, then use the **Administration - "CMDB Admin"** display to configure the CI-to-Services mapping.

This section includes:

- "Introduction to the CMDB": Describes the CMDB structure, and provides examples of how an organization's established structure can be applied to the CMDB.
- "Configuration Steps": Step-by-step CMDB configuration instructions.

Introduction to the CMDB

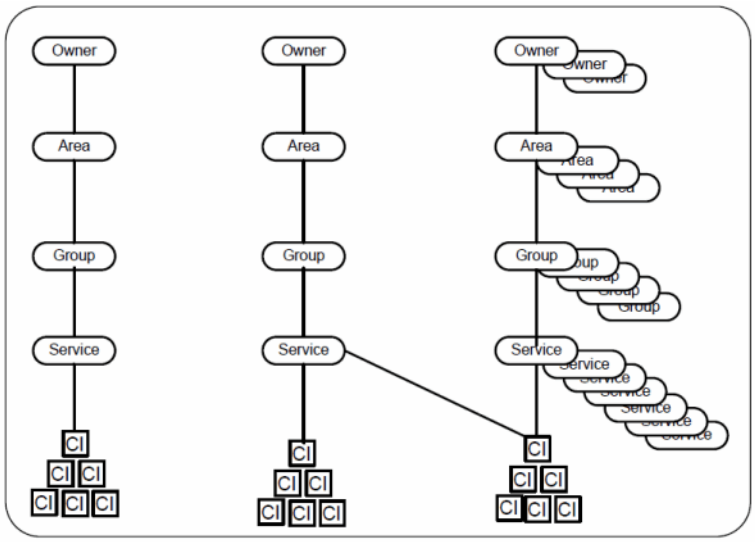
The Service Data Model, or CMDB, is an RTView Enterprise Monitor database that contains the map of all Configuration Items (CIs) in your system to each hierarchical level in the CMDB. The CMDB has four hierarchical levels which suits the monitoring needs of most organizations. The four levels are, from the highest level (Owner) to the lowest level (Service):

- Owner
- Area
- Group
- Service

When you configure your CMDB you associate each CI in your system with a Service, each Service with a Group, each Group with an Area and each Area with an Owner. These associations form the map that enables aggregation of data in RTView Enterprise Monitor displays. There is no limit on the number of associations a level can have. A Service can be associated with multiple Groups and Environments.

When you make any changes to Owners, Areas, Groups or Services the associated levels are automatically updated. For example, when you move a Group from one Area to another, all Services associated with that Group move with it, and the RTView Enterprise Monitor displays are updated.

By default, the CMDB contains a single Owner named Infrastructure. The names of the CMDB levels cannot be modified. The following figure illustrates the four hierarchical levels of the CMDB.



Infrastructure is only for the internal RTView Manager Solution Package, which monitors RTView Enterprise Monitor. Infrastructure must not be modified.

EM-SERVICE CI Type

You can also associate Services with other Services using the EM-SERVICE CI Type. The EM-SERVICE CI Type enables you to use the alerts provided by the RTVRULES Solution Package. For details, see "Configure the RTVRULES Solution Package".

Defining the CMDB

When you configure the Service Data Model you use the existing structure of your organization to do so. If your organization does not have an established structure, you need to define one relevant to your system. The manner in which you adapt your system hierarchy to the CMDB levels depends on the monitoring needs of your organization. You design the CMDB by identifying the four hierarchical levels in your organization that coincide with the four-level hierarchy in the CMDB. For example, you might:

1. Determine the Owners: Note the person or persons responsible for alerts in your organization. You might have only one Owner.

2. Determine the Areas for each Owner: The Areas are relevant to the Owner accountable for resources in the Areas. Areas might be based on departments in the organization (such as Development, Sales, HR, and so forth).

3. Determine the Groups for each Area: Groups might be comprised of, for example, the types of resources used in the Areas (such as Servers, Middleware and Processes).

4. Determine the Services for each Group: Services might be comprised of a variety of applications that are used by a given Group.

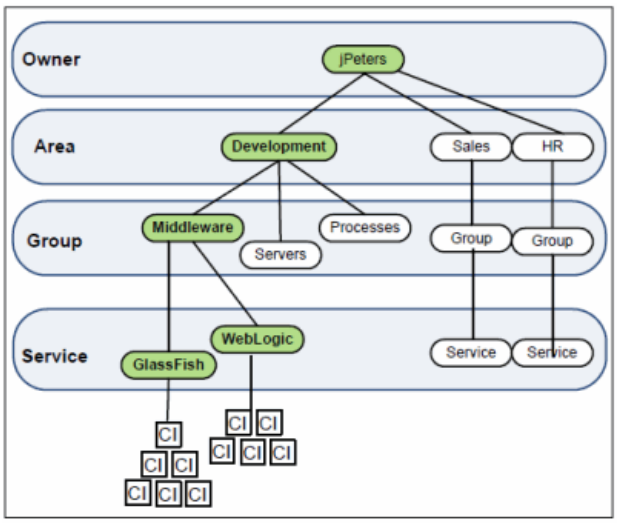
After you determine how to adapt your organization to the four levels of the CMDB, use the **Administration -** "CMDB Admin" display to map each CI to a Service, Group, Area and Owner. The name of the CI can indicate which Service you want to associate the CI with.

The CMDB automatically classifies the CIs in your system into CI Types. This classification is based on a preconfigured schema that is internal to RTView Enterprise Monitor. CI Types are determined by the role of a given CI, and the name of the CI Type describes the role. For example, a BusinessWorks application process is a BW-PROCESS CI Type, a BusinessWorks server is a BW-SERVER CI Type and an Oracle database is an ORACLE CI Type.

After you configure a Service Data Model, the automatically generated Infrastructure Service Data Model looks for matching CI's in your Service Data Model in order to set the Environment. For each CI in the automatically generated Infrastructure Service Data Model, if a matching CI is found in your Service Data Model, the Environment from your Service Data Model is used for the Infrastructure CI. If the CI is found in your Service Data Model multiple times with multiple Environments, it is added multiple times to the Infrastructure CMDB--once for each Environment in your Service Data Model for that CI. If no matching CI is found in your Service Data Model, the Environment in the Infrastructure Service Data Model is set to PRODUCTION by default. You can override the default Environment by specifying a different environment in the "RTView Configuration Application" under **RTView Central Servers>Central Config Server>CMDB>Default Environment Filter**.

Small Company Example

Typically, small companies have a single Owner. The following figure illustrates a portion of a CMDB structure in which a single Owner is accountable for three Areas (Development, Sales and HR). The Development Area has three Groups associated with it (Servers, Middleware and Processes). The items in green indicate the parts of the branch (jPeters / Development / Middleware) we configure as examples in the "Configuration Steps".



To prepare for configuring the CMDB we might list the hierarchical associations as follows:

Owner	Area	Group	Service
jPeters			
	Development		
		Middleware	WebLogic
			GlassFish

We then use this list to associate each CI in our system with a Service, Group, Area and Owner.

To see a large company example, see "Large Company Example".

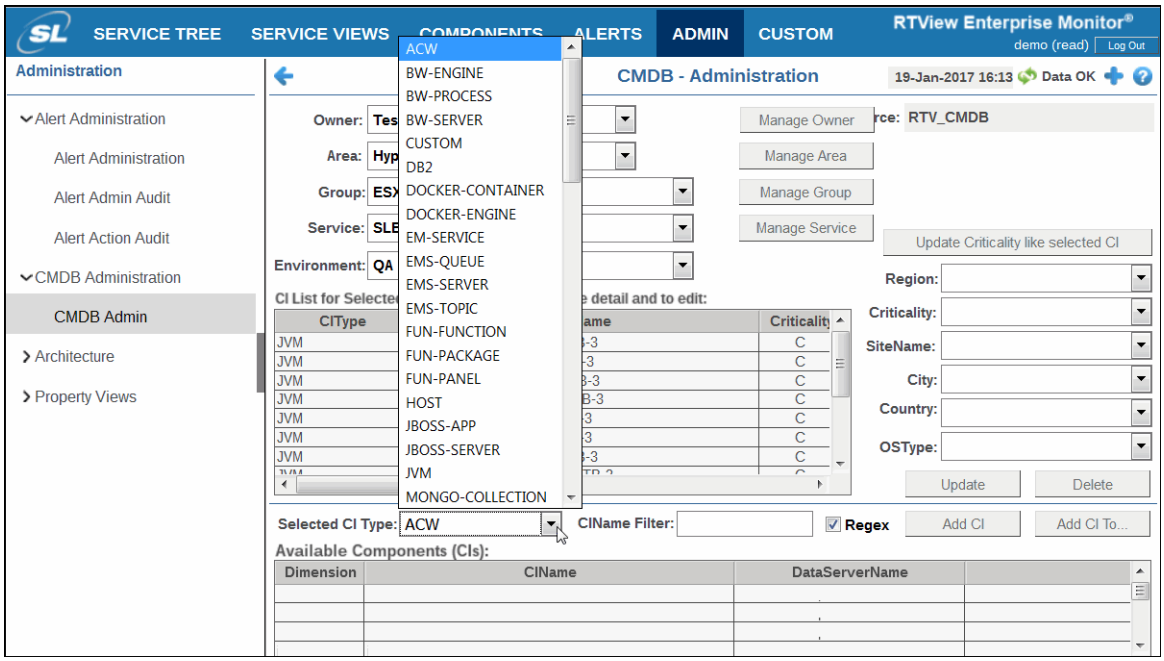
Configuration Steps

This section describes how to configure the CMDB using the **Administration -**"CMDB Admin" display and uses the "Small Company Example" to illustrate. This section assumes you have determined a structure for your CMDB configuration. For details about the CMDB structure, see "Introduction to the CMDB" on page 41. To configure the CMDB you associate each CI in your system with a Service, Group, Area and Owner. After you configure the CMDB all relevant RTView Enterprise Monitor displays will contain monitoring data from your Solution Packages. Configuration of the Service Data Model is optional. There are several ways to create the CMDB:

- Manually, using the **Administration -** "CMDB Admin" display.
- Import an existing structure from a spreadsheet or database.
- If the data is available to the Configuration Server, you can read it dynamically by populating the structure from the raw data.
- Any combination of the above.

At this point you have:

- Verified "System Requirements"
- Completed instructions in "Installation" for the RTView Enterprise Monitor platform
- Completed instructions in "Configure Central Servers"
- Completed instructions in "Configure Solution Package Projects". You have configured a local RTView Enterprise Monitor deployment and Web Browser RTView Enterprise Monitor deployment. That is, displays such as the **All Management Areas -** "Area Heatmap" are populated with JVM data from RTView Enterprise Monitor servers and the CMDB database (which has only the default Owner, Infrastructure).
- Solution Package-specific displays showing monitoring data from your environment. You do not yet see Solution Package data in displays such as the **All Management Areas -** "Area Heatmap".
- An **Administration -** "CMDB Admin" display with undefined levels and a **Selected CI Type** drop-down menu populated with CI Types available from your system, as shown in the following figure.

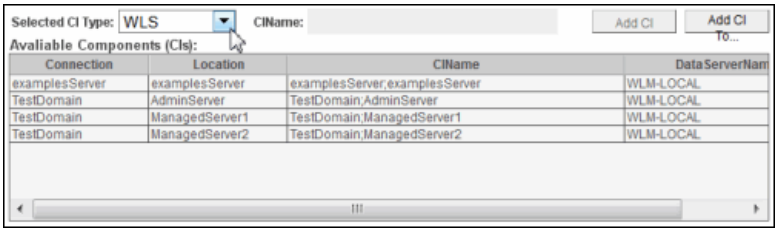


To configure the CMDB:

1. Open the **Administration** / "CMDB Admin" display.

2. Select a CI Type to configure from the **Selected CI Type** drop-down menu, located above the lower table. (The **Selected CI Type** drop-down menu is populated with installed and configured Solution Packages in your system.)

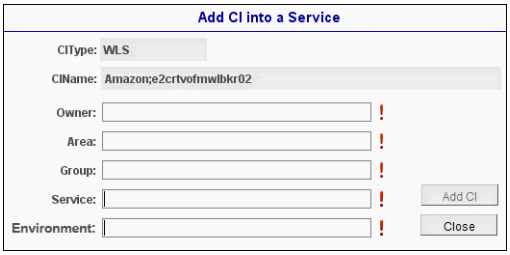
For example, to configure the **jPeters / Development / Middleware / WebLogic** branch as an example from the "Small Company Example" we select **WLS**.



The **Available Components** table populates with CIs for WebLogic.

3. Select one or more CIs from the **Available Components** table and click **Add CI To....**

Note: To determine which CIs to associate with a Service, refer to the **CIName** column. The **CIName** column contains descriptive information entered by your administrator about the CI.



The **Add CI into a Service** dialog opens.

4. Associate your selected CIs with a Service by entering the Owner, Area, Group and Service. Refer to your defined CMDB structure to determine appropriate entries. For example, to configure the **jPeters / Development / Middleware / WebLogic** branch from our "Small Company Example", we enter:

Owner: jPeters

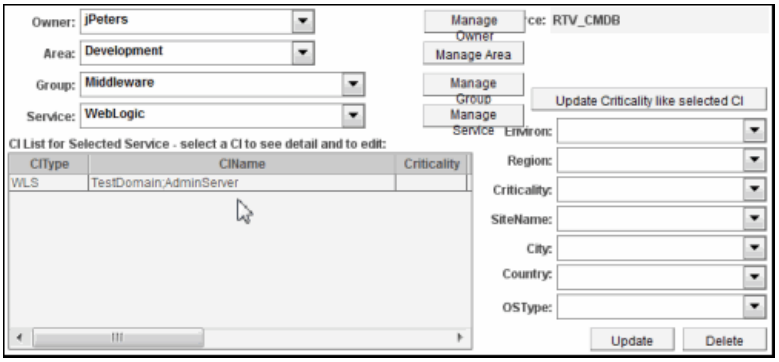
Area: Development

Group: Middleware

Service: WebLogic

Environment: PRODUCTION

5. Click **Add CI** and **OK**.



The CIs appear in the **CI List for Selected Service** table and are now associated with the new Service. The four levels are saved in the CMDB and populate the **Owner**, **Area**, **Group** and **Service** drop-down menus in the **Administration -** "CMDB Admin" display, as well as other displays.

6. Specify the rank of importance for a CI using the **Criticality** drop-down menu, where **A** is the highest importance and **E** is the lowest. Criticality is used to calculate the value for Alert Impact. For our "Small Company Example", we set the Criticality to **E**.

7. Optionally, enter the following for a CI using the remaining drop-down menus:

   Region: Optionally, enter a geographic region in which the CI resides.

   SiteName: Optionally, enter a site name in which the CI resides.

   City: Optionally, enter a city in which the CI resides.

   Country: Optionally, enter country in which the CI resides.

   OSType: Optionally, enter the operating system on the CI.

   Click **Update** to save the entries.

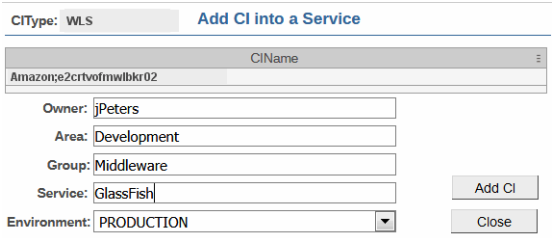
8. Associate more CIs to this Service by selecting them and clicking **Add CI**. The CIs appear in the **CI List for Selected Service** table and the CIs are now associated with the Service. Use the **Selected CI Type** drop-down menu to associate a different CI Type.

Note: To modify settings (Criticality, Environ, etc.) for a CI, select the CI, change the settings and click **Update**. To remove a CI from a Service, select the CI and click **Delete**.

---

9. Add a new Service by selecting a CI and clicking **Add CI To....** Use the **Selected CI Type** drop-down menu to locate the relevant list of CIs. For example, for our "Small Company Example" to add the GlassFish Service and associate GFS CIs, we select **GFS** from the **Selected CI Type** drop-down menu, select a CI from the **Available Components** table and click **Add CI To...**.

The **Add CI into a Service** dialog opens.



10. Make the appropriate entries and click **Add CI** and **OK**. For example, for our "Small Company Example" we make the following entries for the **jPeters / Development / Middleware / GlassFish** branch.

Owner: jPeters

Area: Development

Group: Middleware

Service: GlassFish

Environment: PRODUCTION

The CI appears in the **CI List for Selected Service** table and the GlassFish Service is in the CMDB.

11. Specify the rank of importance for the CI using the **Criticality** drop-down menu, where **A** is the highest importance and **E** is the lowest. For our "Small Company Example", we set the Criticality to **A**.

12. Optionally, enter the following for the CI using the remaining drop-down menus:

Region: Optionally, enter a geographic region in which the CI resides.

SiteName: Optionally, enter a site name in which the CI resides.

City: Optionally, enter a city in which the CI resides.

Country: Optionally, enter country in which the CI resides.

OSType: Optionally, enter the operating system on the CI.

Click **Update** to save the entries.

13. Add more CIs to this Service by selecting a CI and clicking **Add CI**. The CIs appear in the **CI List for Selected Service** table and the CI is now associated with the Service. Modify settings (Criticality, etc.) for a CI as needed and click **Update**.

14. Click **Close** to close the **Add CI into a Service** dialog.

15. Open a display, such as the **Group / Service Heatmap**, to view your entries integrated into the RTView Enterprise Monitor display.

Continuing with our "Small Company Example", we see the **jPeters** branch we configured in the display which has two Services in the Middleware Group:

Owner: jPeters

Area: Development

Group: Middleware

Service: WebLogic
GlassFish

Note: There are two rectangles in the heatmap, one for each Service. Part of the heatmap is red, indicating the **WlsThreadsTotalHigh** alert state, which is the alert we adjusted thresholds for and enabled in the previous "Configure Solution Package Projects" instructions. Recall that we set the **Criticality** level for a CI associated with the GlassFish Service to **A** (the highest rank of importance). For this reason the rectangle representing the GlassFish Service is red. The WebLogic rectangle is not red because we set the **Criticality** to **E** (the lowest rank of importance).

---

16. To enable alerts, open the **Administration** - "Alert Administration" display and locate alerts for your installed Solution Package Data Server.

Select the alerts you wish to enable for the Solution Package, optionally modify the alert **Warning Level** and **Alarm Level**, then select **Enabled**.

Click **Save Settings** and **Yes**.

17. Repeat previous steps as needed until all CIs are associated with a Service.

This completes your Service Data Model configuration. Solution Package data is visible in all relevant displays. You now have a "single-pane-of-glass" view in which data for all Solution Packages are visible in all RTView Enterprise Monitor displays. For details about using the CMDB display, see "CMDB Admin" on page 215.

Proceed to "Configure Databases of the Central Servers" on page 49.

Large Company Example

Typically, large companies have several owners that are in charge of several Areas. This example illustrates a single branch of the CMDB--the branch belonging to the IT manager: jSmith. For that branch of the CMDB, the company defines the following structure:

Owners:	jSmith rJones tSchmidt bRoberts	There are four managers in the company and they are the members of the CMDB Owner level. The IT manager is jSmith.
Area:	IT Core IT SVCS	There are two CMDB Areas associated with jSmith. The two Areas are based on expertise-based subdivisions of personnel in the company: IT Core and IT SVCS.
Group:	Core Apps SMS Core Apps WEB Core Oracle	There are three CMDB Groups associated with the IT Core branch. The three Groups are based on the three subdivisions of personnel in the IT Core Department: Core Apps SMS, Core Oracle and Core Apps WEB. The other Areas in the company might have different Groups. This example continues with the Core Oracle branch belonging to jSmith. This example does not describe the Core Apps SMS and Core Apps WEB branches belonging to jSmith.
Service:	R&D Production Web Stores	There are three CMDB Services associated with the Core Oracle Group. The three Services are based on the infrastructure Services that the company provides to its customers: R&D, Production and Web Stores. The other Groups in the company might have different Services.

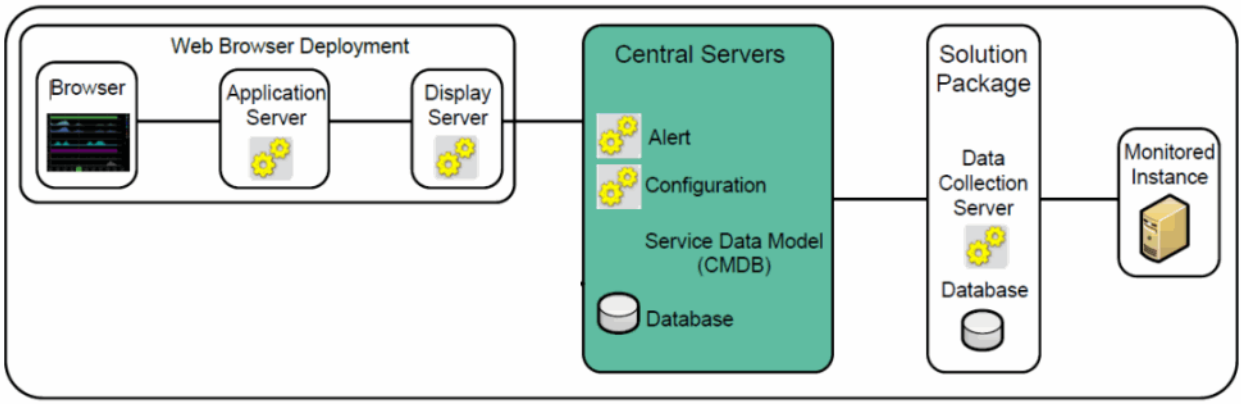
Note: This example does not illustrate CIs associated with Services.

Configure Databases of the Central Servers

The Central Servers require the following databases: ALERTDEFS, RTVCMDB and RTVHISTORY, each of which contain several tables. RTView Enterprise Monitor is delivered with a default memory resident HSQLDB database, which is suitable for evaluation purposes. However in production deployments, it is recommended that a supported database engine be used that is accessible via JDBC. This section describes how to setup an alternate database and, if needed, how to manually create the database tables (which requires table-creation permission in your database engine).

Note: These instructions assume that the Historian database connection is shared by all Data Servers. However, this configuration might not be suitable for your system needs and architecture. You can optionally configure a different Historian database for a Solution Package Project in the "RTView Configuration Application".

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



At this point you have:

- Verified "System Requirements"
- Completed instructions in "Installation" for the RTView Enterprise Monitor platform
- Completed instructions in "Configure Central Servers"
- Completed instructions in "Configure Solution Package Projects". You have configured a local RTView Enterprise Monitor deployment and Web Browser RTView Enterprise Monitor deployment. That is, displays such as the **All Management Areas -** "Area Heatmap" are populated with JVM data from RTView Enterprise Monitor servers and the CMDB database (which has only the default Owner, Infrastructure).
- Have Solution Package-specific displays showing monitoring data from your environment. You do not yet see Solution Package data in displays such as the **All Management Areas -** "Area Heatmap".
- Completed instructions in "Configure Service Data Model".

To configure the databases of the Central Servers:

1. Select and install a database of your choice. Supported databases are Oracle, Sybase, DB2, Microsoft SQL Server and MySQL.

Note: Users of the Docker platform have access to an image of MySQL 5.7 configured for use with RTView, on Docker hub at **slcorp/mysql-rtview**. For more information refer to **rtvapm/containers/docker/myql-rtview/README.txt**.

---

2. Gather the following information for each database you wish to connect:

- URL - Full URL to use when connecting to this database using the specified JDBC driver.
- Driver - Fully qualified name of the driver class to use when connection to this database via JDBC.
- Classpath - The classpath to the jar containing the driver class.
- Username - (optional) User name to enter into this database when making a connection.
- Password - (optional) Password to enter into this database when making a connection.
- Run Queries Concurrently - If true, each query on the connection is run on its own execution thread. Note: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads.

3. "Open the Central Servers Project" and in the **General>COMMON** tab, select the database connection under **Historian Database Connection**, fill in the connection fields and **SAVE** to close the dialog.

Tip: Click **Copy to clipboard** to make this database connection available for pasting into other Database Connections.

4. To configure the Alert Threshold Database: Select the database connection under **Alert Threshold Database Connection**, fill in the connection fields and **SAVE** to close the dialog.

5. To configure the CMDB Database: Navigate to the **Central Config Server>CMDB** tab, select the database connection under **CMDB Database Connection**, fill in the connection fields and **SAVE** to close the dialog.

6. If you wish to use the "Metric Explorer", configure the Metric Explorer Database Connection:

Select **Central Config Server** in the navigation tree**>CONFIGURATION SERVER** tab, select the database connection under **Metric Explorer**, fill in the connection fields and **SAVE** to close the dialog.

7. Click  to save your changes and  to return to the **HOME** page.

8. Manually create the tables needed for each database connection. To create tables for your database, use the **.sql** template files provided for each supported database platform, located in the **RTVAPM_HOME/common/dbconfig** directory:

ALERTDEFS

create_common_alertdefs_tables_<db>.sql

RTVCONFIG, RTVCMDB

create_<rtvcmdb|rtvconfig|>_tables_<db>.sql

RTVHISTORY

Templates for the central RTVHISTORY tables are located in RTVAPM_HOME/common/dbconfig:

create_rtvhistory_tables_<db>.sql

Templates for the Solution Package specific RTVHISTORY tables are located in the dbconfig subdirectory of each Solution Package under RTVAPM_HOME. For example, the .sql templates file for the Solution Package for TIBCO Enterprise Message Service™ are located in **/rtvapm/emsmon/dbconfig** (**%RTVAPM_HOME%\emsmon\dbconfig** on Windows (or **$RTVAPM_HOME/ emsmon /dbconfig** on Linux). The user should use the schemas for the Solution Packagess that s/he is planning to use.

The following is the file naming format for the dbconfig directory:

create_<package>_history_tables_<db>.sql

where <package> ={emsmon, bwmon, ocmon, wlm, etc.} and <db>={db2, hsqldb, mysql, oracle, sqlserver, sybase}

RTVMX

Templates for RTVMX tables are located in the RTVAPM_HOME/mx/dbconfig directory:

create_rtvmx_tables_<db>.sql

where ={db2, mysql, oracle, sqlserver, sybase}

Note: For details about improving database performance and Historian response time, see the **-charlimit** property and the **-index_history_tables** property.

---

9. Open the **rtvservers.dat** file, located in the **RTViewEnterpriseMonitor/emsample/servers** directory, and locate a Solution Package Server(s) for which you want to store history. Uncomment (delete the **#**) on the historian line.

10. Execute the **stop_data_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_data_servers** script to restart all of your Solution Package Data Servers and Historians.

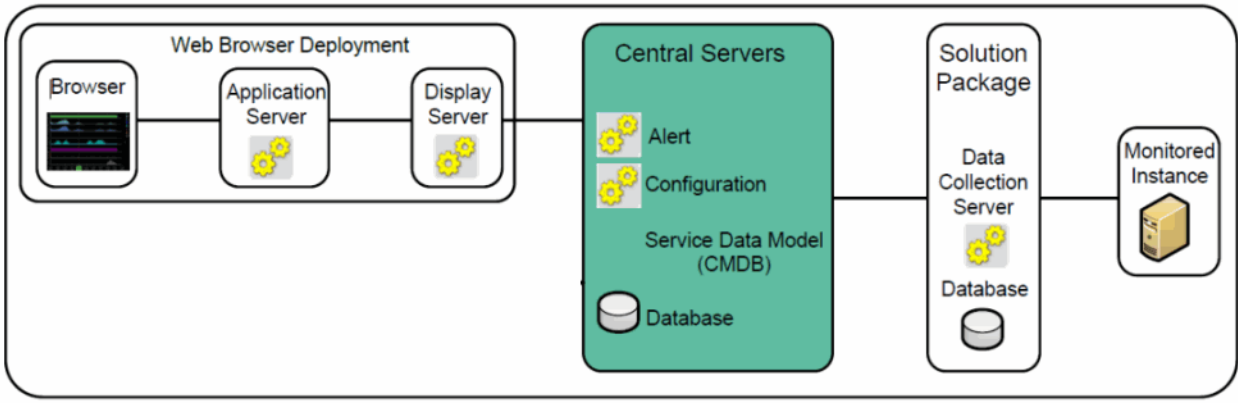
You have finished configuring the databases on the Central Servers.

Proceed to "Configure User and Role Management" on page 52.

Configure User and Role Management

This section describes how to configure RTView Enterprise Monitor user and role Management. Use Role Management to permit and deny access to displays as well as some functionality in certain displays based on the logged in user or role. The alert, CMDB administration and other administration views check the role of the logged in user to prevent users that are not the admin or super role from saving settings. The RTView Alert Table checks the role of the logged in user to hide buttons based on the role of the logged in user. You can also set substititons on your users and roles to filter what portion of the CMDB is visible in the **Service Tree**, **Service Views** and **Alerts** tabs as well as the **CMDB Administration** view.

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



To configure Role Management you define your users and user roles by editing the **users.xml** and **roles.xml** files, located in the **RTViewEnterpriseMonitor/emsample/servers/central** directory. In the **users.xml** file you specify each user name, the associated encrypted password, role and optional substitutions to filter what portion of the CMDB is visible for that user. In the **roles.xml** file you specify, per role, the included and excluded displays, and optional substitutions to define what portion of the CMDB is visible for that role. There is no limit to the number of roles and users you can add to the files. By default, all substitutions are set to ***** (asterisk), which specifies no role restrictions under the **RTViewEnterpriseMonitor/emsample/servers/central** directory.

For details on **users.xml** and **roles.xml** syntax, see Role Based Security/Configuration in the *RTView Core® User's Guide* at http://www.sl.com/support/documentation/. If you want to integrate RTView Enterprise Monitor with LDAP or other user and security management systems, see Custom Security Managers in the *RTView Core® User's Guide*.

Substitutions for User and Role Management

The following substitutions can be set per user or per role and will limit the CMDB entries shown in the Service Tree, Service Views and Alerts tabs. For example, if your application has three Owners: Owner 1, Owner 2, and Owner 3, and you specify **$rtvOwnerMask=Owner 1** for a role, users that login with that role will only see the services under Owner 1 in the **SERVICE TREE**, **SERVICE VIEWS** and **ALERTS** tabs, and only see alerts related to services under Owner 1 in the **ALERTS** tab. If a substitution is set for both the user and role, the role value will take precident. To specify multiple values, separate them with commas. To specify all values, use ***** or just do not include the substitution in your user and role settings.

$rtvOwnerMask: Set this to filter the Owners a user or role will see in the Service Tree, Service Views and Alerts tabs. For example,

<sub name="$rtvOwnerMask" value="Owner 1,Owner 2" />

$rtvAreaMask: Set this to filter the Areas a user or role will see in the Service Tree, Service Views and Alerts tabs. For example,

<sub name="$rtvAreaMask" value="*" />

$rtvGroupMask: Set this to filter the Groups a user or role will see in the Service Tree, Service Views and Alerts tabs. For example,

<sub name="$rtvGroupMask" value="Group 1,Group 2" />

$rtvServiceMask:	Set this to filter the Services a user or role will see in the Service Tree, Service Views and Alerts tabs. For example, **<sub name="$rtvServiceMask" value="MyService" />**
$rtvManageableCompID:	Set this to limit the alerts that can be closed by a user or role to alerts where the Primary Service value matches one of the items in the list.

Also by default, there are five defined and implemented roles: **read**, **event**, **full**, **admin** and **super**. Only the **admin** and **super** roles have access to all features in all displays. The following table summarizes the functionality that is accessible per role:

Role	Permission
read	Access to all displays and functionality except administrator functions.
admin/ super	Access to all displays and functionality including all actions on "RTView Alerts Table", write access in the "Alert Administration" and write access "CMDB Admin" views.
full/ event	Access to all displays. Access to all actions on "RTView Alerts Table".

At this point you have:

- Verified "System Requirements".
- Completed instructions in "Installation" for the RTView Enterprise Monitor platform.
- Completed instructions in "Configure Central Servers".
- Completed instructions in "Configure Solution Package Projects" (you have configured a local RTView Enterprise Monitor deployment and Web Browser RTView Enterprise Monitor deployment. That is, displays such as the **All Management Areas -** "Area Heatmap" are populated with JVM data from RTView Enterprise Monitor servers and the CMDB database).
- Have Solution Package-specific displays showing monitoring data from your environment (you do not yet see Solution Package data in displays such as the **All Management Areas -** "Area Heatmap").
- Completed instructions in "Configure Service Data Model".
- Completed instructions in "Configure Databases of the Central Servers" (you have configured the Central Server Database for your production environment).

To configure role management:

1. Open the **roles.xml** file, located in your **RTViewEnterpriseMonitor/emsample/servers/central** directory, in a text editor. By default, the **read**, **admin** and **super** roles are defined as follows:

```
<?xml version="1.0"?>
<roles xmlns="www.sl.com" >
	<role>
		<name>read</name>
		<displays>
			<include>ALL</include>
		</displays>
	</role>
	<role>
		<name>admin</name>
		<displays>
			<include>ALL</include>
```

```
		</displays>
	</role>
	<role>
		<name>super</name>
		<displays>
			<include>ALL</include>
		</displays>
	</role>
</roles>
```

2. Create new roles. For each role, optionally specify the included and excluded displays, as well as the values for the substitutions that define the visible part of the CMDB and actionable alerts (as described above). For example, the following illustrates a role named **ITmanager** that has no administrator permissions and *does* have access to all owners within the two IT areas of the company:

```
<role>
	<name>ITmanager</name>
	<displays>
		<include>ALL</include>
	</displays>
	<sub name="$rtvrole" value="read" />
	<sub name="$rtvOwnerMask" value="*" />
	<sub name="$rtvAreaMask" value="IT Servers,IT Central" />
</role>
```

3. **Save** the file.

4. Open the **users.xml** file, located in the your **RTViewEnterpriseMonitor/emsample/servers/central** directory, in a text editor. By default, there are three users defined, **super**, **admin** and **demo**:

```
<?xml version="1.0"?>
<users xmlns="www.sl.com" >
	<user>
		<name>super</name>
		<password>013340135101346013350134 8</password>
		<role>super</role>
	</user>
	<user>
		<name>admin</name>
		<password>013310133401343013390134 4</password>
		<role>admin</role>
	</user>
	<user>
		<name>demo</name>
		<password>013340133501343013 45</password>
		<role>read</role>
	</user>
</users>
```

5. Add the new role you just created to this file and optionally add values for the substitutions that define the visible part of the CMDB and actionable alerts (as described above). For example:

```
<?xml version="1.0"?>
<users xmlns="www.sl.com" >
	<user>
		<name>super</name>
```

```
            <password>013340135101346013350134 8</password>
            <role>super</role>
      </user>
      <user>
            <name>admin</name>
            <password>013310133401343013390134 4</password>
            <role>admin</role>
      </user>
      <user>
            <name>demo</name>
            <password>01334013350134301345</password>
            <role>read</role>
      </user>
      <user>
            <name>Johnson</name>
            <password>013380133501342013420134 5</password>
            <role>ITmanager</role>
      </user>
</users>
```

6. **Save** the file.

7. Add as many users to the **users.xml** file as needed.

Note: Use the encode_string utility to *Encrypt Password*.

---

8. **Save** the file.

9. Restart the Display Server if you have installations that are working locally.

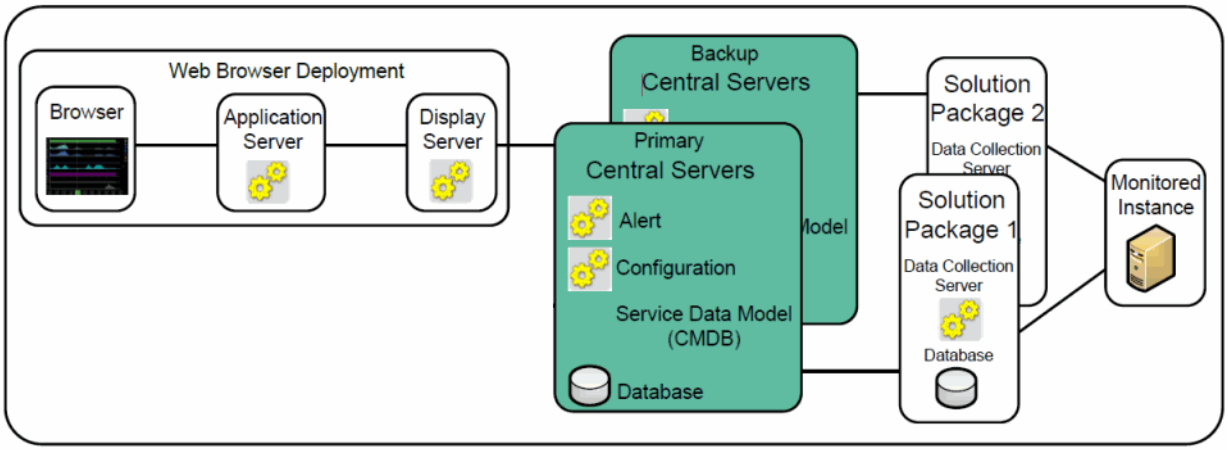
You have finished configuring RTView Enterprise Monitor Role Management.

Configure High Availability

This section describes how to configure High Availability (HA) for RTView Enterprise Monitor. HA prevents the loss of data and alerts during failover.

HA requires two host machines, a Primary Host and a Backup Host. You configure HA by editing configuration files and defining two environment variables on each host (PRIMARYHOST and BACKUPHOST) with their IP addresses. It is required that identical versions of RTView Enterprise Monitor be installed on the hosts.

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



To configure HA you setup the Primary and Backup Hosts, verify your setup, test the failover process to the Backup Host and verify the Primary Host is restored to the primary server for the pair.

At this point you have:

- Verified "System Requirements".
- Completed instructions in "Installation" for the RTView Enterprise Monitor platform.
- Completed instructions in "Configure Central Servers".
- Completed instructions in "Configure Solution Package Projects" (you have configured a local RTView Enterprise Monitor deployment and Web Browser RTView Enterprise Monitor deployment. That is, displays such as the **All Management Areas -** "Area Heatmap" are populated with JVM data from RTView Enterprise Monitor servers and the CMDB database).
- Have Solution Package-specific displays showing monitoring data from your environment (you do not yet see Solution Package data in displays such as the **All Management Areas -** "Area Heatmap").
- Completed instructions in "Configure Service Data Model".
- Completed instructions in "Configure Databases of the Central Servers" (you have configured the Central Server Database for your production environment).

To setup HA on the Primary and Backup Hosts:

1. Configure "Alert Notification Persistence" on the Primary and Backup Host.

2. On each of the hosts in the HA pair, define two environment variables: PRIMARYHOST and BACKUPHOST, which are loaded by the property files on both Windows and UNIX.

3. On the Primary Host, rename the following files as described:

   a. Rename the **rtvservers.dat** file, located in your **RTViewEnterpriseMonitor/emsample/servers** directory, to **rtvservers.dat.keep**.

   b. Rename the **rtvservers-ha.dat** file, located in your **RTViewEnterpriseMonitor/emsample/servers** directory, to **rtvservers.dat**.

4. "Open the Central Servers Project" **>COMMON** tab and do the following.
   - Toggle on **Access the Alert Threshold Database via the Central Config Server Instead of Connecting Directly**
   - Enter a fault tolerant URL for the **Central Config Server Connection** field as follows:

     %PRIMARYHOST%:10018,%BACKUPHOST%:10018

5. Select **Central Alert Server** in the navigation tree **>ALERTS** tab and toggle on **Persist Alerts**.

6. Click  to save your changes.

7. From the Primary Host, copy the following files to the Backup Host as described:

   a. Copy the **rtvservers.dat** file, located in your **RTViewEnterpriseMonitor/emsample/servers** directory, to the Backup Host **RTViewEnterpriseMonitor/emsample/servers** directory.

   b. Copy the **project-common.properties** and **project-common.properties.json** files, located in your **RTViewEnterpriseMonitor/emsample/conf** directory, to the Backup Host **RTViewEnterpriseMonitor/emsample/conf** directory.

8. On the Backup Host, in an initialized command window change directory (cd) to your **RTViewEnterpriseMonitor/emsample/servers** directory.

9. Create a script file (for example, **start_backup_servers.bat**) to execute the following scripts which start all RTView Enterprise Monitor processes:

   Windows
   start_rtv central-backup
   start_rtv rtvrules-backup
   start_rtv rtvmgr-backup
   start_rtv <packagename>-backup dataserver

   where **packagename** is the name of the Solution Package to execute under HA. Add one line for each of the Solution Packages that the Backup Host must execute.

   UNIX
   star_rtv.sh central-backup
   start_rtv.sh rtvrules-backup
   start_rtv.sh rtvmgr-backup
   start_rtv.sh <packagename>-backup dataserver

   where **packagename** is the name of the Solution Package to execute under HA. Add one line for each of the Solution Packages that the Backup Host must execute.

10. Test your HA setup:

    a. On the Primary Host, in an initialized command window change directory (cd) to your **RTViewEnterpriseMonitor/emsample/servers** directory and start all RTView Enterprise Monitor processes by typing:

    Windows
    start_rtv all

    UNIX
    start_rtv.sh all

b. On the Backup Host, in an initialized command windowchange directory (**cd**) to your **RTViewEnterpriseMonitor/emsample/servers** directory and execute the script you created in the previous step. For example, if you created the file **start_backup_servers.bat** previously, type: **start_backup_servers.bat**.

c. On the Primary Host, start the Viewer by typing:

Windows
start_rtv viewer

UNIX
start_rtv.sh viewer

Note: You can also start RTView Enterprise Monitor in the Thin Client.

---

11. In the Monitor, open the **JVM Process Views** - "All JVMs Heatmap" display and verify that all JVMs on both hosts are running. If all JVMs on both hosts are running, continue to next step. If not, review previous configuration steps.

12. Verify that all RTView Enterprise Monitor processes are running on the Primary Host. Depending on the type of process, there are different ways to verify:

a. Back-End Servers: Open the **Architecture** - "System Overview" display and mouse-over the rectangle associated with the servers to view the IP address of the host.

Note: To view all data for all available Data Servers, open the **RTView Servers** - "Data Servers" display and choose Connection (in the upper combo box). The **Connection String** column in the **Connection Status** table shows host names.

---

b. Central Servers (Configuration Server and Alert Server and Directory): Open the **Architecture** - "System Overview" display, then double-click in the **Configuration Server or Alert Server and Directory** object to open the **RTView Servers** - "Data Servers" display. See the **Connection Status** table **Connection String** column to view the host name.

c. Historian Servers: Open the **RTView Servers** - "Historian Servers" display, select the Source and Connection of your Historian from the drop-down menus and verify the **Primary Server** light is green.

13. Test failover to the Backup Host:

a. Stop the Primary Host by either executing the **stop_rtv all** script (or the **stop_rtv.sh all** script for UNIX) on the Primary Host or shutting it down (briefly).

b. In the **JVM Process Views** - "All JVMs Heatmap" display, verify that all JVMs on the Primary Host are shown as inactive.

c. Verify the Backup Host is currently acting as the Primary Host by repeating Steps 9 and 10.

14. Verify the Primary Host takes over as the Primary Host:

a. Stop the Backup Host by either executing the **stop_rtv all** script (or the **stop_rtv.sh all** script for UNIX) on the Backup Host or shutting it down (briefly).

b. On the Primary Host, in an initialized command windowchange directory (**cd**) to your **RTViewEnterpriseMonitor/emsample/servers** directory and start all RTView Enterprise Monitor processes by typing:

Windows
start_rtv all

UNIX
start_rtv.sh all

c. Repeat Steps 9 and 10 to verify that all RTView Enterprise Monitor processes are running on the Primary Host.

You have finished configuring High Availability.

CHAPTER 3 Alert Configuration

This section describes how to configure alert notification, the RTVRULES Solution Package, as well as other optional alert behavior and features. This section includes:

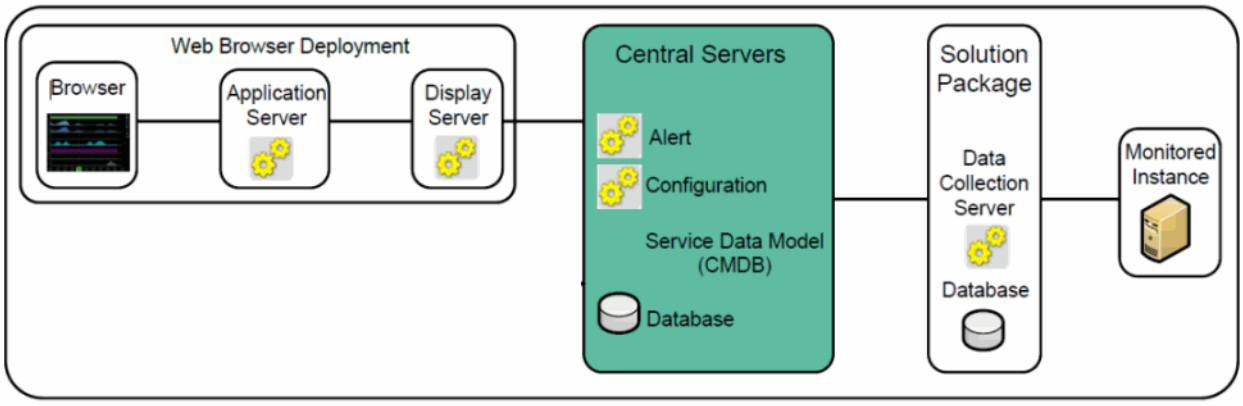
- "Overview," next
- "Configure Alert Notification": This section describes how to configure alerts to execute an automated action.
- "Configure the RTVRULES Solution Package": This section describes how to configure the RTVRULES Solution Package.
- "Configure Dual Write for Distributed Alert Server": This configuration mitigates the delays with Alert Table updates which occur in distributed deployments.
- "Configure Alert Groups": Create groups of alerts that you can then use to filter the displays in the following views: "All Management Areas", "Multi Area Service Views", "Single Area Service Views" and "Component Views".
- "Configure Alert Filters": Create custom filters and a **Custom Filter** drop-down menu for the **Alert Views -** "RTView Alerts Table" display.

These configurations are optional.

For details about configuring alert thresholds, see **Administration -** "Alert Administration".

Overview

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



This section does not describe how to adjust alert thresholds. For details about configuring alert thresholds, see **Administration -** "Alert Administration".

You track and manage alerts in your RTView Enterprise Monitor system using the **Alert Views - "RTView Alerts Table"** display, track the history of alerts using the **Alert Views - "Alert History Table"** display, and set alert thresholds using the **Administration - "Alert Administration"** display. You can also view the audit trail of managed alerts in the **"RTView Alerts Table"** and threshold settings in the **Administration - "Alert Administration"** display by looking at the **Administration - "Alert Action Audit Trail"**and the **Administration - "Alert Admin Audit"** displays.

Configure Alert Notification

This section describes how to configure alert notification on the Central Server. RTView Enterprise Monitor provides alerts concerning conditions in your Solution Packages through RTView alerts. This section describes how to configure the alerts to execute an automated action (such as sending an email alert). These actions are generated on the Central Alert Server.

If you are upgrading from RTView Enterprise Monitor 1.2 or earlier, see the Upgrade Notes for "Alert Notifications" on page 21.

You can configure alerts to notify on the following events:

- when a new alert is created
- the first time the Severity field on an alert changes
- when an alert is cleared
- periodically renotify for unacknowledged alerts

By default, a **.bat** script is executed for new alerts and on the first severity change for an alert. The script, by default, is not configured to execute an automated action. However, you can uncomment a line in the script that prints alert data to standard output. Or, you can modify the script to execute an automated action (such as sending an email alert). The following is a sample output from the alert command script:

----- Alert command script executed: DOMAINNAME=MYMON-1, ALERTNAME=someAlert, ALERTINDEX=alertIndex1~alertIndex2, ALERTID=1075, ALERTSEVERITY=2, ALERTTEXT=High Alert Limit exceeded current value: 100.0 limit: 80.0 #####

This section includes:

At this point you have:

- Verified "System Requirements"
- Completed instructions in "Installation" for the RTView Enterprise Monitor platform
- Completed instructions in "Configure Central Servers"

Configure Central Alert Notification

There are two options for configuring alert notification actions:

- "Using a Batch File or Shell Script": This technique requires switching to an OS-specific set of alert definitions that execute the appropriate file type. Windows and UNIX alert definition files are provided with the Monitor. A sample batch file and a sample shell script are also provided which are customized as needed.
- "Using the Java Command Handler": The Java source for the Monitor Java command handler is provided to facilitate customization.

In order to configure alert notifications you will:

1. "Configure Notifications in the Configuration Application," next, to specify when to execute alert notifications and also what action to perform.

2. Configure either the script or java command handler.

Configure Notifications in the Configuration Application

1. "Open the Central Servers Project", select **Central Alert Server** (in navigation tree)**>ALERTS** tab.

2. In the **Notifications** section, make sure the **Enable Alert Notfications** toggle is set to on.

3. If you will be executing a script for your alert notifications, set the **Notification Platform** to the platform where this project is running.

4. Select the events on which you want to notify:

- **Notify on New Alerts** - your action will be executed every time a new alert is created
- **Nofity on First Severity Change** - your action will be executed the first time the Severity changes for each alert
- **Nofity on Cleared Alerts** - your action will be executed every time an alert is cleared
- **Periodically Renotify on Unacknowledged Alerts** - your action will be executed on the Renotification Interval (seconds) for each unacknowledged alert

If you will be executing a script for your alert notifications, skip to step 6.

5. If you will be executing the java command, click on the **General->CUSTOM PROPERTIES** tab and add the following:

name=sl.rtview.cp
value=../../custom/lib/rtvapm_custom.jar
filter=dataserver

name=sl.rtvapm.customcommandhandler
value=com.sl.rtvapm.custom.RtvApmCommandHandler
filter=dataserver

- If you selected **Notify on New Alerts** in step 4:

name=sl.rtview.alert.notifiercommandnew
value=system cust 'my_alert_notification.$domainName.$alertNotifyType.$alertNotifyCol' $alertNotifyTable
filter=dataserver

- If you selected **Notify on First Severity Change** in step 4:

name=sl.rtview.alert.notifiercommandfirstsevchange
value=system cust 'my_alert_notification.$domainName.$alertNotifyType.$alertNotifyCol' $alertNotifyTable
filter=dataserver

- If you selected **Notify on Cleared Alerts** in step 4:

name=sl.rtview.alert.notifiercommandcleared
value=system cust 'my_alert_notification.$domainName.$alertNotifyType.$alertNotifyCol' $alertNotifyTable
filter=dataserver

- If you selected **Periodically Renotify on Unacknowledged Alerts** in step 4:

name=sl.rtview.alert.notifiercommandrenot
value=system cust 'my_alert_notification.$domainName.$alertNotifyType.$alertNotifyCol' $alertNotifyTable
filter=dataserver

6. **Save** to save your changes. You must restart your project to apply these changes after you complete the "Using a Batch File or Shell Script" instructions or the "Using the Java Command Handler" instructions.

Using a Batch File or Shell Script

A sample batch file, **my_alert_actions.bat**, and a sample shell script, **my_alert_actions.sh**, which are located in the **rtvapm/common/bin** directory, are provided as templates that you can modify as needed. Use the appropriate file for the platform that hosts the Central Alert Server. By default, both scripts send alert information to standard output.

To uncomment the line in the script so that alert data prints to standard output, see:

- "Windows Batch File," next
- "Unix Shell Script"

Windows Batch File

1. Copy the **my_alert_actions.bat** file, located in the **RTViewEnterpriseMonitor/rtvapm/common/bin** directory, into **RTViewEnterpriseMonitor/emsample/servers/central**.

2. Open the **my_alert_actions.bat** file, located in the **RTViewEnterpriseMonitor/emsample/servers/central** directory and uncomment the echo line (near the end of the file) to print alert information to standard output. Or, you can modify the script to execute an automated action (such as sending an email alert). This script will be executed for new alerts and on first severity change.

3. If you selected **Notify on Cleared Alerts** in the "RTView Configuration Application", copy **my_alert_actions.bat** from step 2 to **my_alert_actions.cleared.bat**. Optionally modify the script to execute a different action for cleared alerts. This script will execute when an alert is cleared.

4. If you selected **Periodically Renotify on Unacknowledged Alerts** in the RTView Configuration Application, copy **my_alert_actions.bat** from step 2 to **my_alert_actions.renotify.bat**. Optionally modify the script to execute a different action for renotifications. This script will execute periodically for unacknowledged alerts.

5. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

Unix Shell Script

1. Copy the my_alert_actions.sh file, located in the common/bin directory, into your **RTViewEnterpriseMonitor/emsample/servers/central** directory.

2. Open the my_alert_actions.sh file, located in the **RTViewEnterpriseMonitor/emsample/servers/central** directory, and uncomment the echo line (near the end of the file) to print alert information to standard output. Or, you can modify the script to execute an automated action (such as sending an email alert). This script will be executed for new alerts and on first severity change.

3. If you selected Notify on Cleared Alerts in the RTView Configuration Application, copy **my_alert_actions.sh** from step 2 to **my_alert_actions.cleared.sh**. Optionally modify the script to execute a different action for cleared alerts. This script will execute when an alert is cleared.

4. If you selected Periodically Renotify on Unacknowledged Alerts in the Configuration Application, copy **my_alert_actions.sh** from step 2 to **my_alert_actions.renotify.sh**. Optionally modify the script to execute a different action for renotifications. This script will execute periodically for unacknowledged alerts.

5. Execute the **stop_central_servers** script, located in the RTViewEnterpriseMonitor/bin directory, then the **start_central_servers** script to restart the Central Servers.

Batch File or Shell Script Substitutions

The default **my_alert_actions** scripts use the substitutions described in the table below.

Substitution	Description	Values
$alertId	This substitution specifies the unique ID for the alert. For example: **alertId = 1004**	Text or Numeric
$alertIndex	This substitution specifies which source triggered the alert. With tabular objects, the first column of data is typically the **Index** column. The value in the **Index** column is a name that uniquely identifies each table row. The **alertIndex** uses the **Index** column name. For example, if the **CapactityLimitAllCaches** alert is configured to monitor all of your caches, and to trigger when any of the caches exceed the specified capacity threshold, the **alertIndex** indicates specifically which cache triggered the alert. With scalar objects, which do not have a table and therefore do not have a column (the **useTabularDataFlag** property is **False**), the **alertIndex** is blank. For example: **alertIndex = MyCache01**	Text or Numeric

$alertName	This substitution specifies the name of the alert. For example: **alertName = CapacityLimitAllCaches**	Values vary.
$alertSeverity	This substitution specifies the severity level of the alert. **0**: The alert limit has not been exceeded therefore the alert is not activated. **1**: The alert warning limit has been exceeded. **2**: The alert alarm limit has been exceeded. For example: **alertSeverity = 1**	Numeric
$alertText	This substitution specifies the text that is displayed when the alert executes. For example: **alertText = High Warning Limit exceeded, current value: 0.9452 limit: 0.8**	Text

Using the Java Command Handler

1. Verify that the rtvapm_custom.jar file is built per Step 4 in the "Customizing the Java Command Handler" instructions.

2. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

Customizing the Java Command Handler

The source for the RTView Enterprise Monitor Java handler is provided in the **RtvApmCommandHandler.java** file, located in the **RTViewEnterpriseMonitor\custom\src\com\sl\rtvapm\custom** directory. By default, the handler prints the alert data to standard output. To change this behavior perform the following steps:

1. Open the **RtvApmCommandHandler.java** file.

2. Modify the **OutputAlertString** method as needed. You can replace this method with your own if you modify the **invokeCommand** method to call it, and your method accepts the same arguments as **OutputAlertString**.

3. Save the **RtvApmCommandHandler.java** file.

4. Compile **RtvApmCommandHandler.java** and rebuild **rtvapm_custom.jar** using the supplied script (**make_classes.bat** or **make_classes.sh**) in **RTViewEnterpriseMonitor\emsample\custom\src** directory.

5. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

Java Command Handler Substitutions

When you customize the Java Command Handler, there is no need to modify the **sl.rtview.alert.notifiercommandnew** and **sl.rtview.alert.notifiercommandfirstsevchange** properties in the **custom_handlers.properties** file. The entire **Alert Table** row is passed into the Java Command Handler for each alert that notifies so that all information regarding those alerts is available. The following substitutions are used:

Argument	Description
$alertNotifyType	This substitution specifies to show the value of the notification type so you can use the same command for all notifications. Values are **NEW_ALERT**, **CLEARED_ALERT**, **FIRST_SEV_CHANGE** or **COLUMN_CHANGED**.
$alertNotifyCol	This substitution only applies when the **notifyType** is **COLUMN_CHANGED**. Specifies to use a semi-colon delimited list of column names that changed from the **alertNotifierColumns**.
$alertNotifyTable	This substitution specifies the row in the alert table that corresponds to this notification into the command.

Alert Notification Persistence

To prevent duplication and missed notifications after restart or failover, you must configure the Central Alert Server for alert persistence and also add the following tables to your ALERTDEFS database:

- ALERT_PERSIST_TABLE_CENTRAL
- ALERT_NOTIF_PERSIST_TABLE: Notification information is persisted to this table.

The schemas for both tables are in **RTVAPM_HOME\common\dbconfig**. For ALERT_PERSIST_TABLE_CENTRAL, use the same schema as ALERT_PERSIST_TABLE. To enable notification persistence, in the RTView Configuration Application, click on RTView Central Servers and go to the Central Alert Server->ALERTS tab and turn on the Persist Alerts toggle.

The notification for **Notify on First Severity Change** is not persisted and executes the first time the severity changes on an unacknowledged alert each time the Central Alert Server starts. This means that a notification is executed the first time it changes on a new alert, and again the first time it changes after the Central Alert Server is restarted or fails over.

Configure Optional Backend Server Notification

The above sections describe configuring the Central Alert Server to execute all notifications. You may also configure any of the Solution Package Data Servers to notify on only the alerts in that server in the RTView Configuration Application. To enable notification on a Solution Package Data Server, select the Solution Package Project to which you want to add notifications, then select the **General->ALERT** tab. Under Notifications turn on the toggle that says "Configure notifications for this server in addition to central notifications.", then fill in the Notifications section as described for the central notification above. This notification is in addition to the Central Alert Server notification.

Configure the RTVRULES Solution Package

This section describes how to configure the RTVRULES Solution Package, located in your **RTViewEnterpriseMonitor/emsample/servers/rtvrules** directory.

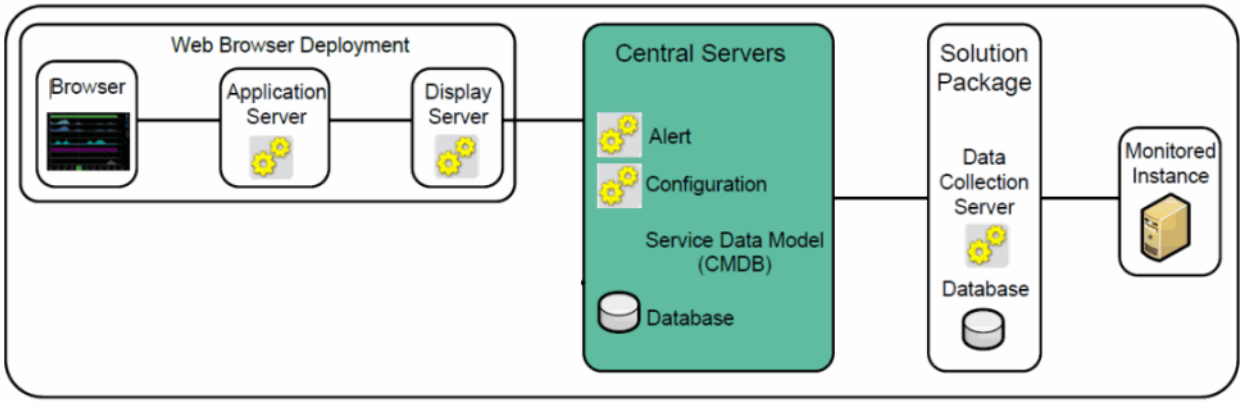
The RTVRULES Solution Package is designed to reduce the number of escalated, low-level alerts to upper management tiers. This enables you to, for example, set a time frame for IT to resolve an alert before the alert is escalated.

To configure this behavior, you use the "EM-SERVICE CI Type" in the **Administration** - "CMDB Admin" display to establish dependencies among Services, then use the Duration attribute in the **Administration** - "Alert Administration" display to delay the execution of the following alerts:

- **RtvEmServiceAlert**: This discrete alert is generated when a Service has one or more alerts on any associated CIs.
- **RtvEmServiceAlertImpactHigh**: This limits alert is generated when a Service has an Alert Impact value that exceeds the specified threshold on any associated CI.

Note: Unexpected behavior can arise if loops in the relationships among Services are created.

The following figure illustrates the RTView Enterprise Monitor components that are the subject of this section.



At this point you have:

- Verified "System Requirements".
- Completed instructions in "Installation" for the *full* RTView Enterprise Monitor platform.
- Completed instructions in "Configure Central Servers".
- Completed instructions in "Configure Solution Package Projects" (you have configured a local RTView Enterprise Monitor deployment and Web Browser RTView Enterprise Monitor deployment. That is, displays such as the **All Management Areas -** "Area Heatmap" are populated with JVM data from RTView Enterprise Monitor servers and the CMDB database).
- Have Solution Package-specific displays showing monitoring data from your environment (you do not yet see Solution Package data in displays such as the **All Management Areas -** "Area Heatmap").
- Completed instructions in "Configure Service Data Model".
- Completed instructions in "Configure Databases of the Central Servers" (you have configured the Central Server Database for your production environment).

To configure the RTVRULES Solution Package:

1. If relationships are not yet established among Services, define these relationships using the new CI Type in the **Administration** - "CMDB Admin" display. For details, see Configure the Service Data Model, "EM-SERVICE CI Type" on page 41.

2. In an initialized command window, change directory (**cd**) to the your **RTViewEnterpriseMonitor/emsample/servers** directory.

3. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

Note: This starts the databases, Configuration Server, Display Server, RTVMGR, RTVRULES, Alert Server and Directory Servers.

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4. In the Monitor, open the **Administration** -"Alert Administration" display and enable the **RtvEmServiceAlert** and **RtvEmServiceAlertImpactHigh** alerts.

You have finished configuring the RTVRULES Solution Package.

Configure Dual Write for Distributed Alert Server

Dual write is for distributed Alert Server deployments in which the Data Server hosting alerts is on a different system from the Central Alert Server and client. This configuration mitigates the delays with **Alert Table** updates which occur in this type of deployment. However, this setup also causes the data in the **Alert Table** to be temporarily out of sync with the master alert data. Consider the limitations of this feature before using it.

By default, this feature is disabled.

Default Behavior
When a user clicks the **Own**, **Suppress**, **Unsuppress** or **Close** button in the **Alert Table**, the associated command executes on the selected alert in the Data Server that is hosting the alert. The hosting Data Server updates the alerts and pushes the updated alert data to the Central Alert Server. The Central Alert Server then pushes the updated alert data to the client hosting the display and the **Alert Table** gets updated.

Dual Write Enabled Behavior
When dual write is enabled, the command is applied directly to the Central Alert Server alert cache--before the action is executed on the Data Server that is hosting the alert. This reduces the delay between executing the action and seeing the result in the **Alert Table**.

To Enable Dual Write
To enable dual write, in the RTView Configuration Application, click **RTView Central Servers** and go to the **General->CUSTOM PROPERTIES** tab and add the following:

name=sl.rtview.sub
value=$rtvUserEnableAlertDualWrite:1

Save to close the Add Property dialog and **SAVE** (next to the **HOME** button) to save your changes. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

Limitations
The following limitations apply when dual write is enabled:

1. If an alert is cleared, clicking on **Suppress** or **Unsuppress** updates the Central Alert Server cache, but not the actual alert. The suppressed state of an alert cannot change after the alert is cleared.
2. Clicking on the **Close** button immediately updates the **Cleared** value in the **Alert Table**, but the **Cleared Reason** value does not update until the server hosting the alert closes the alert and sends an update.
3. If the server hosting the alert sends an update between the time you click on one of the buttons listed and the time that server processes the associated action, the value in the table toggles between the new value and the old value. For example, you select an alert and **Suppress** it. At the same time, the alert severity changes in the back-end server. The table initially updates with old severity with **SUP** set to **true**, then updates with the new severity with **Sup** set to **false**, and then updates with the new severity with **Sup** set to **true**. If your Central Alert Server is configured to notify when the **Sup** column changes, you receive notifications for all three of these changes (**true**, **false**, **true**).
4. If the server hosting the selected alert is not connected or not enabled when you click **Own**, **Suppress**, **Unsuppress** or **Close**, the value in the **Alert Table** updates but that value is not applied to the real alert. When the server hosting the alert connects again, the value reverts to the previous value. This is not likely to occur because the **Own**, **Suppress**, **Unsuppress** or **Close** buttons are disabled with the server hosting the selected alert is not connected or is not enabled. However, it is possible that you perform the action just as the server hosting the alert is exiting before the buttons are disabled.

Configure Alert Groups

This section describes how to configure Alert Groups. The Alert Group configuration is optional. This feature allows you to associate your alerts with Alert Groups that can then be used to filter the alerts included in the displays under the following navigation tree Views:

- "All Management Areas"
- "Multi Area Service Views"
- "Single Area Service Views"
- "Component Views"
- **Alert Views** (the "RTView Alerts Table" and "Alert History Table" only)

The filter can also be applied to the navigation tree when RTView Enterprise Monitor is run in alert-viewer mode. If you have configured Alert Groups, the following Alert Group filter drop-down menu appears at the top of each display that supports Alert Group filtering:

This drop-down menu contains the defined Alert Groups as well as two pre-defined options:

- **All** - Removes the Alert Group filter and includes all alerts.
- **None** - Filters to all alerts that are not included in any Alert Group.

Select an item in the **Alert Group** filter drop-down menu to filter the alerts displayed by that Alert Group. You can set the default Alert Group on an application, per-user or per-role basis. For example, you can organize your alerts into **Infrastructure**, **Performance** and **Availability** and then assign the default Alert Group based on the type of alerts the user is responsible for, enabling them to focus on and prioritize only those alerts.

An Alert Group can contain as many alerts as needed. A single alert can belong to multiple Alert Groups. Since alerts that are not members of an Alert Group are added to the **None** Alert Group, you cannot define an Alert Group named **None**.

These instructions occur in the "Project Directory".

To configure Alert Groups

1. Determine your Alert Groups.

2. Define an Alert Group by adding a row to the CITYPE_ALERTMAP table in the RTVCONFIG database, where the **CITYPE** value is **GROUP-AlertGroupName** and the **ALERTNAME** value is the name of the alert to include in the Alert Group. The schema for this table is included in **dbconfig\create_rtvconfig_*.sql**. For example, to define an Alert Group named **Availability** and add the **JvmNotConnected** alert to it, you add the following row:

   GROUP-Availability -- JvmNotConnected

3. To add additional alert names to the Alert Group, add a row for each alert name. For example, to set three alerts in the **Availability** Alert Group you add the following rows:

   GROUP-Availability -- JvmNotConnected

   GROUP-Availability -- xyzAlertName

GROUP-Availability -- 123AlertName

Note: A single alert name can belong to multiple Alert Groups.

---

4. "Open the Central Servers Project">**General>CUSTOM PROPERTIES** tab and add the following:

name=sl.rtview.cache.config
value=rtv_config_cache_source_db.rtv
filter=ConfigCollector

name=sl.rtview.sql.sqldb
value=RTVCONFIG <username> <password> <url> <driver> - false true
filter=ConfigCollector

Where:

- **username** is the user name to enter into this database when making a connection. Enter - if blank.
- **password** is the password to enter into this database when making a connection. Enter - if blank.
- **url** is the full URL to use when connecting to this database using the specified JDBC driver.
- **driver** is the fully qualified name of the driver class to use when connection to this database via JDBC.

5. Open the **All Management Areas** - "Area Heatmap" display and verify that the **Alert Group** drop-down menu appears at the top.

6. Select an Alert Group from the **Alert Group** drop-down menu and verify that only alerts for the selected Alert Group are included in the heatmap.

7. Open the **Architecture** - "RTView Cache Tables" display, select **CONFIG-SERVER** from the **Data Server** drop-down menu, then select the **RtvAlertGroupMap** cache table from the upper table. This cache lists all defined Alert Groups.

8. Verify the list of defined Alert Groups and their alert name members in the **RtvAlertGroupMap** table.

Note: The table includes the **None** Alert Group, which is defined, by default, to include all alerts that are not members of a user-defined Alert Group.

---

9. Optionally, specify the default Alert Group filter. To add an application default, set the $rtvAlertGroupFilter substitution to the name your default Alert Group filter in the RTView Configuration Application. In the Configuration Application, click on RTView Central Servers and go to the **General->CUSTOM PROPERTIES** tab and add the following:

name=sl.rtview.sub
value=$rtvAlertGroupFilter:Availability
filter=uiprocess

- Replace **Availablity** with the name of your default Alert Group filter.
- To add a per-role or per-user default, set the $rtvAlertGroupFilter substitution value in your **users.xml** or **roles.xml** file. For example, to set the default Alert Group filter to **Availability**, enter:

  sub name="$rtvAlertGroupFilter" value="Availability"

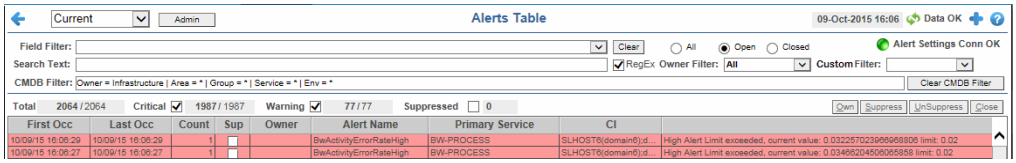
For details about the **users.xml** or **roles.xml** files, see "Configure User and Role Management".

For details about configuring Alert Groups for custom displays, see the Chapter 34, "Creating Custom Solution Packages" .

Configure Alert Filters

This section describes how to configure the **Custom Filter** drop-down menu which is used for creating custom, user-defined filters in the **Alert Views** - "RTView Alerts Table" display. This configuration is optional.

When custom filters are defined for the logged in user, a **Custom Filter** drop-down menu is added to the **Alert Views** - "RTView Alerts Table" display (in the upper right portion of the display).



The **Custom Filter** drop-down menu is a predefined list of standard filters that are applied to the **Alert Views** - "RTView Alerts Table". All filters that are supported by the controls at the top of the **Alert Views** - "RTView Alerts Table" display can be used to define the **Custom Filter** drop-down menu.

When you select a custom filter, the filter controls at the top of the display then reflect that custom filter's settings, as well as the data in the table. For example, let us say you define a custom filter named **All Suppressed Jvm Critical Alerts** that filters the table to show only **Suppressed** and **Critical** alerts with **Jvm** in the **Alert Name** field. When you select this custom filter the **Field Filter** is then set to **Alert Name**, the **Search Text** field is then set to **Jvm**, the **Warning** check-box is then deselected and the **Suppressed** check-boxes is selected, and the table is then filtered accordingly. If the filter fields change such that the filter no longer matches the selected custom filter, the custom filter selection is cleared.

The **Custom Filter** drop-down menu contains all filter options that are specified for the logged in user. The **Custom Filter** drop-down menu only appears in the **Alert Views** - "RTView Alerts Table" display if at least one custom filter is defined for that user.

You configure the **Custom Filter** drop-down menu by creating one or more custom filters. To create the filter you add a table row to the CUSTOM_ALERT_FILTERS table in the ALERTDEFS database. You define the custom filter per user with match criteria for each of the filter controls in the **Alert Views** - "RTView Alerts Table" display. See the schemas in the **RTVAPM_HOME\common\dbconfig** directory for the correct schema to use for your database. The CUSTOM_ALERT_FILTERS table also resides in the database in the **emsample** folder.

Note: The CUSTOM_ALERT_FILTERS table was added to the ALERTDEFS database in version 1.3.0. Users upgrading from previous versions must add this table to the ALERTDEFS database.

To configure Alert Filters

Add a row for each custom filter to the CUSTOM_ALERT_FILTERS table, located in the ALERTDEFS database. The following are the available table columns you can define, all of which are of type String.

Column Name	Value
User	Specifies the name of the user who can use this filter. This must correspond to the value specified for the **User** in the RTView Enterprise Monitor login.
Key	Specifies the name of the filter. This value is used in the **Custom Filter** drop-down menu.
rtvAlertDynFilter	Specifies the name of the column in the **Alerts Table** to filter on. This corresponds to the value in the **Field Filter** drop-down menu in the display. This must be the actual column name, which is sometimes different than the displayed column name. Valid values are blank, **Time**, **Last Update Time**, **Count**, **ID**, **Cleared**, **Acknowledged**, **Owner**, **Alert Name**, **Primary Service**, **CIName**, **CIType**, **Alert Index**, **Alert Text**, **Severity**, **Source**, **Cleared Reason**, **AlertClass**, **CompID**, **TicketID**, **TicketGroup** and any other custom columns you added to the **RTView Alerts Table**. A <blank> value indicates this filter should not be used. **Note:** If you specified an **RTView Alerts Table** columns list, you can use any values from the **RTView Alerts Table** columns list.
rtvAlertDynTextFilter	Specifies the value in the **rtvAlertDynFilter** column must equal. This corresponds to the **Search Text** field in the display.
rtvAlertDynTextFilterRegEx	Specifies whether to use Regex for the **rtvAlertDynFilter** and **rtvAlertDynTextFilter** filters, where **1** is use to Regex and **0** is NOT to use Regex. This corresponds to the **RegEx** check-box in the display.
rtvClearedFilter	Specifies to filter on the **Cleared** column. This corresponds to the **All**/**Open**/**Closed** radio buttons in the display. Valid values are: • **false** shows only open alerts • **true** shows only closed alerts • ***** (asterisk) shows both
rtvAckFilter	Specifies to filter on the **Suppressed** column. This corresponds to the **Suppressed** check-box in the display. Valid values are: • **false** shows only unsuppressed alerts • **true** shows only suppressed alerts • ***** (asterisk) shows both

ownerFilter	Specifies to filter on the **Owner** column. This corresponds to the **Owner Filter** drop-down menu in the display. Valid values are: • <blank**>** shows alerts that are not owned as well as the logged in user name (which corresponds to the **Owned by Me** drop-down menu selection) • ***** (asterisk) shows owned and not owned alerts
rtvWarningFilter	Specifies to filter on warning alerts. That is, where the alert **Severity** is equal to **1**. Valid values are: • **1** shows warning alerts • <blank> does NOT show warning alerts
rtvCriticalFilter	Specifies to filter on critical alerts. That is, where the alert **Severity** is equal to **2** or **3**. Valid values are: • **2** shows critical alerts • **3** shows critical alerts • <blank> does NOT show critical alerts
rtvOwnerLoc	Specifies to filter on the CMDB owner. This corresponds to the **Owner** value in the **CMDB Filter** field. Valid values are: • the name of an owner from your CMDB which shows only alerts for that owner • ***** (asterisk) which does NOT filter by CMDB owner • <blank> shows only alerts without an owner
rtvAreaLoc	Specifies to filter on the CMDB area. This corresponds to the area value in the **CMDB Filter** field. Valid values are: • the name of an area from your CMDB which shows only alerts for that area • ***** (asterisk) which does NOT filter by CMDB area
rtvGroupLoc	Specifies to filter on the CMDB group. This corresponds to the **Group** value in the **CMDB Filter** field. Valid values are: • the name of a group from your CMDB which shows only alerts for that group • ***** (asterisk) which does NOT filter by CMDB group
rtvServiceLoc	Specifies to filter on the CMDB service. This corresponds to the **Service** value in the **CMDB Filter** field. Valid values are: • the name of a service from your CMDB which shows only alerts for that service • ***** (asterisk) which does NOT filter by CMDB service
rtvEnvironmentLoc	Specifies to filter on the CMDB environment. This corresponds to the **Environment** value in the **CMDB Filter** field. Valid values are: • the name of an environment from your CMDB which shows only alerts for that environment • ***** (asterisk) which does NOT filter by CMDB environment

CHAPTER 4 User Interface Configuration

This section describes how to configure the RTView Enterprise Monitor user interface. These configurations are optional. This section includes:

- "Change Order of Navigation Tabs" on page 77: Modify order of Monitor tabs and hide globally or per-role.
- "Modify the CUSTOM Tab" on page 78: Modify, add or remove Monitor tabs and add or remove custom views.
- "Configure RTView Alerts Table Columns" on page 81: Change which columns are shown in the **Alerts Table**, which column to sort on and whether to sort a column by ascending or descending order.
- "Add Owned By Me to RTView Alerts Table" on page 85: Add a table that only shows alerts for the logged in user to the RTView Alerts Table.

Change Order of Navigation Tabs

This section describes how to change the order and visibility of the navigation tabs (**SERVICE TREE**, **SERVICE VIEWS**, **COMPONENTS**, **ALERTS** and **ADMIN**). For details about modifying user-defined tabs (such as **CUSTOM**), see "Modify the CUSTOM Tab" on page 78.

By default, RTView Enterprise Monitor has the following tabs in this order: **SERVICE TREE**, **SERVICE VIEWS**, **COMPONENTS**, **ALERTS** and **ADMIN**, followed by all user-defined tabs from the **rtv_custom.xml** file.

Use the **$rtvNavTabList** substitution to modify the order and visibility of these tabs either globally or on a per-role basis. The **$rtvNavTabList** substitution supports a comma separated list of Tab ID's which overrides the default tab list. The initial display is set to the first item in the navigation tree for the first tab in the list. For example, the following property limits and reorders the tabs to **CUSTOM**, **SERVICE TREE** and **ADMIN**:

uiprocess.sl.rtview.sub=$rtvNavTabList:Custom,CMDB,Admin

These are the Tab IDs for the standard RTView Enterprise Monitor tabs:

- **Tab ID** - Tab Label
- **CMDB** - SERVICE TREE
- **Service** - SERVICE VIEWS
- **Components** - COMPONENTS
- **Alerts** - ALERTS
- **Admin** - ADMIN

For user-defined tabs, use the value in the **TabID** column of the **TabTreeSelection** table in the **rtv_custom.xml** file.

To apply a modification of your navigation tabs globally:

1. "Open the Central Servers Project" **>General>COMMON PROPERTIES**.
2. Click  to add a new Custom Property, replacing **Custom,CMDB,ALERTS** with your comma separated list of tab id's:

- name=sl.rtview.sub
- value=$rtvNavTabList:Custom,CMDB,ALERTS
- filter=uiprocess

3. **Save** to close the Add Property dialog.
4. **SAVE** (next to the **HOME** button) to save your changes.
5. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

To apply per role:

To specify different tabs per role, add the **$rtvNavTabList** substitution to your **roles.xml** file and list the tabs for that role. For example, the following limits and reorders the tabs for the **admin** role to **ADMIN**, **SERVICE TREE, ALERTS**:

<role>

<name>admin</name>

<displays>

<include>ALL</include>

</displays>

<sub name="$rtvNavTabList" value="Admin,CMDB,Alerts"/>

</role>

Roles that set **$rtvNavTabList** to blank get the default tabs (listed above), roles that do not set **$rtvNavTabList** get the global value set in **central.properties**, and if no value is set in **central.properties** it gets the default tabs.

Modify the CUSTOM Tab

The **CUSTOM** tab is provided as a location for adding user-defined views. The **CUSTOM** tab can be removed or renamed. You can also add additional custom tabs. This section includes:

Replacing Tab Content

To replace the contents of the **CUSTOM** tab with your custom views:

1. Copy your custom view (**.rtv**) files to the **RTViewEnterpriseMonitor/emsample/servers/central** directory.

2. Modify **custom_views_navtree.xml** to replace the tree contents with your custom views.

Renaming the CUSTOM Tab

To rename the **CUSTOM** tab:

Modify **rtv_custom.xml TabTable** to change the **CUSTOM** label in the **TabLabel** column to your custom tab label. Do NOT change the **Custom** value in the **Group** column.

Removing the CUSTOM Tab

To remove the **CUSTOM** tab:

Modify **rtv_custom.xml** to remove the Custom row from the **TabTable** and **TabTreeSelection** tables.

Adding Tabs

1. Choose a Tab ID for your **CUSTOM** tab. This is not the label, but a unique ID that will be used internally to identify your tab. For this example, we will use **MyCustomTab** for the Tab ID. You cannot use the following for the Tab ID:

- Custom
- CMDB
- Service
- Alerts
- Components

2. Create a navigation accordion view for your tab in the **RTViewEnterpriseMonitor/emsample/servers/central** directory:

- Copy **custom_views_acc.rtv** to a new file name. In this example, we copy it to **mycustomtab_acc.rtv**.
- Open **mycustomtab_acc.rtv** in the Display Builder:

    1. **runb_appmon mycustomtab_acc.rtv**.

    2. Modify the **Custom Views** label above the navigation accordion.

    3. Select the navigation accordion and edit the **selectedValue** property. Change the **Filter** value to your Tab ID (**MyCustomTab** in this example).

    4. Open the data attachment in the **navOptionsForFilter** function and change the **Filter** value to your Tab ID (**MyCustomTab** in this example).

    5. Save your display and exit the Display Builder.

3. Create a navigation tree for your tab. Note that each node in the tree must be a unique display/substitution value.

- Copy **custom_views_navtree.xml** to a new filename, **mycustomtab_navtree.xml**.
- Replace the nodes in **mycustomtab_navtree.xml** with your nodes.

4. Add the new navigation tree to your project:

- "Open the Central Servers Project" **>General>COMMON PROPERTIES** tab.
- Click  to add a new Custom Property:

```
name=sl.rtview.xml.xmlsource
value=mycustomtab_navtree.xml 0 mycustomtab_navtree.xml 0 1
filter=uiprocess
```

- **Save** to close the **Add Property** dialog
- Click  to add a new Custom Property:

```
name=sl.rtview.cache.config
value=rtv_tabtree_cache_source.rtv $rtvNavTreeFilename:mycustomtab_navtree.xml
$rtvNavTabName:MyCustomTab
filter=uiprocess
```

- **Save** to close the **Add Property** dialog
- **SAVE** (next to the **HOME** button) to save your changes
- Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

5. Add your new tab to **rtv_custom.xml**. In a text file editor, open **rtv_custom.xml** and edit the following:

- Add a new row to the **TabTable** with the label, Tab ID and navigation view you created in Step 2:

```
<tr>
<td>MyCustomTabLabel</td>
<td>MyCustomTab</td>
<td>mycustomtab_acc</td>
</tr>
```

- Add a new row to the **TabTreeSelection** table with the Tab ID:

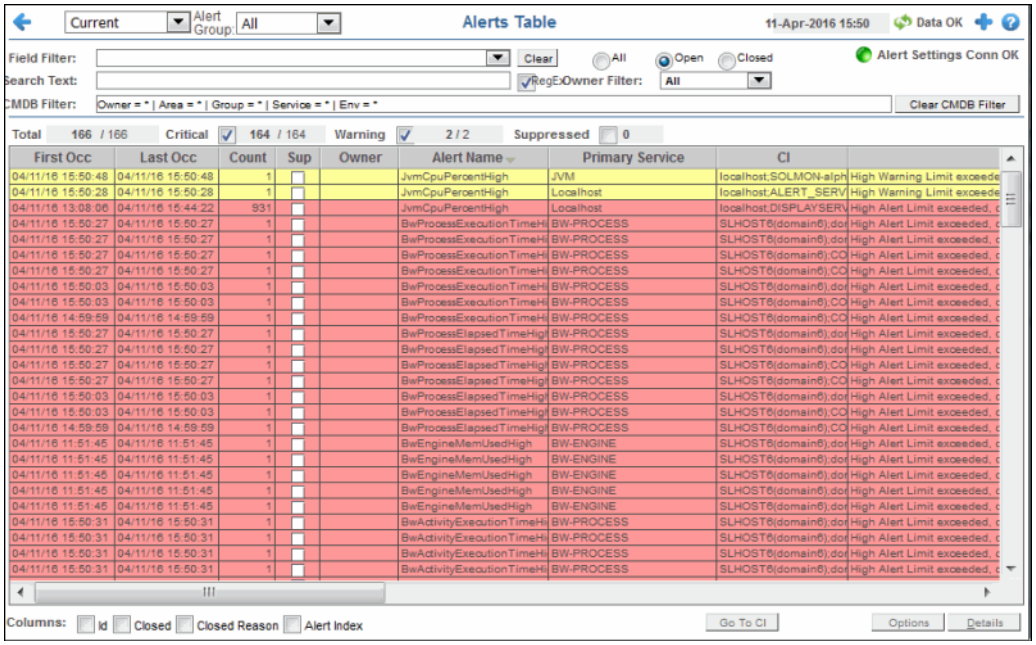
```
<tr>
<td>MyCustomTab</td>
<td>MyCustomTab_1</td>
<td></td>
<td>MyCustomTab</td>
```

Configure RTView Alerts Table Columns

RTView Enterprise Monitor allows you to specify which columns to include in the **Alert Views - "RTView Alerts Table"**. You can also specify which column to sort on (rather than the **Time** column) and whether to sort a column by ascending or descending order.

This configuration impacts the **RTView Alerts Table** in the following displays and any custom displays that include **rtv_alerts_table_common.rtv**:

- **Alert Views - "RTView Alerts Table"** display (**rtv_alerts_table.rtv**)
- **Service Summary Views - "Service By CI Type"** display (**rtv_service_citype_summary.rtv**)
- **Service Summary Views - "Service Summary"** display (**rtv_service_summary.rtv**)
- **Multi Area Service Views - "Services CI Type Summary"** display (**rtv_allareas_allservices_citype_summary.rtv**)
- **Single Area Service Views - Services CI Type Summary** display (**rtv_area_allservices_citype_summary.rtv**) By default, this display is not included in the navigation tree.



By default, the **RTView Alerts Table** (**rtv_alerts_table_common.rtv**) includes the following columns in the following order:

- Time (the column label is **First Occ**)
- Last Update Time (the column label is **Last Occ**)
- **Count**
- **Alert Index** (hidden by default)
- **ID** (hidden by default)
- Cleared (the column label is **Closed** and is hidden by default)
- Cleared Reason (the column label is **Closed Reason** and is hidden by default)
- Acknowledged (the column label is **Sup**)
- **Owner**
- **Alert Name**
- **PrimaryService** (the column label is **Primary Service**)
- CIName (the column label is **CI**)
- **Alert Text**
- **AlertClass**
- **CompID**
- **TicketID**
- **TicketGroup**

Changing the Default Columns

To change the default columns:

1. "Open the Central Servers Project" **>General>COMMON PROPERTIES** tab.
2. Click  to add a new Custom Property:

name=sl.rtview.sub
value=$rtvUserAlertTableColumns:'Time:94 Last Update Time:93 Count:50 ID:50 Cleared:40 Cleared Reason:85 Acknowledged:40 Owner:70 Alert Name:134 Alert Index:150 PrimaryService:150 CIName:117 Alert Text:1000 AlertClass:83 CompID:75 TicketID:69 TicketGroup:86'
filter=uiprocess

3. Replace everything after **$rtvUserAlertTableColumns:** with the column names and column widths in the order you want. The above example configures the default setup for the columns. The value after $rtvUserAlertTableColumns: must be enclosed in single quotes and use the following syntax:

   'colName:colWidth colName2:colWidth2'

   Valid column names are **Time**, **Last Update Time**, **Count**, **ID**, **Cleared**, **Cleared Reason**, **Acknowledged**, **Owner**, **Alert Name**, **PrimaryService**, **CIName**, **CIType**, **Alert Index**, **Alert Text**, **Severity**, **Source**, **AlertClass**, **CompID**, **TicketID**, **TicketGroup** and any other custom columns you have added to the **RTView Alerts Table**.

4. **Save** to close the Add Property dialog

5. **SAVE** (next to the HOME button) to save your changes

6. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

Exposing ID, Cleared, Cleared Reason and Alert Index Columns

The ID, Cleared, Cleared Reason and Alert Index columns are always included, but are hidden by default. To control the visibility of these columns, do the following using **0** in the value to hide the column, and using **1** in the value to show it:

1. "Open the Central Servers Project" **>General>COMMON PROPERTIES** tab.

2. Click  to add a new Custom Property to control the visibility of the **Closed** column:

name=sl.rtview.sub
value=$rtvUserShowCleared:1
filter=uiprocess

3. **Save** to close the **Add Property** dialog

4. Click  to add a new Custom Property to control the visibility of the **Closed Reason** column:

name=sl.rtview.sub
value=$rtvUserShowClearedReason:1
filter=uiprocess

5. **Save** to close the **Add Property** dialog

6. Click  to add a new Custom Property to control the visibility of the **ID** column:

name=sl.rtview.sub
value=$rtvUserShowId:1
filter=uiprocess

7. **Save** to close the **Add Property** dialog

8. Click  to add a new Custom Property to control the visibility of the **Alert Index** column:

name=sl.rtview.sub
value=$rtvUserShowAlertIndex:1
filter=uiprocess

9. **Save** to close the **Add Property** dialog

10.  to save your changes

11. Execute the **stop_central_servers** script, located in the R**TViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

If the ID, Cleared and Cleared Reason columns are specified in the **$rtvUserAlertTableColumns**, the columns are positioned in columns according to that order. If they are not specified in the **$rtvUserAlertTableColumns**, they are positioned after (to the right of) the columns specified in **$rtvUserAlertTableColumns**. In **rtv_alerts_table.rtv** (**Alert Views - RTView Alerts Table**), you can also toggle the visibility of these columns using the check-boxes at the bottom of the display.

Note: The values in **$rtvUserAlertTableColumns** also populate the **Field Filter** drop-down menu in the **rtv_alerts_table.rtv** (Alert Views>RTView Alerts Table). The **Field Filter** drop-down menu also always contains the ID, Closed and Closed Reason columns whether or not those columns are visible.

Changing the Sort Column and Order

By default, the RTView Alerts Table is sorted by the Time column in descending order to show new alerts first. You can configure the RTView Alerts Table to sort by a different column and by descending order. To configure the columns in this way:

1. "Open the Central Servers Project" **>General>COMMON PROPERTIES** tab.
2. Click to add a new Custom Property, replacing **Time** with the name of the column you want to sort by:

```
name=sl.rtview.sub
value=$rtvUserAlertTableSortColumn:Time
filter=uiprocess
```

3. **Save** to close the Add Property dialog.
4. Click to add a new Custom Property, using a value of **1** to sort ascending or **0** to sort descending:

```
name=sl.rtview.sub
value=$rtvUserAlertTableSortAsc:0
filter=uiprocess
```

5. **Save** to close the **Add Property** dialog.
6. **SAVE** (next to the **HOME** button) to save your changes.
7. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

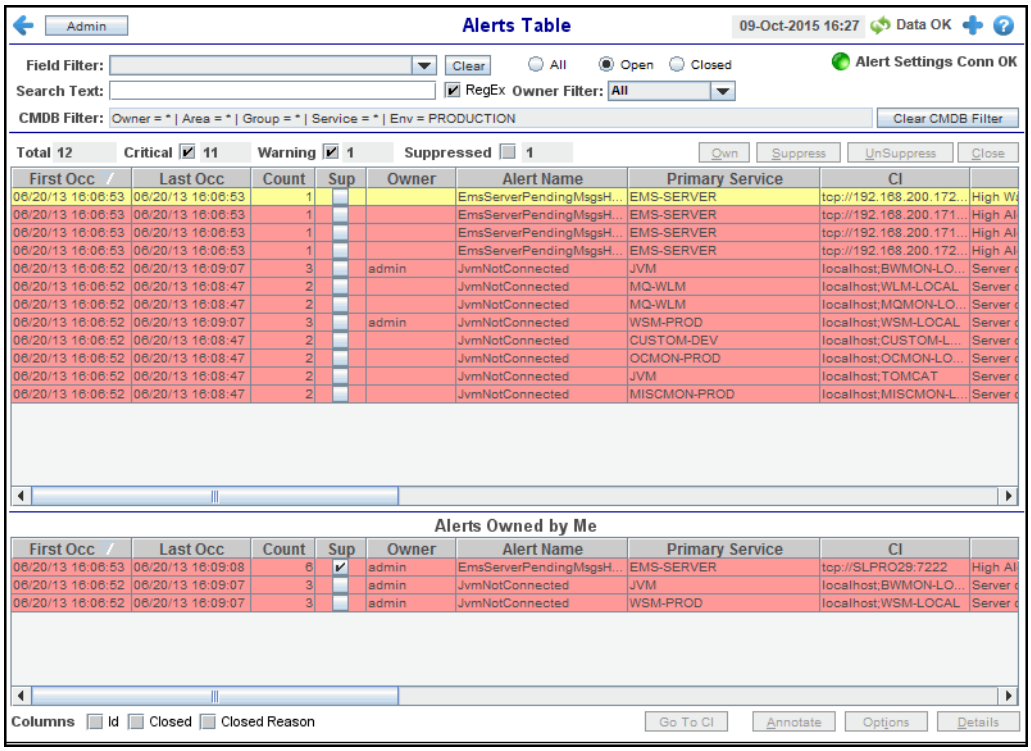
Note: You can also change the column sorted on in the display by clicking the header of the column you want to sort on.

All of the above substitutions can be set on a per-user or per-role basis if the RTView login is enabled and custom users or roles are defined. See the documentation for information on how to define substitution values for custom users and roles.

Add Owned By Me to RTView Alerts Table

RTView Enterprise Monitor allows you to include the **Alerts Owned By Me** table in the lower portion of the **Alert Views -** "RTView Alerts Table" display.

The **Alerts Owned By Me** table shows all open (not cleared) alerts owned by the logged in user. Filters selected in the display do not apply to this table.



1. "Open the Central Servers Project" **>General>COMMON PROPERTIES** tab.

2. Click to add a new Custom Property:

name=sl.rtview.sub

value=$rtvUserShowDualTables:1
filter=uiprocess

3. **Save** to close the **Add Property** dialog.

4. **SAVE** (next to the **HOME** button) to save your changes.

5. Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers.

The **Alerts Owned By Me** table can be set on a per-user or per-role basis if the RTView login is enabled and custom users or roles are defined.

For details about how to define substitution values for custom users and roles, see "Configure User and Role Management" on page 52.

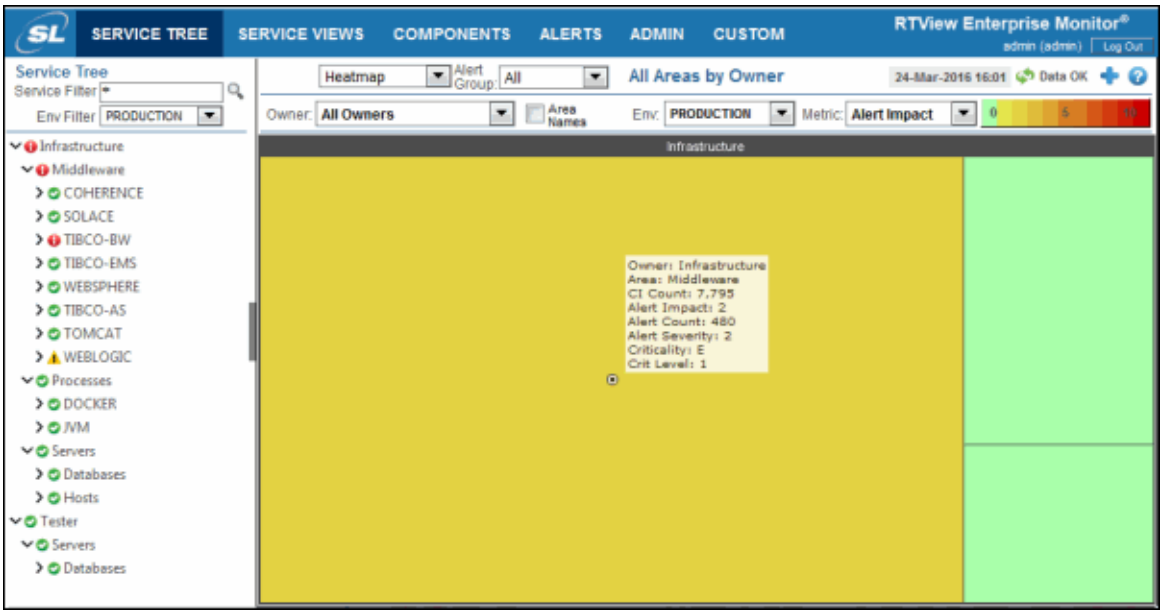
CHAPTER 5 Using the Monitor

This section describes how to read and use RTView Enterprise Monitor displays, and also includes technology-specific Solution Packages. This section includes:

Overview

RTView Enterprise Monitor uses visual cues (such as color coding, graphic charts and sizing of shapes) to communicate the current state of all elements in your system. This section describes how displays are structured and organized, how to read heatmaps, tables and trend graphs, as well as GUI functionality and navigation. This section includes:

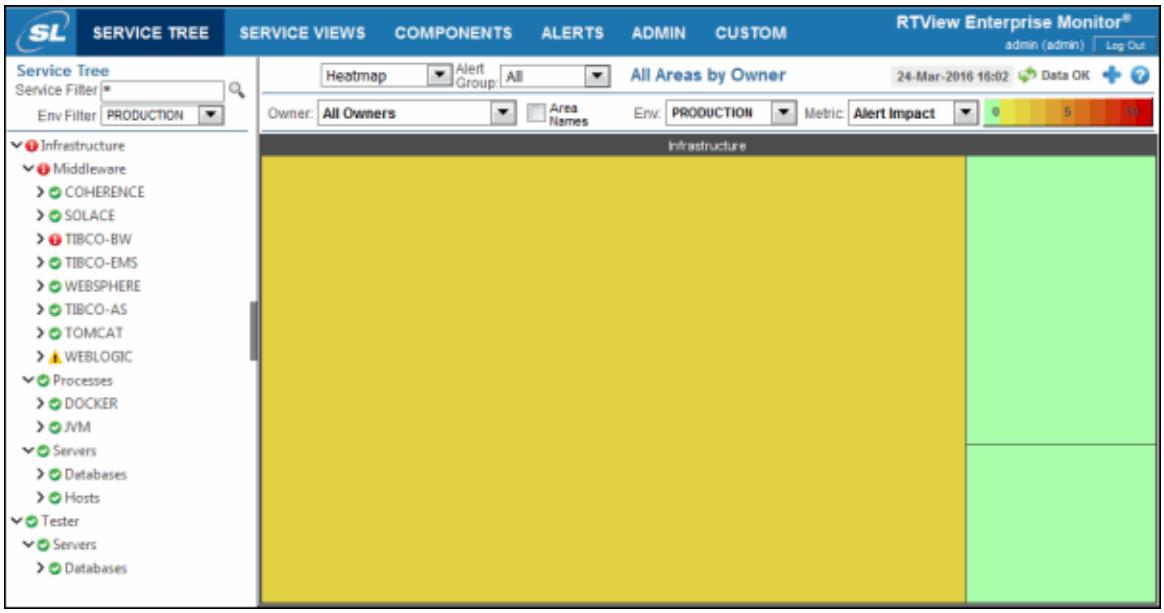
Navigation Tabs



There are six different tabs that run along the upper portion of the window:

- "SERVICE TREE Tab": provides a tree structure view of your defined CMDB with 4 levels of hierarchy: **Owner>Area>Group>Service**. The tree is configurable and should be set up to represent how a support person likes to conceptually think of the vast number of items that are being monitored. Tree contents are filtered by the $rtvOwnerMask, $rtvAreaMask, $rtvGroupMask and $rtvServiceMask values for the logged in user. For details, see **Substitutions for User and Role Management**.
- "SERVICE VIEWS Tab": provides an alternate way of accessing the primary RTView Enterprise Monitor displays also found in the **SERVICE TREE** tab. This tab might be used by power users who are very familiar with their monitoring environment and choose not to visualize the entire service tree.
- "COMPONENTS Tab": provides access to the **JVM Process Views**, the **Tomcat Servers Views**, the **RTView Servers Views**, and any Views included with the Solution Packages that you have installed. This tab organizes the monitoring information by technology or vendor and allows you to view the health state of your technology footprint without logical or service groupings. Specialists that understand in some depth how the technologies are deployed, configured, load-balanced, and scale based on load will gain benefit on the organization of performance metrics by the important functional sub-components of the technology.
- "ALERTS Tab": provides a view of the current active alerts in the system and allows you to manage those alerts by owning them, acknowledging them, and/or suppressing them. Tree contents are filtered by the $rtvOwnerMask, $rtvAreaMask, $rtvGroupMask and $rtvServiceMask values for the logged in user. For details, see **Substitutions for User and Role Management**.
- "ADMIN Tab": can be accessed by administrators of RTView Enterprise Monitor, who can use this tab during installation to set up proper alert settings, to describe logical and service groupings that drive the construction of the Service Tree, and to "monitor the monitor" view of the current health state of RTView Enterprise Monitor and how it is currently deployed and configured.
- "CUSTOM Tab": provides a location where you can add your own tab and views.

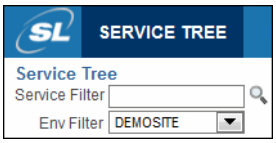
SERVICE TREE Tab



The **SERVICE TREE** tab provides a tree structure view of your defined CMDB with 4 levels of hierarchy: **Owner>Area>Group>Service** (see "Fundamental Structure of Displays" for more information). This tab is the primary source for understanding the health of your services and for drilling down to analyze issues. The Service Tree, which is configurable, shows user-defined logical groupings of the infrastructure and middleware used to support applications and should be set up to represent how support personnel like to conceptually think of the vast number of items that are being monitored. These groupings could, for example, contain a collection of monitored Configuration Items used to support a specific application or a service, or they could contain Configuration Items relevant to varying technologies located at specific data centers. The Service Tree aggregates the current alert state of any item in a group to indicate which groups have items that need to be investigated, and you can use a variety of visual clues to prioritize and analyze the issues. You can also determine priority using the Alert Impact view in the heatmaps to identify which alert conditions will be the most impactful to your business, and you can then analyze the situation using a variety of tools including:

- **Key Metrics**: allows you to view the cross-correlation of Configuration Items relevant to a grouping or service and how their performance may affect each other and the services they support.
- **Drill Down CI Summary Views**: provides a way to analyze how a particular Configuration Item has been performing over time.
- **Metric Explorer**: allows you to choose specific metrics to chart when analyzing several critical performance metrics over time.

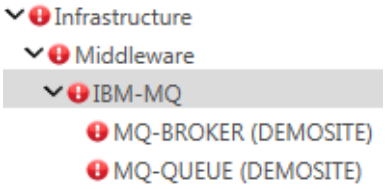
This tab allows you to filter the navigation tree content by service and environment (see figure below). The environment you select also sets the **Environment** filter on the main panel. Note that changing the **Environment** filter on the main panel does not set the **Environment** filter in the navigation panel.



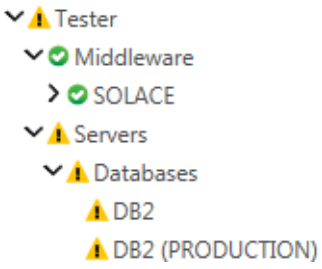
Alerts

Each level within the Service Tree has a red, yellow, or green icon next to it, which indicate the highest alert level for that particular Owner, Area, Group, or Service. These icons allow you to instantly recognize problem areas within your system and allow you to drill down to quickly find the source of the issue. A red icon indicates that one or more alerts exceeded their ALARM LEVEL threshold, a yellow icon indicates that one or more alerts exceeded their WARNING LEVEL threshold, and a green icon indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold.

The Owner, Area, and Group automatically display the icon representing the highest level alert for their associated services with red (ALARM LEVEL threshold exceeded) being the most serious, yellow (WARNING LEVEL threshold exceeded) being intermediate, and green meaning everything is functioning normally. For example, if any of the services within a particular **Owner>Area>Group** have one or more alerts that exceeded their ALARM LEVEL threshold and, hence, have a red icon next to it in the tree, then the associated Owner, Area, and Group levels will also have the same red icon. In the example below, you can see that the MQ Broker service has one or more alerts that exceeded their ALARM LEVEL threshold and has a red indicator. As a result, the Owner, Area, and Group also have the red indicator



If the highest alert level for the services within a particular **Owner>Area>Group** is a service that has one or more alerts that exceeded their WARNING LEVEL threshold and, hence, has a yellow icon next to it in the tree, then the associated Owner, Area, and Group levels will also have the same yellow icon. In the example below, you can see that the DB2 database has one or more alerts that exceeded its WARNING LEVEL threshold and has a yellow indicator. Since none of the other services in this particular tree have alerts that exceeded their ALARM LEVEL threshold, then the associated Owner, Area, and Group also have the yellow indicator since the WARNING LEVEL threshold is the highest alert level threshold exceeded.



Available Displays

The following displays are available in the following levels in this tab:

Owner Level (top level)

To access the following displays, select an Owner Level option (**Infrastructure**, for example) to display an Owner level display. Select one of the following options from the drop-down in the upper left-hand corner of the display to view the associated display:

Drop-down Option	Display	Description
Heatmap	"Area Heatmap" on page 117	Heatmap of the most critical alerts for all Areas of your system, with the option to filter by Owner, Environment and alert Metric.
Area	"Area Table" on page 119	Table of data shown in the "Area Heatmap" with the option to filter by Owner and Environment.

Note: When selecting an Owner Level option, the display that opens by default will be the one that was last selected. For example, if Heatmap was the display that was previously selected, Heatmap will display by default again.

Area Level (second level down)

To access the following displays, select an Area Level option (**Middleware** in the example above) to display an Area Level display. Select one of the following options from the drop-down in the upper left-hand corner of the display to view the associated display:

Drop-down Option	Display	Description
By Group	"Group/Service Heatmap" on page 121	Heatmap of alert states for Services by Area, with the option to filter by Area, Group, Environment and alert Metric, and the option to show Group and Service Names.
By Region	"Group/Region Heatmap" on page 123	Heatmap as described for the **Group / Service Heatmap** (above), with the option to filter by Region and no option to show Service Names.
Table	"Group / Service Table" on page 124	Table of data shown in the "Group/ Service Heatmap" on page 121.
By CI Type	"Services CI Type Summary" on page 126	Table that shows the health state of Services per CI Type.
History	"Services History Heatmap" on page 130	Heatmap of alert states, over time, for Services in a selected Area, with the option to filter by Group, Environment and alert Metric.

Note: When selecting an Area Level option, the display that opens by default will be the one that was last selected. For example, if Group/Service Heatmap was the display that was previously selected, Group/Service Heatmap will display by default again.

Group Level (third level down)

To access the following displays, select a Group Level option (IBM-MQ in the example above) to display a Group Level display. Select one of the following options from the drop-down in the upper left-hand corner of the display to view the associated display:

Drop-down Option	Display	Description
By Group	"Single Area: Group/Service Heatmap"	Heatmap of alert states for Services by Area, with the option to filter by Area, Group, Environment and alert Metric, and the option to show Group and Service Names.
By Region	"Single Area: Region/Service Heatmap"	Heatmap as described for the **Group / Service Heatmap** (above), with the option to filter by Region and no option to show Service Names.
Table	"Single Area: Region/Service Heatmap"	Table of the data shown in the "Single Area: Group/Service Heatmap" on page 132.
By CI Type	"Single Area: Services CI Type Summary"	Table that shows the health state of Services per CI Type.
History	"Single Area: Services History Heatmap"	Heatmap of alert states, over time, for Services in a selected Area, with the option to filter by Group, Environment and alert Metric.

Note: When selecting a Group Level option, the display that opens by default will be the one that was last selected. For example, if Group/Service Heatmap was the display that was previously selected, Group/Service Heatmap will display by default again.

Service Level (fourth level down)

To access the following displays, select a Service Level option (MQ Broker (DEMOSITE) in the example above) to display a Service Level display. Select one of the following options from the drop-down in the upper left-hand corner of the display to view the associated display:

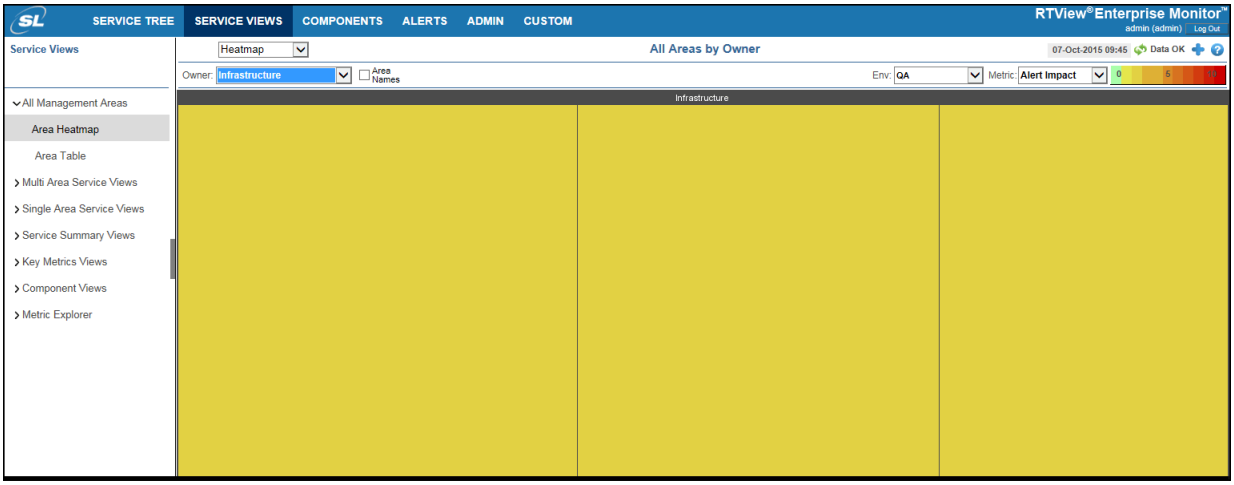
Drop-down Option	Display	Description
By CI Type	"Service By CI Type"	Table of alert states for a Service organized CI Type, with general alert information.
Summary	"Service Summary"	Table of CIs by Service, with detailed alert information.
Health	"Service Health Heatmap" on page 150	Heatmap of CIs by Service, with the option to filter by Owner, Area, Group, Environment and alert Metric, and show CI Names.
KM Heatmap	"Service KM Heatmap" on page 152	Heatmap of Key Metrics current data for one or more Services in your CMDB hierarchy.
KM Table	"Service KM Table" on page 156	Table of Key Metrics current data for one or more Services.
KM History	"Service KM History" on page 159	History heatmap of Key Metrics historical data for one or more Services.
KM History (Alt)	"Service KM History (Alt)" on page 163	History heatmap of Key Metrics historical data for one or more Services.

Note: When selecting a Service Level option, the display that opens by default will be the one that was last selected. For example, if By CI Type was the display that was previously selected, By CI Type will display by default again.

Select the following button, which is available when you select either **By CI Type** (**Service By CI Type** display) or **Summary** (**Service Summary** display) from the drop-down list, to open the associated display:

Button	Display	Description
	"Metric Explorer" on page 186	The Metric Explorer (MX) is a tool for creating and viewing custom dashboards, referred to as MX Views.

SERVICE VIEWS Tab



The **SERVICE VIEWS** tab is a simplified version of the **SERVICE TREE** tab that uses drop-down navigation to access displays without the complexity of the service tree. This tab contains the following Views:

- "All Management Areas": Displays in this View show the health of your entire system using aggregated data from all Areas. Use these displays to quickly identify critical conditions across all Areas in your system, then drill-down to investigate in lower-level displays.
- "Multi Area Service Views": Displays in this View show the health of Services for one or more Groups. Use these displays to identify critical conditions across all Areas or a single Area. Drill-down to investigate in lower-level displays.
- "Single Area Service Views": Displays in this View show the health of Services for one or more Groups. Use these displays to identify critical conditions across a single Area. Drill-down to investigate in lower-level displays.
- "Service Summary Views": Displays in this View show the health of CI Types. Use these displays for a closer view of a critical condition, including alert details.
- "Key Metrics Views": The Key Metrics (KM) feature shows how close a metric is approaching its threshold (rather than your ACTIVE alerts and their impact on the overall application or service), enabling you to anticipate performance problems BEFORE the alert threshold is crossed and analyze the circumstances that led up to error conditions.
- "Metric Explorer" on page 186: The Metric Explorer (MX) is a tool that allows end-users to quickly create custom dashboards for metrics they specifically want to analyze.

COMPONENTS Tab

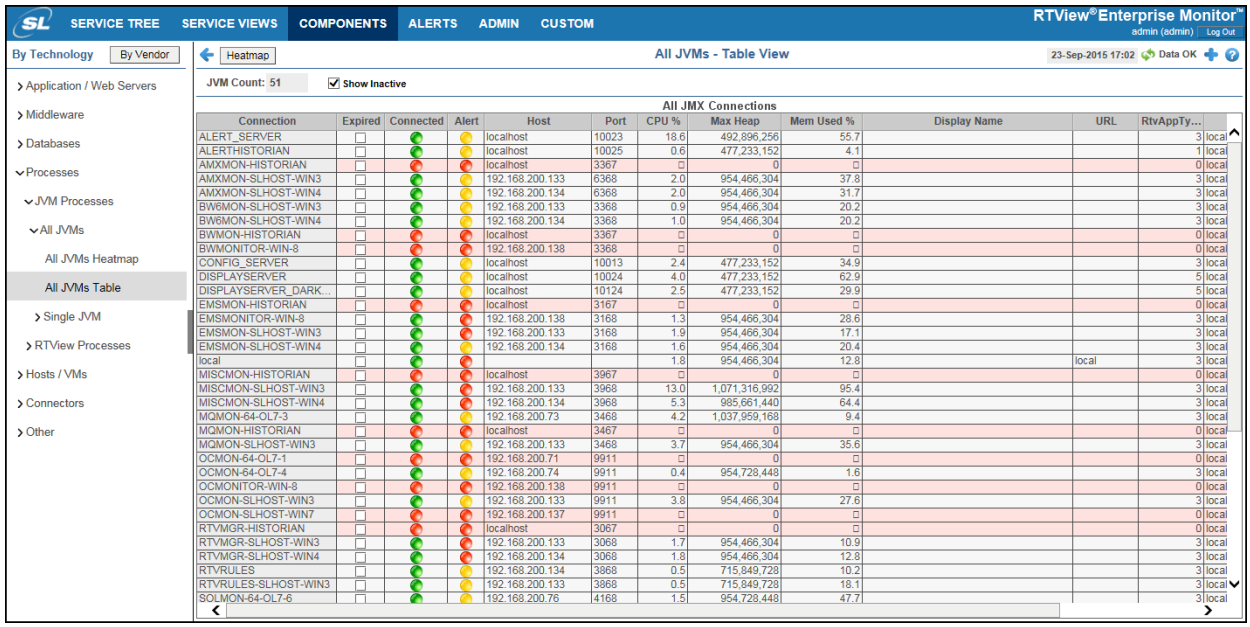
The **COMPONENTS** tab organizes the monitoring information by technology or vendor and allows you to view the health state of your technology footprint without logical or service groupings. This tab also contains deep summaries and drill-downs to the subcomponents that comprise a particular technology. By default, this tab provides access to the **JVM Process** Views, the **Tomcat Servers** Views, the **RTView Servers** Views, and any Views included with the Solution Packages that you have installed. The following views are available via this tab:

- "JVM Processes View/Displays": Displays in this View show performance data for monitored Java Virtual Machine (JVM) Processes. Use these displays to monitor performance of your JVMs.
- "Tomcat Monitor Views/Displays": Displays in this View show performance data for monitored Tomcat applications. Use these displays to monitor Tomcat connections and performance of your Web applications and modules.
- "RTView Servers" on page 191: Displays in this View show data gathered by RTView and performance metrics for your RTView Servers.

There are two different ways to view the available displays: **By Technology** and **By Vendor**.

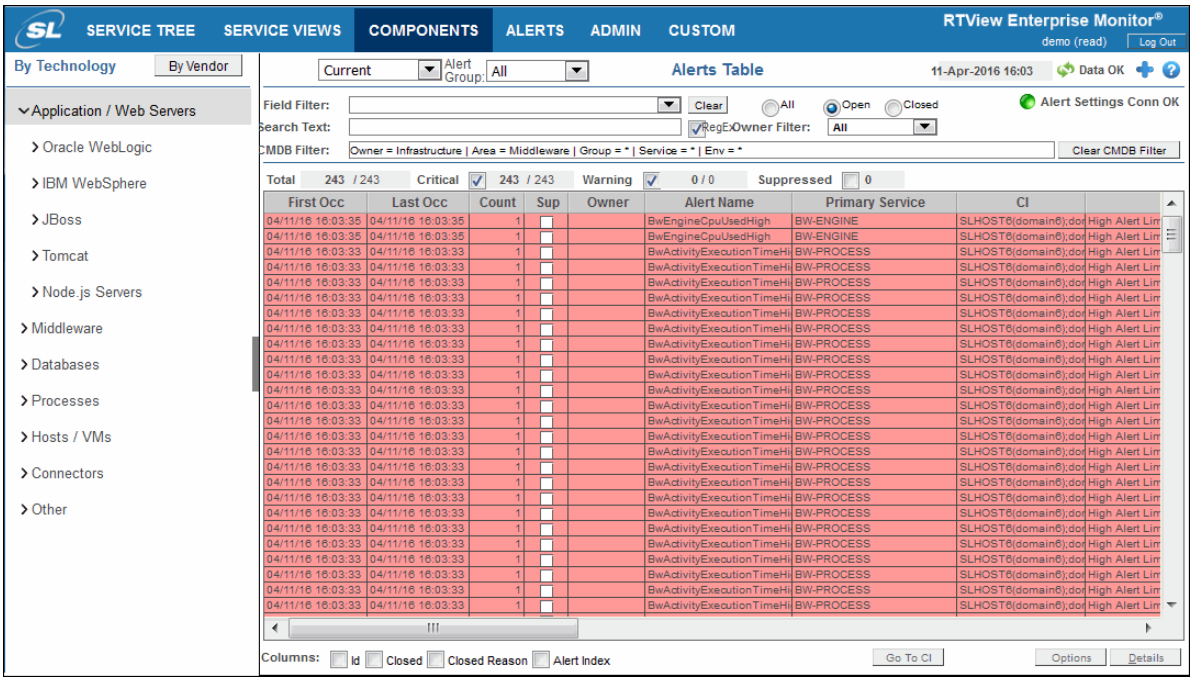
By Technology Button

The **By Technology** button lists the available displays by the type of technology (Application/ Web Servers, Middleware, Databases, Processes, Hosts/VMs, Connectors, Other).

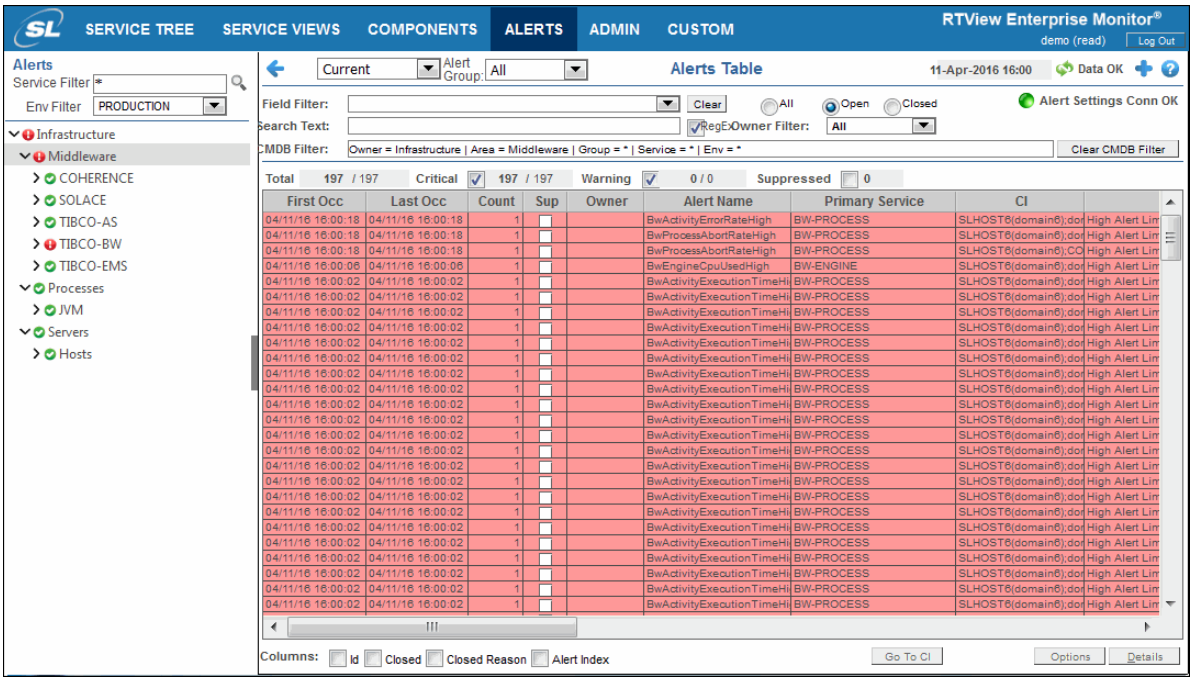


By Vendor Button

The **By Vendor** button lists the displays by vendor name (for example: TIBCO, Oracle, and IBM).



ALERTS Tab



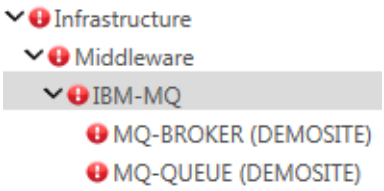
The **ALERTS** tab provides a view of the current active alerts in the system and allows you to manage those alerts by owning them, acknowledging them, and/or suppressing them. You can navigate and filter the alert list by using the service tree to focus on alerts by logical or service groupings. This tab is customizable and can be interfaced with an existing trouble ticket system so that alerts that require an action can be tracked and managed by those systems.

This tab allows you to filter the navigation tree content by service and environment (see figure below). The environment you select also sets the **Environment** filter on the main panel. Note that changing the **Environment** filter on the main panel does not set the **Environment** filter in the navigation panel.

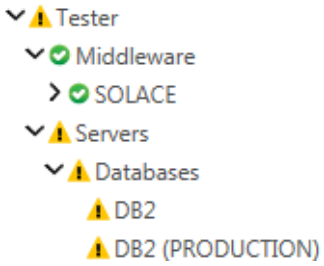
Alert Icons

Each level within the Alerts tab service tree has a red, yellow, or green icon next to it, which indicate the highest alert level for that particular Owner, Area, Group, or Service. These icons allow you to instantly recognize problem areas within your system and allow you to drill down to quickly find the source of the issue. A red icon indicates that one or more alerts exceeded their ALARM LEVEL threshold, a yellow icon indicates that one or more alerts exceeded their WARNING LEVEL threshold, and a green icon indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold.

The Owner, Area, and Group automatically display the icon representing the highest level alert for their associated services with red (ALARM LEVEL threshold exceeded) being the most serious, yellow (WARNING LEVEL threshold exceeded) being intermediate, and green meaning everything is functioning normally. For example, if any of the services within a particular **Owner>Area>Group** have one or more alerts that exceeded their ALARM LEVEL threshold and, hence, have a red icon next to it in the tree, then the associated Owner, Area, and Group levels will also have the same red icon. In the example below, you can see that the MQ Broker service has one or more alerts that exceeded their ALARM LEVEL threshold and has a red indicator. As a result, the Owner, Area, and Group also have the red indicator



If the highest alert level for the services within a particular **Owner>Area>Group** is a service that has one or more alerts that exceeded their WARNING LEVEL threshold and, hence, has a yellow icon next to it in the tree, then the associated Owner, Area, and Group levels will also have the same yellow icon. In the example below, you can see that the DB2 database has one or more alerts that exceeded its WARNING LEVEL threshold and has a yellow indicator. Since none of the other services in this particular tree have alerts that exceeded their ALARM LEVEL threshold, then the associated Owner, Area, and Group also have the yellow indicator since the WARNING LEVEL threshold is the highest alert level threshold exceeded.



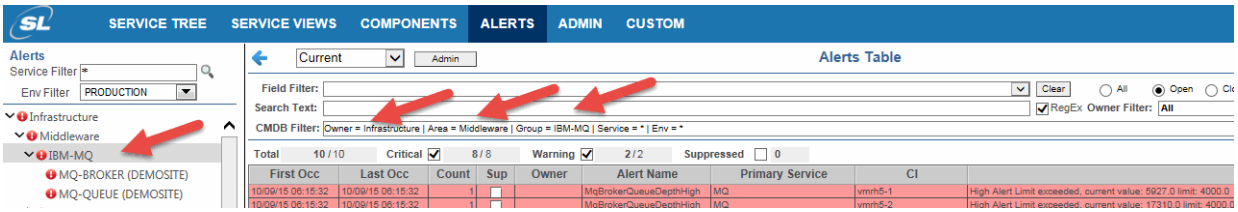
Available Displays

To access the following displays, select one of the following options from the drop-down in the upper left-hand corner of the display to view the associated display:

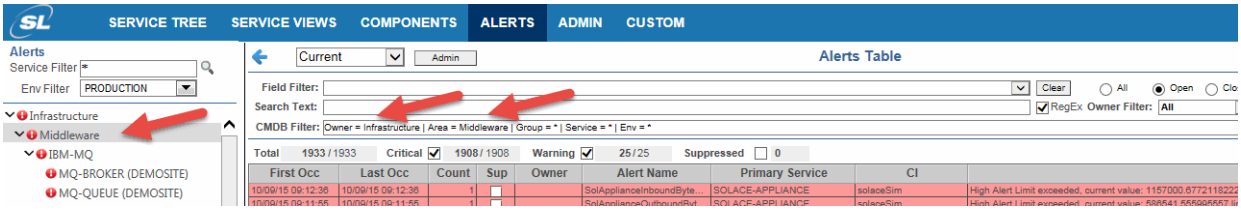
Drop-down Option	Display	Description
Current	"RTView Alerts Table" on page 199	This display allows you to track and manage all alerts that have occurred in the system, as well as to add comments, acknowledge, or assign Owners to alerts.
History	"Alert History Table" on page 203	This display allows you to track the history of any alert that has occurred in your RTView Enterprise Monitor system.

Note: When selecting an option at any level, the display that opens by default will be the one that was last selected. For example, if History was the display that was previously selected, History will display by default again.

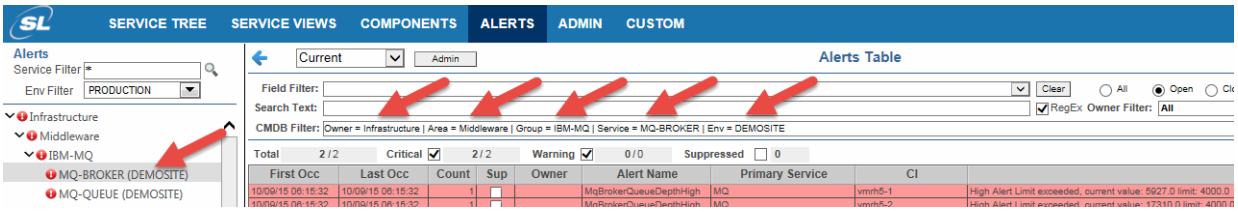
When you select an option at any of the **Owner>Area>Group>Services** levels in the **RTView Alerts Table** display, the display automatically filters the list of alerts based on the level you selected. For example, if you were to select the IBM-MQ option at the Group level, then the filter will be set to Owner=Infrastructure, Area=Middleware, Group=IBM-MQ (the option at the level you selected), and Service and Environment will be set to * (or all services and environments for that particular Group).



If you were to select the Middleware option at the Area level, then the filter will be set to Owner=Infrastructure, Area=Middleware (the option at the level you selected), and Group and Service and Environment will be set to * (or all groups, services, and environments for that particular Area).



If you were to select the Middleware option at the Area level, then the filter will be set to Owner=Infrastructure, Area=Middleware, Group=IBM-MQ, Service=MQ-BROKER, and Environment=DEMOSITE (the option at the level you selected).

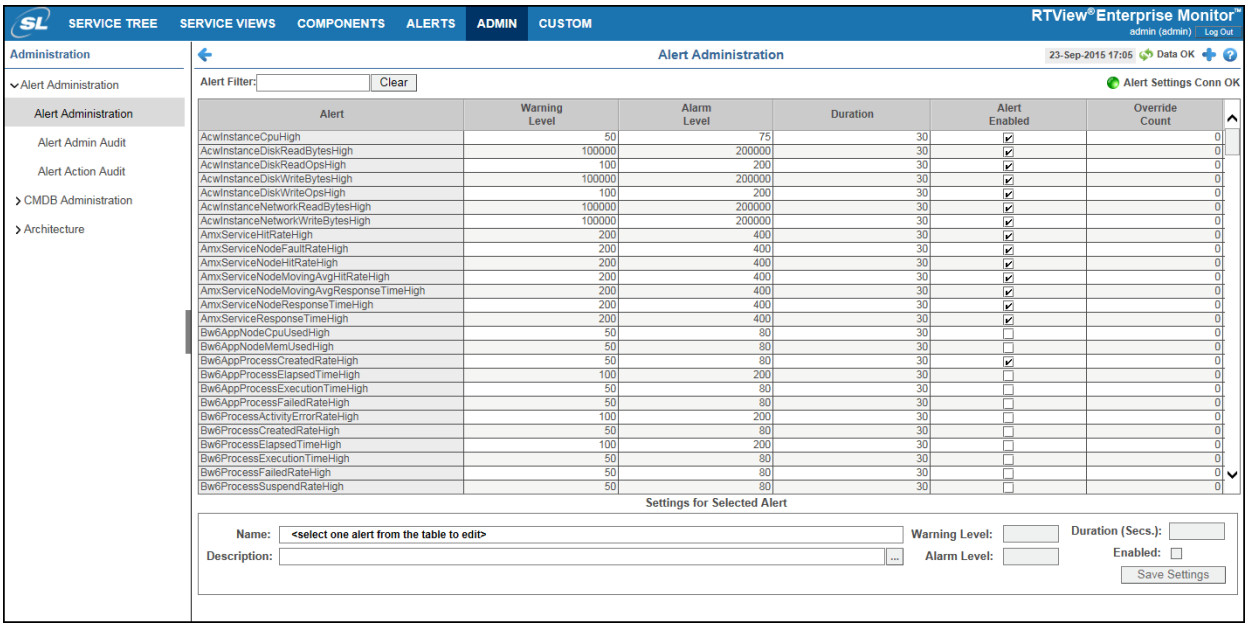


Available Display via a Button

If you select the **Current** option from the drop-down list, the following button is available on the **RTView Alerts Table** display. Select the following button to open the associated display:

Button	Display	Description
Admin	"Alert Administration" on page 206	This display allows you to set global or override alert thresholds.

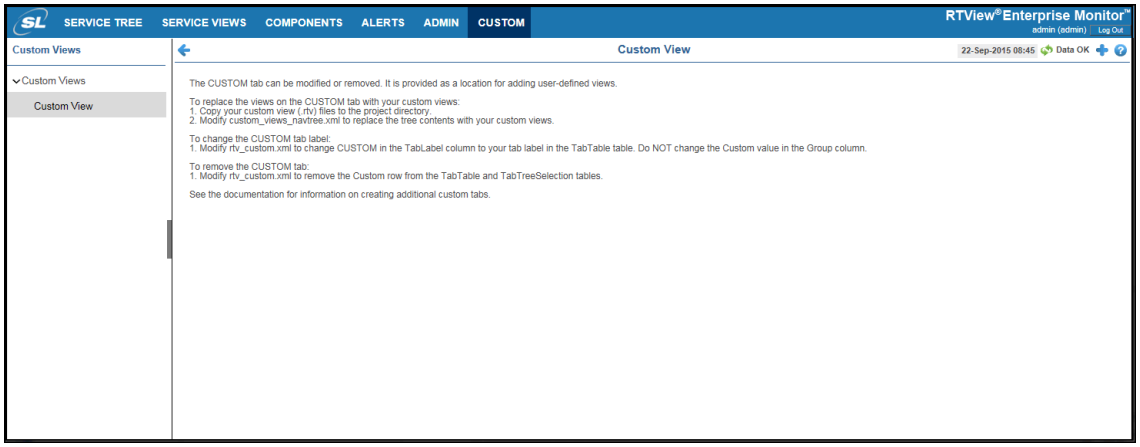
ADMIN Tab



The **ADMIN** tab can only be accessed by administrators of RTView Enterprise Monitor, who can use this tab during installation to set up proper alert settings, to describe logical and service groupings that drive the construction of the Service Tree, and to "monitor the monitor" view of the current health state of RTView Enterprise Monitor and how it is currently deployed. This tab provides access to the **Alert Administration**, **CMDB Administration**, and **Architecture** Views. See the following sections for more information:

- "Administration" on page 206: Displays in this View allow you to set alert thresholds, track alert management, and modify your Service Data Model.
- "CMDB Administration" on page 215: Use this display to setup, view, or modify your Service Data Model (CMDB), including: adding, renaming, deleting or merging your CMDB hierarchical elements (Owners, Areas, Groups or Services), associating CIs with Services and assigning or modifying CI attributes (such as Criticality).
- "Architecture" on page 220: Displays in this View show RTView Enterprise Monitor system information such as a topological view of your components and their connection state, configuration definitions and mapping, and performance metrics for your Cache Tables and Data Servers.

CUSTOM Tab



The **CUSTOM** tab provides a location where you can add your own custom tab and views, and create diagram displays. See the following sections for more information:

- **Modify the CUSTOM Tab**
- "Diagram Views" on page 245

Fundamental Structure of Displays

To interpret RTView Enterprise Monitor displays it is helpful to understand the Service Data Model. The Service Data Model, also referred to as the CMDB, is a database that forms the fundamental structure of all RTView Enterprise Monitor displays, and enables data aggregation and filtering.

The Service Data Model has a four level hierarchy which is, from the highest level (Owner) to the lowest level (Service):

- Owner
- Area
- Group
- Service

The Service Data Model maps all the Configuration Items (CIs) in your RTView Enterprise Monitor system to one or more Services (CIs are items being monitored by RTView Enterprise Monitor--servers, processes and so forth--anything that can be configured). Each Service is mapped to a Group, each Group to an Area and each Area to an Owner. Displays are organized and populated with data according to this hierarchy. This mapping enables RTView Enterprise Monitor to aggregate data for several hundreds of CIs, and allows objects (heatmaps, tables and so forth) to filter data shown according to user selections.

For details about the configuring the Service Data Model, see the Configure Service Data Model section.

Heatmaps

Heatmaps organize CIs (according to the Service Data Model) into rectangles and use color to highlight the most critical value in each. Heatmaps enable you to view various alert metrics in the same heatmap using drop-down menus. Each Metric has a color gradient bar that maps relative values to colors. In most heatmaps, the rectangle size represents the number of CIs in the rectangle; a larger size is a larger value.

Heatmaps scale color for a given metric according to the following rules and are applied in the following order:

a) If the metric is associated with an alert, then the color range is scaled from zero to the metric's high Alarm Level threshold, and the color will be red for values near the alerm threshold.

b) If the metric is not associated with an alert, but the metric is bounded (for example, the **CPU %** utilization value must be in the **0** to **100%** range), then the color is scaled using the user-specified maximum value for the metric.

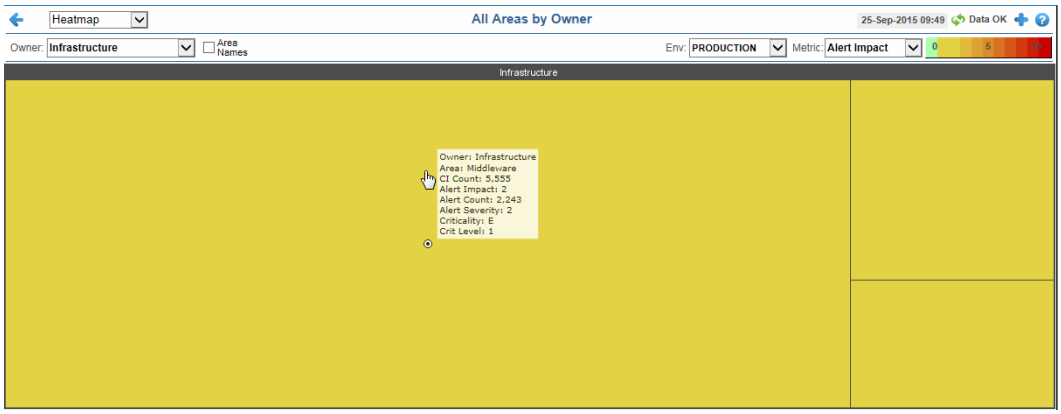
c) Otherwise, the metric is autoscaled into a color range from white (minimum) to green (high) using the current highest metric value observed over the monitored entities.

By default, the metric is linearly scaled to an appropriate color. If the **Log** checkbox is checked, then the selected color reflects the logarithm of the current metric value.

Heatmaps include drop-down menus to filter data by Owner, Area, Group, Service, Region and Environment. The filtering options vary among heatmaps.

For example, the **All Management Areas** - "Area Heatmap" (shown in the following figure) illustrates a typical RTView Enterprise Monitor heatmap. The heatmap contains a **Metric** drop-down menu with options to show **Alert Impact**, **Alert Severity**, **Alert Count** and **Criticality** (menu options vary according to the data populating the heatmap). **Alert Impact** is selected and its corresponding color gradient bar  is shown. Each rectangle represents all CIs in an Area. The red rectangle in the heatmap indicates that one or more CIs in that Area currently has an alert in an alarm state. The yellow rectangles in the heatmap indicate that one or more CIs in those Areas currently have an alert in a warning state. A green rectangle would indicate that no alert is in a warning or alarm state in an Area.

Continuing with our example, there are two filtering options. You can choose to show all Owners or a single Owner, and all Environments or a single Environment. Each rectangle represents an Area. The rectangle size represents the number of CIs in the rectangle; a larger size is a larger value. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. The following figure illustrates the mouse-over feature in which we see all the **Metric** drop-down values.



In most heatmaps, you can also drill-down to more detail by clicking a rectangle in the heatmap. Or, click Open New Window and then drill-down. The drill-down opens a display that contains relevant and more detailed data.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

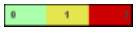
Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient  bar, where **10** is the highest Alert Impact.

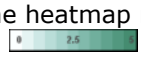
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity.

Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**.

Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**.

Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.

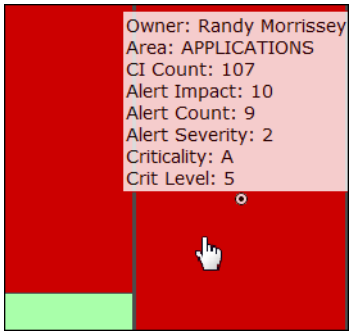
Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Criticality The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient  bar, where **5** is the highest Criticality.

Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

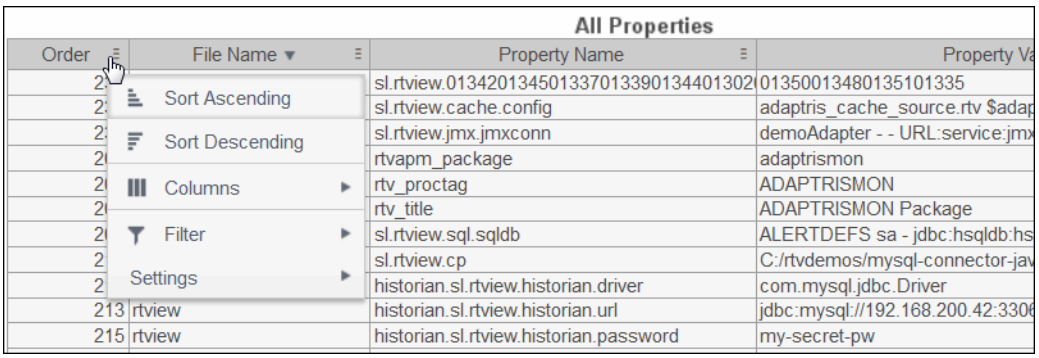
Mouse-over

The mouse-over functionality provides additional detailed data in an over imposed pop-up window when you mouse-over a heatmap. The following figure illustrates mouse-over functionality in a heatmap object. In this example, when you mouse-over a host, details are shown such as **CI Count**, **Alert Impact**, **Alert Severity**, and **Criticality**.



Tables

Tables contain the same data that is shown in the heatmap in the same View, and additional data not included the heatmap.



Tables support advanced HTML, interactive features: sorting on multiple columns, filtering on multiple columns, column resizing, column reordering, and hiding columns. Many of these features are accessed from the column menu, shown in the screen shot above, which you open by clicking on the menu icon in a column's header.

Additional features are:

Multiple Column Sorting

Click on a column header to sort the table by that column. On the first click, the column is sorted in ascending order (smallest value at the top), on the second click the sort is in descending order, and on the third click, the column is returned to its original unsorted state. A sort on a string column is case-insensitive.

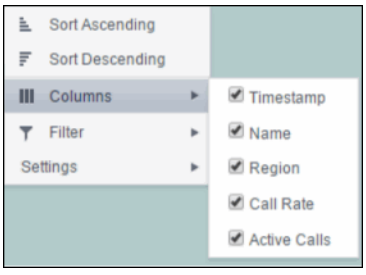
To sort multiple columns, click on the column header for each column you want to sort. The sorting is performed in the order that the column headers were clicked. Multiple column sorting is a very useful feature, but can also cause confusion if you intend to sort on a single column, but forget to "unsort" any previously selected sort columns first. You should check for the up/down sort icon in other column headers if a sort gives unexpected results.

The grid's row selection is cleared if the sort is changed or if columns are resized or reordered.

Column sorting is reflected in an export to HTML and Excel.

Column Visibility

You can hide or show columns in the table by clicking on any column's menu icon, and choosing **Columns** from the menu. This opens a submenu with a check box for each column that toggles the visibility of the column. All columns in the data table appear in the Columns menu, even those that are initially hidden.



The leftmost column (the row header column) cannot be hidden.

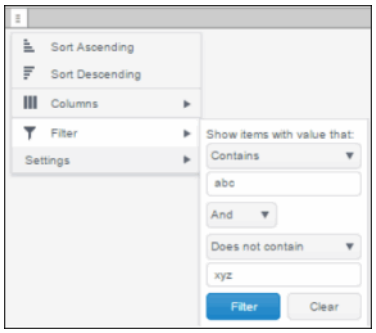
Column visibility changes are NOT reflected in an export to HTML and Excel.

Column Filtering

You can create a filter on any column. If filters are created on multiple columns, then only the rows that pass all of the filters are displayed. That is, if there are multiple filters they are logically "ANDed" together to produce the final result.

The background of a column's menu icon changes to white to indicate that a filter is defined on that column. This is intended to remind you which columns are filtered.

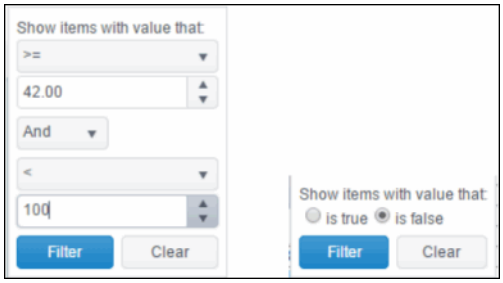
You can configure a filter on any column by clicking on the column's menu icon and choosing **Filter** from the menu. This opens the **Column Filter** dialog:



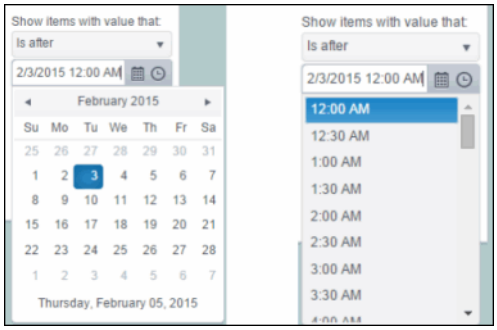
Options in the **Column Filter** dialog vary according to the data type of the selected column:

- **String columns**: You can enter a filter string such as "abc" and, from the dropdown list, select the operator (equal to, not equal to, starts with, contains, etc) to be used when comparing the filter string to each string in the column. All of the filter comparisons on strings are case-insensitive. You can optionally enter a second filter string (e.g. "xyz") and specify if an AND or OR combination should be used to combine the first and second filter results on the column.
- **Numeric columns**: You can enter numeric filter values and select arithmetic comparison operators, (=, !=, >, >=, <, <=). You can optionally enter a second filter value and comparison operator, and specify if an AND or OR combination should be used to combine the first and second filter results.
- **Boolean columns**: You simply select whether matching items should be true or false.

The numeric and boolean filter dialogs are shown below.



- **Date columns**: You can select a date and time and choose whether matching items should have a timestamp that is the same as, before, or after the filter time. The date is selected by clicking on the calendar icon and picking a date from a calendar dialog. The time is selected by clicking on the time icon and picking a time from a dropdown list:



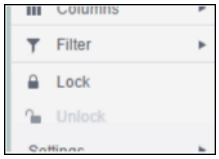
  Alternatively, a date and time can be typed into the edit box. The strings shown in a date column are formatted by the Display Server using its time zone. But if a filter is specified on a date column, the date and time for the filter are computed using the client system's time zone. This can be confusing if the Display Server and client are in different time zones.

Data updates to the grid are suspended while the filter menu is opened. The updates are applied when the menu is closed.

Column filtering is reflected in an export to HTML and Excel.

Column Locking

The leftmost column is "locked" in position, meaning that it does not scroll horizontally with the other columns in the table. If the row header is enabled, then two items labeled **Lock** and **Unlock** appear in the column menu. These can be used to add or remove additional columns from the non-scrolling row header area.



If the row header is enabled, at least one column must remain locked.

Column locking is NOT reflected in an export to HTML and Excel.

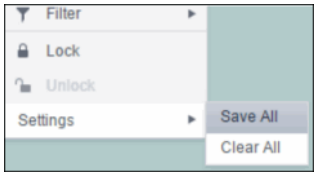
Column Reordering

You can reorder the grid columns by dragging and dropping a column's header into another position. Dragging a column into or out of the row header area (the leftmost columns) is equivalent to locking or unlocking the column.

Column reordering is NOT reflected in an export to HTML and Excel.

Saving Settings

You can permanently save all of the custom settings made to the grid, including filtering, sorting, column size (width), column order, column visibility, and column locking. This is done by opening any column menu, clicking **Settings**, and then clicking **Save All**:



The grid's settings are written as an item in the browser's local storage. The item's value is a string containing the grid's settings. The item uses a unique key comprised of the URL path name, the display name, and the table's RTView object name. If the Thin Client's login feature is enabled, the key will also include the username and role, so different settings can be saved for each user and role for a grid on any given display, in the same browser and host.

If you save the grid settings and navigate away from the display or close the browser, then the next time you return to the display in the same browser the settings are retrieved from the browser's local storage and applied to the grid. The browser's local storage items are persistent, so the grid settings are preserved if the browser is closed and reopened or if the host system is restarted.

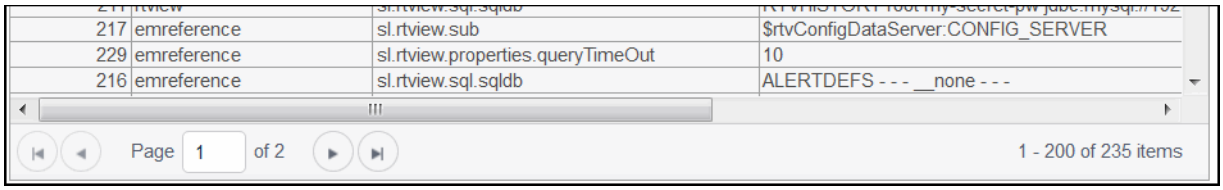
Note that each browser has its own local storage on each host. The local storage items are not shared between browsers on the same host or on different hosts. So, if a user logs in as Joe with **role = admin**, in Internet Explorer on host H1, and saves grid settings for display X, then those grid settings are restored each time a user logs in as Joe, role admin, on host H1 and opens display X in Internet Explorer. But if all the same is true except that the browser is Chrome, then the settings saved in Internet Explorer are not applied. Or if the user is Joe and role is admin and the browser is IE and the display is X, but the host system is H2 not H1, then the grid settings saved on H1 are not applied.

Revert Table Settings

You can delete the grid's item from local storage by clicking **Settings> Clear All** in any column menu. This permanently deletes the saved settings for the grid and returns the grid to the state defined in the display file.

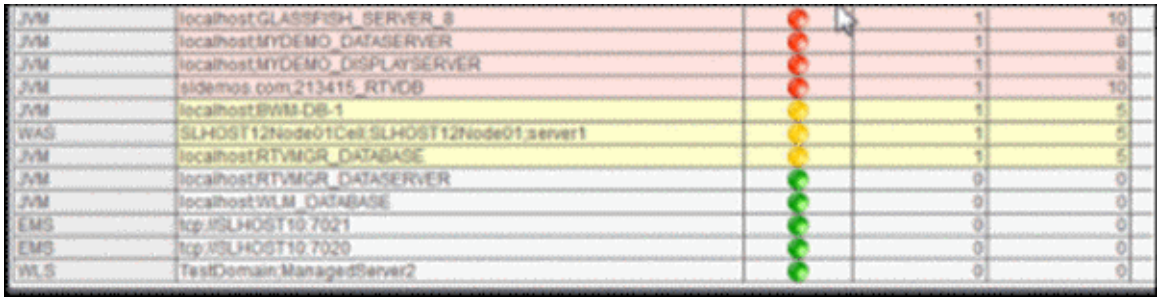
Row Paging

If the data table contains more than one 200 rows, page controls appear at the bottom of the grid.



Row Color Code

Table rows sometimes use color to indicate the current most critical alert state for all CIs associated with the row. In this example, the **Severity Level** column is sorted in descending order (from high to low values).



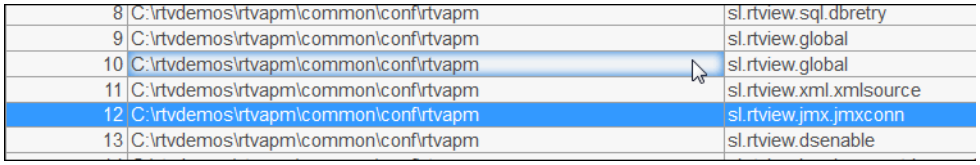
The yellow row color indicates that one or more alerts exceeded their warning threshold for one or more CIs associated with the Service. The red row color indicates that one or more alerts exceeded their critical threshold for the CI associated with the Service (in this case there is a single CI). To summarize:

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Row Keyboard Selection

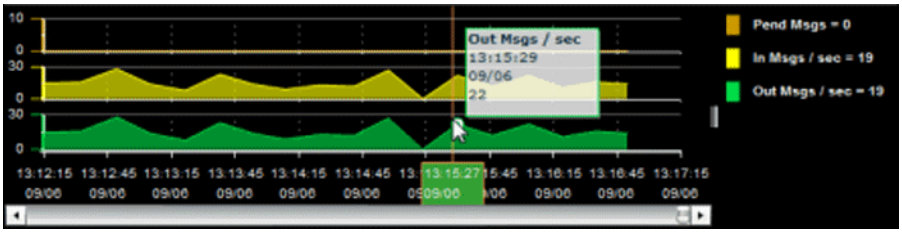
You can use the mouse to select a row and use the arrow keys to change the focus (highlighted) row, but to select the focus row, you must then press the space bar.



Trend Graphs

Trend graphs enable you to view and compare various important metrics over time, such as server memory utilization, server throughput, the number of clients being served by the server, or the total amount of data sent to clients. You can use trend graphs to assess utilization and performance trends.

For example, the following figure illustrates a typical trend graph. In this example, metrics for **Pending Messages**, **Incoming Messages** and **Outgoing Messages** are traced.



By default, the time range end point is the current time. To change the time range for the trend graph click Open Calendar , choose the date and time, then click **OK**. Or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM:ss**. For example, **Apr 26, 2012 5:01 PM**. Click **Apply**. Use the Navigation Arrows to move forward or backward one time period (the time period selected from the **Time Range** drop-down menu). Click **Restore to Now** to reset the time range end point to the current time.

Mouse-over

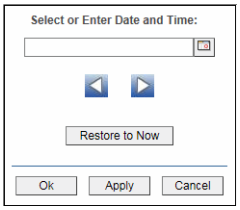
The mouse-over functionality provides additional detailed data in an over imposed pop-up window when you mouse-over trend graphs. The above figure illustrates mouse-over functionality. In this example, when you mouse-over a single dot, or data point, in the **Out Msgs / sec** trend graph, a pop-up window shows data for that data point. In this case, the X-axis value is **13:15:29 hours on September 6th**, and the Y-axis value is **22 Outbound messages per second**.

Log Scale

Typically, trend graphs provide the Log Scale option. Log Scale enables you to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Time Range

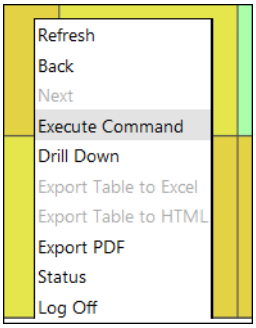
Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. By default, the time range end point is the current time. To enter a specific time range, click the associated ellipsis button .



To change the time range click the Open Calendar button , choose the date and time, then click **OK**. Or, enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM:ss** (for example, Aug 21, 2011 12:24 PM) and click **Apply**. Use the Navigation Arrows to move forward or backward one time period (the time period selected from the Time Range drop-down menu). Click **Restore to Now** to reset the time range end point to the current time.

Popup Menu

Typically, you can right-click on displays to open a popup menu. By default, options include **Refresh**, **Back**, **Next**, **Execute Command**, **Drill Down**, **Export Table to Excel**, **Export Table to HTML**, **Export PDF**, **Status** and **Log Off**. The following figure illustrates the popup menu in a heatmap.

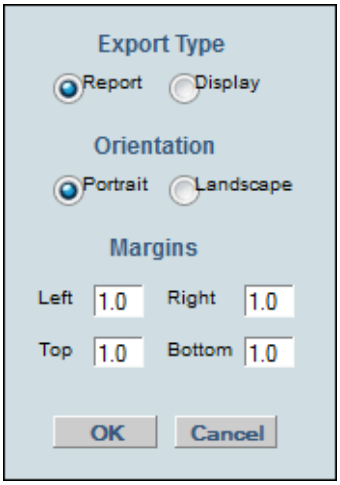


Export PDF Report

You can quickly export reports for displays, or for tables and grid objects in a display, to a PDF file.

To generate a report for a display:

Right-click on the display and select **Export PDF**. The **Export to PDF** dialog opens.

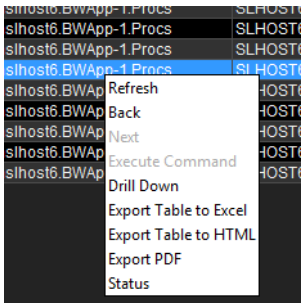


Set the margins and choose the **Export Type**:

- **Report**: Generates an image of the display on the first page, followed by at least one page for each table or object grid in the display. As many pages as are necessary to show all the data in each table or object grid are included in the report. This enables you to view all data in a table or object grid that you otherwise must use a scrollbar to see. If there are no tables or object grids in your display, you only get a image of the display.
- **Display**: Generates an image of the display in PDF format.Choose the page orientation (**Portrait** or **Landscape**), set the page margins and click **OK**. The report opens in a new window.

To generate a report for a table or grid object in a display:

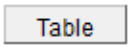
Right-click on the table or grid object and choose **Export PDF**, **Export Table to Excel** or **Export Table to HTML**.



Title Bar

Displays share the same top layer in the title bar, as shown below.

The following table describes the functionality in the display title bar.

	Opens the previously open display.
	Opens the display that is up one level.
	Navigates to a display that is most commonly accessed from the current display. The target display differs among displays.
	Navigates to displays that are most commonly accessed from the current display. The drop-down menu options differ among displays.
	Opens the Alerts Table display in a new window.
	The current date and time. If the time is incorrect, this might indicate that RTView stopped running. When the date and time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
	The data connection state. Red indicates the data source is disconnected (for example, if the Data Server is not receiving data, or if the Display Server does not receive data from the Data Server, this will be red). Green indicates the data source is connected. When the date and time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

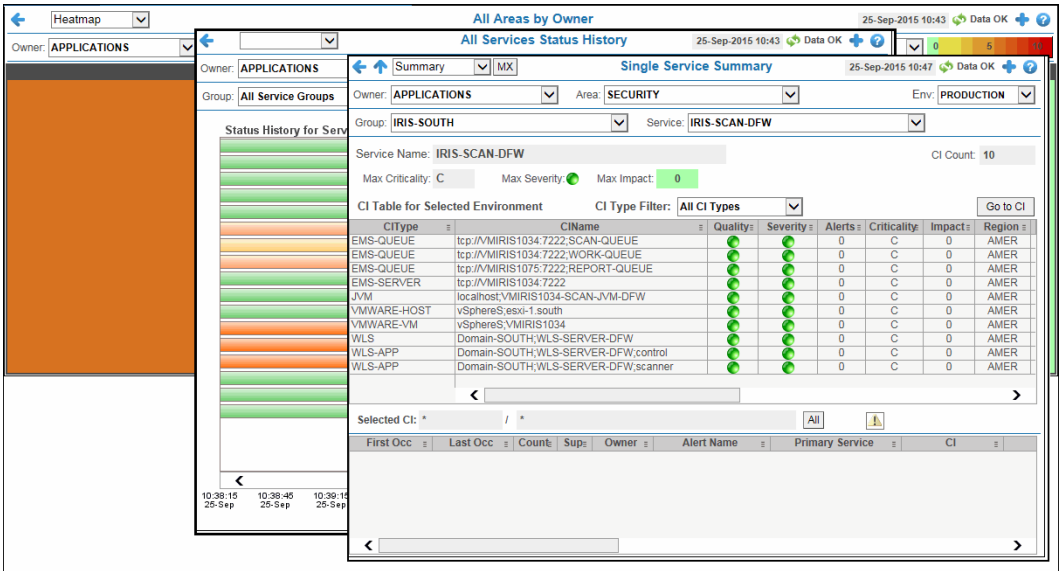
Opens an instance of the same display in a new window. Each window operates independently, allowing you to switch views, navigate to other displays in RTView EM, and compare server performance data. For illustration, see **Multiple Windows**.

Opens the online help page for the current display.

The number of items (for example, CIs or Areas) in the display.

Multiple Windows

The following illustrates the usage of the Open New Window  to open multiple windows.



Enterprise Monitor Views/Displays

This section describes the Views and displays that come with the RTView Enterprise Monitor. This section describes the following Views:

This Guide also includes the following technology-specific Solution Packages:

All Management Areas

These displays present the highest-level summary views of alert states for your entire system. Aggregated data is organized by Owners and shows all Areas, while highlighting the most critical alert states using color. Data can be filtered by Owner, Area, Environment and alert Metric. Data is filtered by the $rtvOwnerMask and $rtvAreaMask values for the logged in user. For details, see **Configure User and Role Management**.

Use these displays to monitor critical alerts anywhere in your system, and investigate those alerts in lower-level displays. Because these displays immediately show you any critical alert in your system, users typically keep one of these displays open for quick monitoring. Click an Area in the display to drill-down and view the selected Area in the **Multi Area Service Views** displays.

The **All Management Areas** displays present the same aggregated data in tabular and heatmap formats. Displays in this View are:

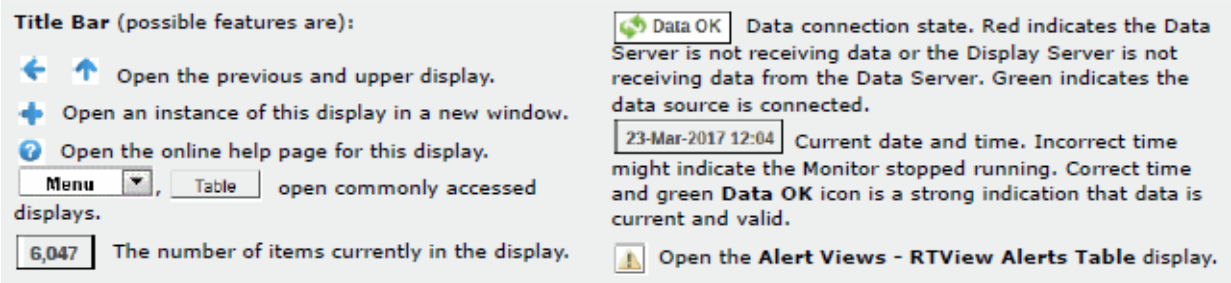
- "Area Heatmap" on page 117: Heatmap of the most critical alerts for all Areas of your system, with the option to filter by Owner, Environment and alert Metric.
- "Area Table" on page 119: Table of data shown in the **All Management Areas -** "Area Heatmap" with the option to filter by Owner and Environment.

Area Heatmap

View the most critical alert state for all monitored instances throughout your system. Consider keeping this display open to monitor conditions in your system. The heatmap organizes monitored instances by one or all Owners for all Areas, and uses color to show the most critical alert state in each. Each rectangle in the heatmap represents a management Area (for example, Applications, Demo Systems and so forth), which are also grouped by Owner. The rectangle size represents the number of CIs in the rectangle; a larger size is a larger value.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. By default, this display shows all Owners, all Environments and the Alert Impact.

Drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected Area in the display that was last selected under **Multi Area Service Views**. For example, if the last selected display under **Multi Area Service Views** was "Group / Service Table", then clicking an Area in the heatmap results in displaying details in the **Group/ Service Table** display.



Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient bar, where **10** is the highest Alert Impact.

Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity.

Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**.

Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**.

Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

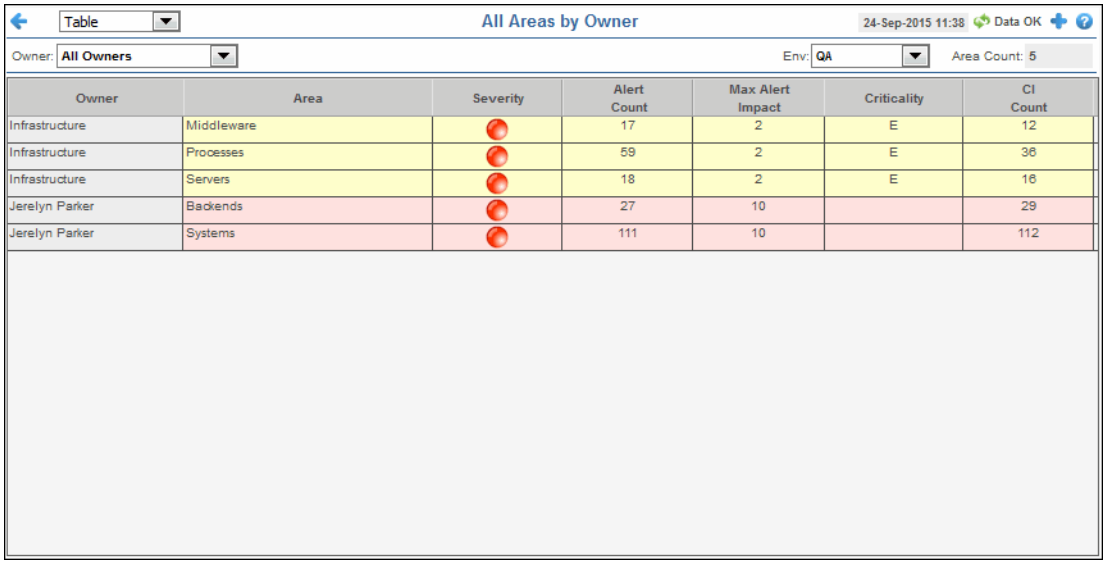
Criticality The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient bar, where **5** is the highest Criticality.

Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

Area Table

View data from the **All Management Areas -** "Area Heatmap" in a tabular format: all alert states (alert Impact, Severity, Count, Criticality and CI Count) for all Areas, Owners and Environments. Each row in the table is a different Area (for example, **Applications**, **Demo Systems** and so forth). Use this display to check the status of your systems by Area, Owner and Environment, and to compare detailed metrics across all Areas in your organization.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data. Drill-down and investigate by clicking a row in the table to view details for the selected Area in the display that was last selected under **Multi Area Service Views**. For example, if the last selected display under **Multi Area Service Views** was "Group / Service Table", then clicking an Area in the heatmap results in displaying details in the **Group/Service Table** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Fields and Data
This display includes:

Area Count The current number of Areas shown in the table.

(Table)
Each row in the able is a different Area.

Owner	The name of the person or Group the Area is designated to.
Area	The name of the Area where the alert data originated.
Severity	The maximum level of alerts in the Area. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold in the Area. One or more alerts exceeded their WARNING LEVEL threshold in the Area. No alert thresholds have been exceeded in the Area.
Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the Component Views / CI Service Table display, which range from A to E, where A is the highest Criticality. This value is used to determine the value for Alert Impact.
Max Alert Impact	The highest value that Alert Impact has had for the Area.
Alert Count	The total number of critical and warning alerts for the Area.
CI Count	The total number of configurable items associated with the Area.

Multi Area Service Views

These displays present aggregated data of alert states for all Services for all Areas. Data can be filtered by Area, Group, Environment, and alert Metric. Data is filtered by the $rtvOwnerMask, $rtvAreaMask and $rtvGroupMask values for the logged in user. For details, see **Configure User and Role Management**.

Use these displays, for example, to isolate the Area and Environment in which a critical alert is occurring. If you see a critical alert, get information by comparing alert metrics (such as how many other items are potentially affected).

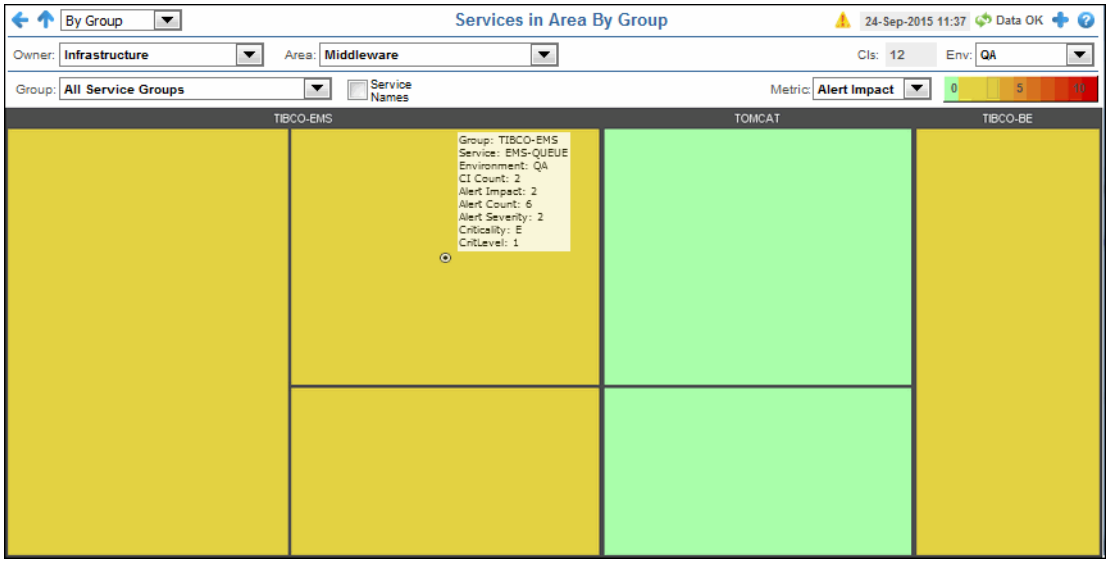
These displays drill-down to the **Service Summary Views -** "Service By CI Type" display. The **Multi Area Service Views** displays present data in tabular and heatmap formats. Displays in this View are:

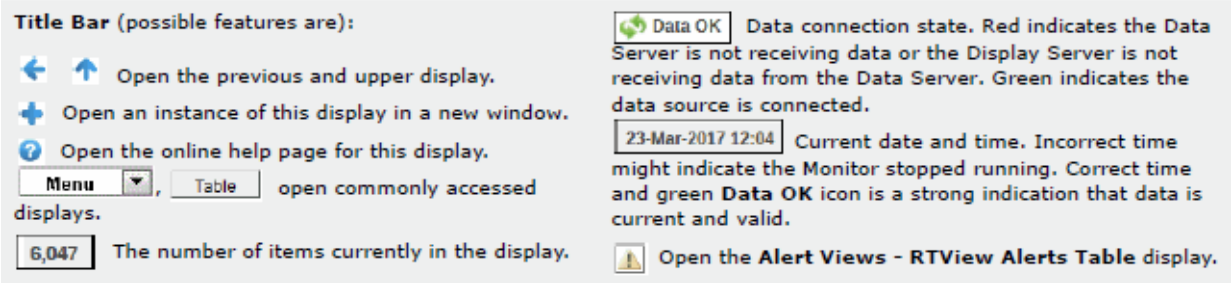
- "Group/Service Heatmap": Heatmap of alert states for Services by Area, with the option to filter by Area, Group, Environment and alert Metric, and the option to show Group and Service Names.
- "Group/Region Heatmap": Heatmap as described for the **Group / Service Heatmap** (above), with the option to filter by Region and no option to show Service Names.
- "Group / Service Table": Table of **Group/Service Heatmap** data.
- "Services CI Type Summary": Table that shows the health state of Services per CI Type.
- "Services History Heatmap": Heatmap of alert states, over time, for Services in a selected Area, with the option to filter by Group, Environment and alert Metric.

Group/Service Heatmap

View heatmap of alert states for Services in one or all Areas, filter by Group or Environment, and optionally show Service Names. The heatmap organizes Services by one or all Areas. Each rectangle in the heatmap represents a Service (for example, Applications, Demo Systems and so forth), which are grouped by Area. The rectangle size represents the number of CIs in the Service; a larger size is a larger value.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. Drill-down and investigate by clicking a rectangle in the heatmap to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metrics Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a rectangle in the **Group / Service Heatmap**, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a rectangle in the **Group / Service Heatmap** displays the details in the **Service KM Table**.





Note: The "Up" Arrow ( ) opens the most recently viewed display under "All Management Areas". For example, if the last viewed display under **All Management Areas** was **Area Table**, then clicking opens the "Area Table" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient bar, where **10** is the highest Alert Impact.

Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity.

Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**.

Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**.

Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

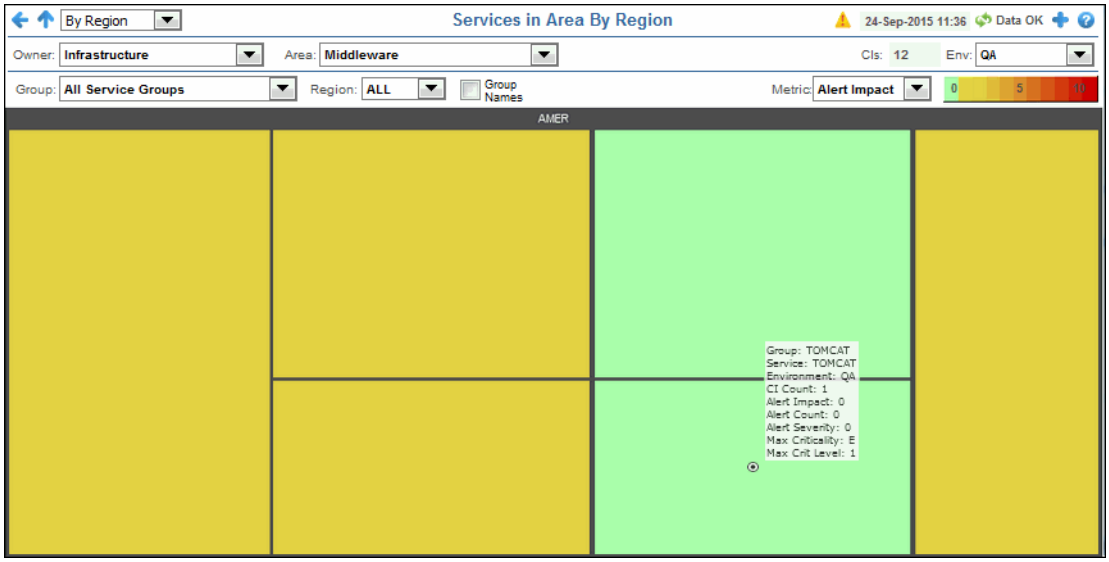
Criticality The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient bar, where **5** is the highest Criticality.

Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

Group/Region Heatmap

View heatmap of alert states for one or all Services, Areas, Environment or Regions, and optionally show Service Names. The heatmap organizes CIs by one or all Groups. Each rectangle in the heatmap represents a Group, which are grouped by Area. The rectangle size represents the number of CIs in the Service; a larger size is a larger value.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. Drill-down and investigate by clicking a rectangle in the heatmap to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metrics Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a rectangle in the **Group / Region Heatmap**, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a rectangle in the **Group / Region Heatmap** displays the details in the **Service KM Table**.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: The "Up" Arrow (↑) opens the most recently viewed display under "All Management Areas". For example, if the last viewed display under **All Management Areas** was **Area Table**, then clicking ↑ opens the "Area Table" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

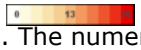
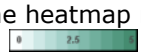
Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

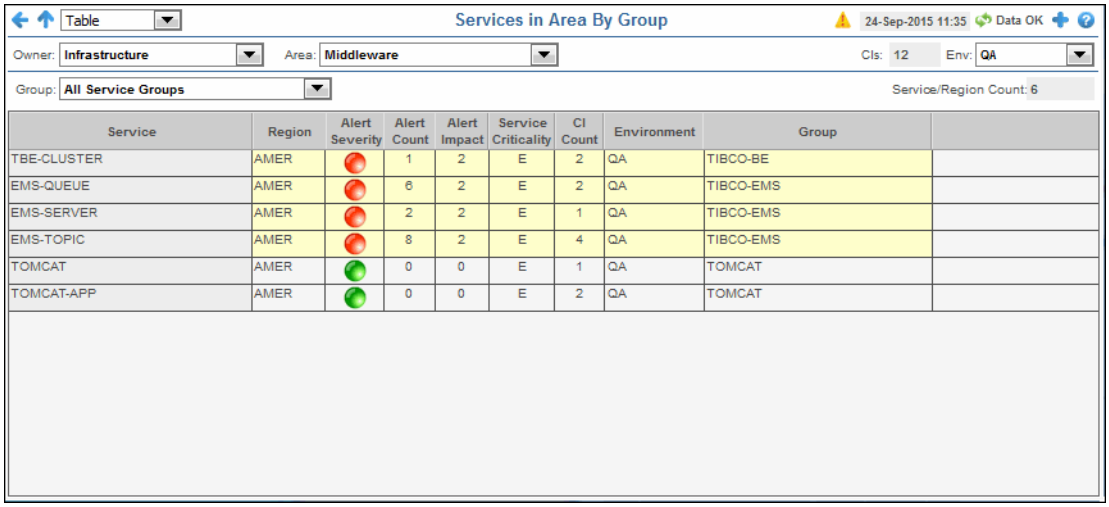
Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact	The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient  bar, where **10** is the highest Alert Impact.
Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity. Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**. Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**. Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
Criticality	The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient  bar, where **5** is the highest Criticality. Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

Group / Service Table

This table displays data shown in the **Group/Service** and **Group/Region** heatmaps. View Service metrics (Impact, Severity, Count and Criticality, and CI Count) for one or all Areas, Owners, Groups and Environments, and compare detailed metrics across all Areas in your organization. The table lists Services by Owner and Area. Each row in the table is a different Service. The color of the circle in the **Alert Severity** column represents the most critical alert state for that Service.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data. Drill-down and investigate by clicking a row in the table to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metric Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a row in the table, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a row in the table displays the details in the **Service KM Table**.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

The "Up" Arrow ( ) opens the most recently viewed display under "All Management Areas". For example, if the last viewed display under **All Management Areas** was **Area Table**, then clicking opens the "Area Table" display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

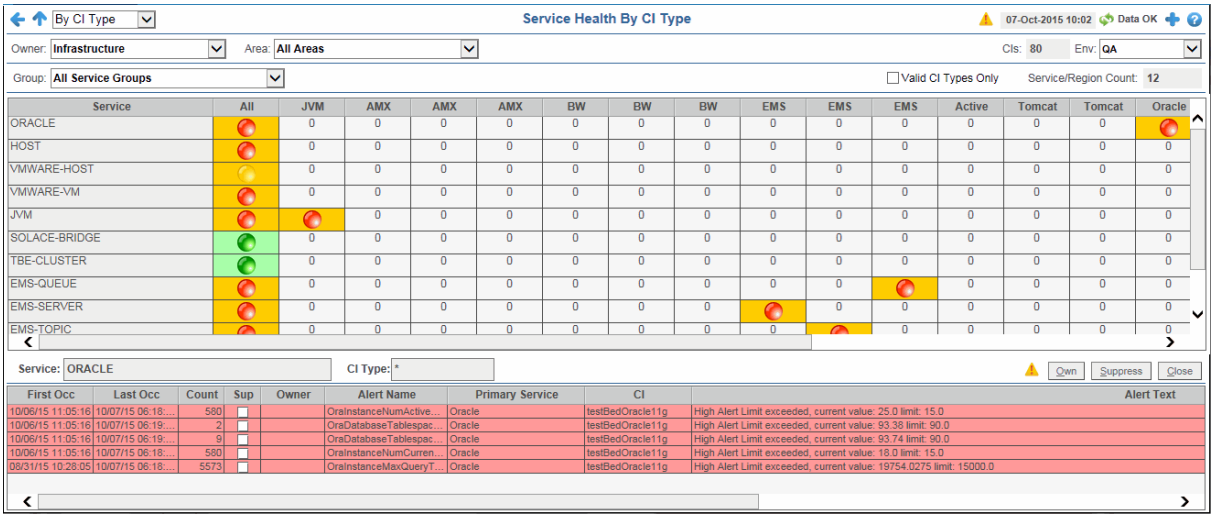
Fields and Data
This display includes:

Service/ Region Count	The total number of Services listed in the table. This value is determined by the selections made from display drop-down menus.
Area	The name of the Area where the alert data originated.
Service	The name of the Service where the alert data originated.
Region	The name of the Region to which the Service applies.
Severity	The maximum level of alerts in the row. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold in the Service. One or more alerts exceeded their WARNING LEVEL threshold in the Service. No alert thresholds have been exceeded in the Service.
Alert Count	The total number of critical and warning alerts for the Service.
Alert Impact	The maximum of the products of maximum Alert Severity multiplied by the Criticality of all CIs for the Service. Values range from **0** - **10**, where **10** is the highest Alert Impact.
Service Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views / CI Service Table** display, which range from A to E, where A is the highest Criticality.
CIs	The total number of configurable items in the display.
Environment	The name of the Environment to which the Service applies.
Group	The name of the Environment to which the Service applies.
CI Count	The total number of configurable items associated with the Service.

Services CI Type Summary

This display lists the health state of Services by CI Type and allows you to manage alerts. In the upper table, each column is a CI Type and each row is a Service. Select a row in the table to view details in the lower table.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data.



Title Bar (possible features are):

- Open the previous and upper display.
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- 6,047 The number of items currently in the display.
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- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

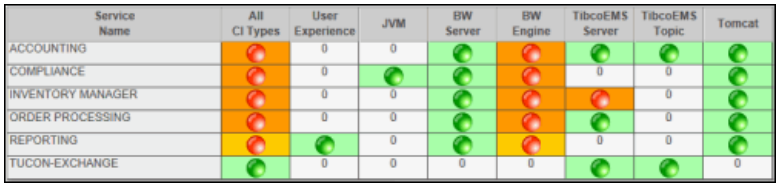
Note: The "Up" Arrow ( ) opens the most recently viewed display under "All Management Areas". For example, if the last viewed display under **All Management Areas** was **Area Table**, then clicking opens the "Area Table" display.

For each Service in a selected Group, the round indicator shows the current maximum Alert Severity of all the CIs associated with each CI Type.

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

The cell background color indicates the current maximum Alert Impact of all the CIs associated with the Service and CI Type. The Alert Impact is calculated for each CI, which is the product of the CI Criticality times the current maximum Alert Severity. Background colors range from green to red, green being the lowest possible alert impact and red the highest possible value.

For example, in the following figure the first five Services in the list have an alert condition due to a BW Engine problem, and additionally the **INVENTORY MANAGER** Service has a TIBCO EMS Server problem. The **All CI Types** column shows the global highest level for all CI Types.



Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Fields and Data
This display includes:

Valid CI Types Only	Check to only show CI Type columns that contain data in the table, uncheck to include columns that are empty. Including empty table columns can be helpful when you are comparing Services (using the **Group** drop-down menu) because the table columns retain their order.
Service/ Region Count	The total number of Services currently listed in the table.
Service Name	The name of the Service.
All CI Types	The circular indicator  shows the current maximum Alert Severity of all the CIs associated with the CI Type, and the cell background color shows the current maximum Alert Impact of all the CIs--across all CI Types-- associated with the Service.
Service	Shows the Service selected in the upper table.
CI Type	Shows the CI Type selected in the upper table.

Alerts Table
This table lists all open, unsuppressed alerts associated with the selection in the upper table. Each row in the table is a different active alert. Select one or more rows, right-click to open the **Alert** popup menu and choose an action to perform on the alert(s): **Details**, **Own**, **Suppress**, **Close**, **Annotate** or **Options**. Use the sort button to order column data. The row color indicates the following:

Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.

Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.

Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Opens the **Alerts Table** display in a new window.

Own	Click to assign an Owner for the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Suppress	Click to suppress the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Close	Click to close the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Details	Select an alert, right-click and choose **Alert/Details** to open the **Alert Detail** window and view alert details. Or, double-click an alert to open the **Alert Detail** window.
Annotate	Select one or more alerts, right-click and choose **Alert/Annotate** to open the **Set Owner and Comments** dialog and enter comments or change alert owner.
Options	Select an alert, right-click and choose **Alert/Options** to open the **Alert Options** dialog. This dialog is provided for customizing your own alert options.

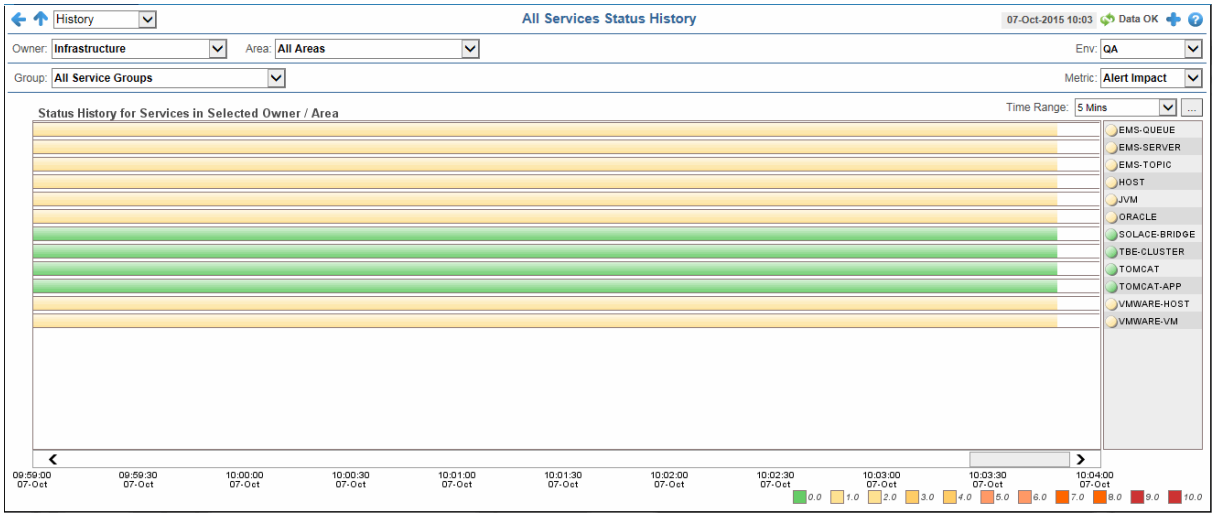
First Occ	The date and time the alert first occurred.
Last Occ	The date and time the alert last occurred.
Count	The number of times the alert was generated.
Sup	When checked, the alert has been suppressed by a user.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert.
Primary Service	The name of the Service with which the alert is associated.
CI	The CI alert source.
Alert Text	Description of the alert.
AlertClass	An optional alert field which can be used when integrating with other alerting systems.
CompID	An optional alert field which can be used when integrating with other alerting systems.
TicketID	An optional alert field which can be used when integrating with other alerting systems.
TicketGroup	An optional alert field which can be used when integrating with other alerting systems.

Services History Heatmap

View history heatmap of alert states, over time, for Services in one Area, filtered by Group and Environment.

The history heatmap displays Services from one or more Groups and Environments of a given Owner and Area. Each row in the heatmap represents a different Service. The row color shows the Alert Impact or Alert Severity of a Service across time.

Use the available drop-down menus or right-click to filter data shown in the display. Mouse-over each row to see the time of alert state changes for particular Service occurred. For example, you can see at what time an alert state changed from green to red. Use the check-boxes ☑ to include or exclude labels in the heatmap. Drill-down and investigate by clicking a row in the heatmap to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metric Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a row in the **Services History Heatmap**, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a row in the **Services History Heatmap** displays the details in the **Service KM Table**.



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- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
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- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: The "Up" Arrow (↑) opens the most recently viewed display under "All Management Areas". For example, if the last viewed display under **All Management Areas** was **Area Table**, then clicking ↑ opens the "Area Table" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

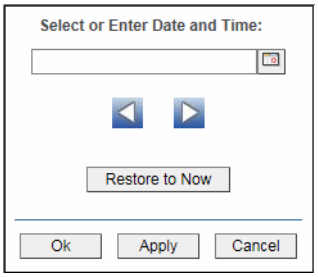
Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Color Code:
Row color indicates the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the row.

Time Range

Select a time range from the drop down menu varying from 2 Minutes to Last 7 Days, or display All Data. By default, the time range end point is the current time.



To change the time range for the graph, click Open Calendar , choose the date and time, then click **OK**. Or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the Time Range drop-down menu.

Click Restore to Now to reset the time range end point to the current time.

Single Area Service Views

These displays present aggregated data of alert states for all Services for a specific Area. Data can be filtered by Area, Group, Environment, and alert Metric. Data is filtered by the $rtvOwnerMask, $rtvAreaMask and $rtvGroupMask values for the logged in user. For details, see **Configure User and Role Management**.

Use these displays, for example, to isolate the Area and Environment in which a critical alert is occurring. If you see a critical alert, get information by comparing alert metrics (such as how many other items are potentially affected).

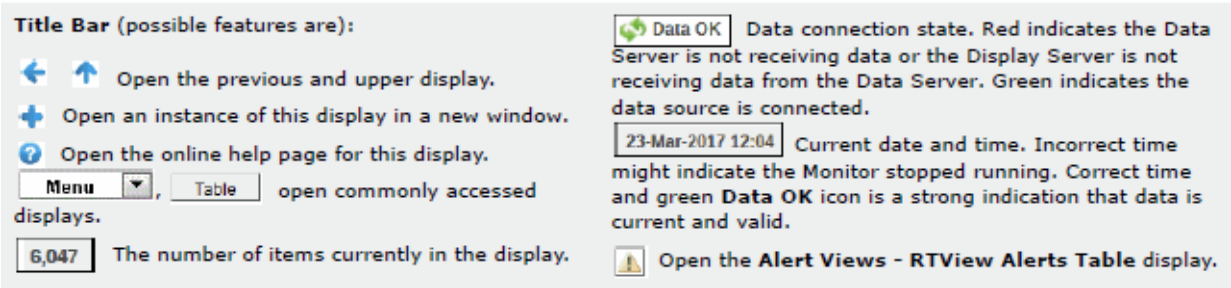
These displays drill-down to the **Service Summary Views -** "Service By CI Type" display. The **Single Area Service Views** displays present data in tabular and heatmap formats. Displays in this View are:

- "Single Area: Group/Service Heatmap": Heatmap of alert states for Services by Area, with the option to filter by Area, Group, Environment and alert Metric, and the option to show Group and Service Names.
- "Single Area: Region/Service Heatmap": Heatmap as described for the **Group / Service Heatmap** (above), with the option to filter by Region and no option to show Service Names.
- "Single Area: Group / Service Table": Table view of **Group/Service Heatmap** data.
- "Single Area: Services CI Type Summary": Table that shows the health state of Services per CI Type.
- "Single Area: Services History Heatmap": Heatmap of alert states, over time, for Services in a selected Area, with the option to filter by Group, Environment and alert Metric.

Single Area: Group/Service Heatmap

View heatmap of alert states for Services in one Area, filter by Group or Environment, and optionally show Service Names. Each rectangle in the heatmap represents a Service (for example, Applications, Demo Systems and so forth), which are grouped by Area. The rectangle size represents the number of CIs in the Service; a larger size is a larger value.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. Drill-down and investigate by clicking a rectangle in the heatmap to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metrics Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a rectangle in the **Group / Service Heatmap**, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a rectangle in the **Group / Service Heatmap** displays the details in the **Service KM Table**.



Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Group/Region Heatmap**, then clicking opens the "Group/Region Heatmap" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient bar, where **10** is the highest Alert Impact.

Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity.

Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**.

Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**.

Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

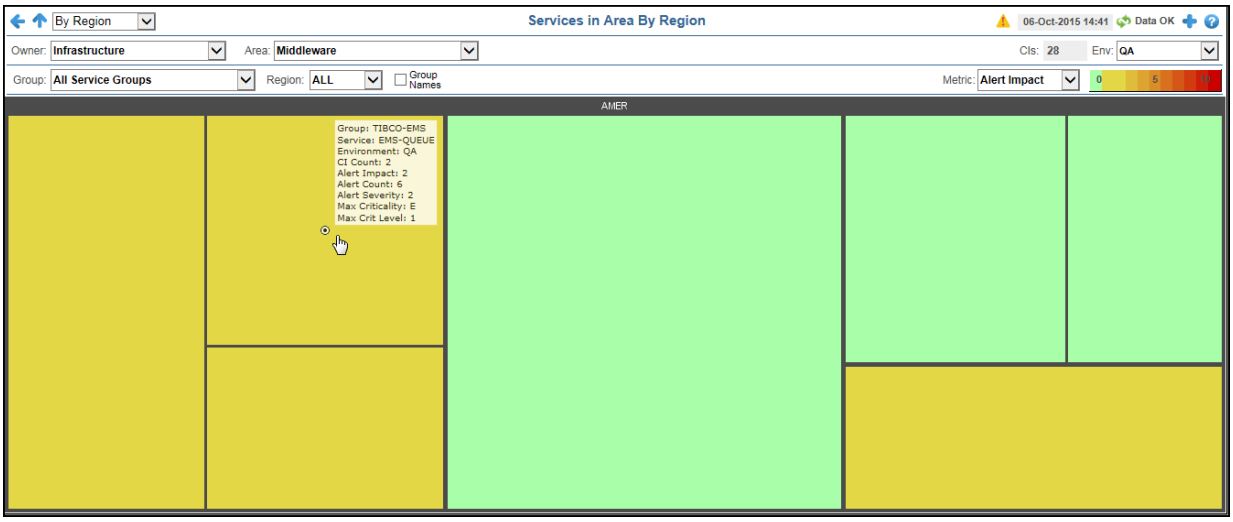
Criticality The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient bar, where **5** is the highest Criticality.

Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

Single Area: Region/Service Heatmap

View heatmap of alert states for one Owner, one specific Area, one or all Service Groups, and one or all Regions. You can also optionally show Service Group Names. The heatmap organizes CIs by one or all Groups. Each rectangle in the heatmap represents a Group, which is grouped by Area. The rectangle size represents the number of CIs in the Service; a larger size is a larger value.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. Drill-down and investigate by clicking a rectangle in the heatmap to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metrics Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a rectangle in the **Group / Region Heatmap**, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a rectangle in the **Group / Region Heatmap** displays the details in the **Service KM Table**.



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- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: The "Up" Arrow (↑) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under Multi Area Service Views was Group/Region Heatmap, then clicking ↑ opens the "Group/Region Heatmap" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

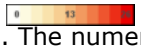
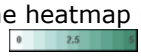
Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

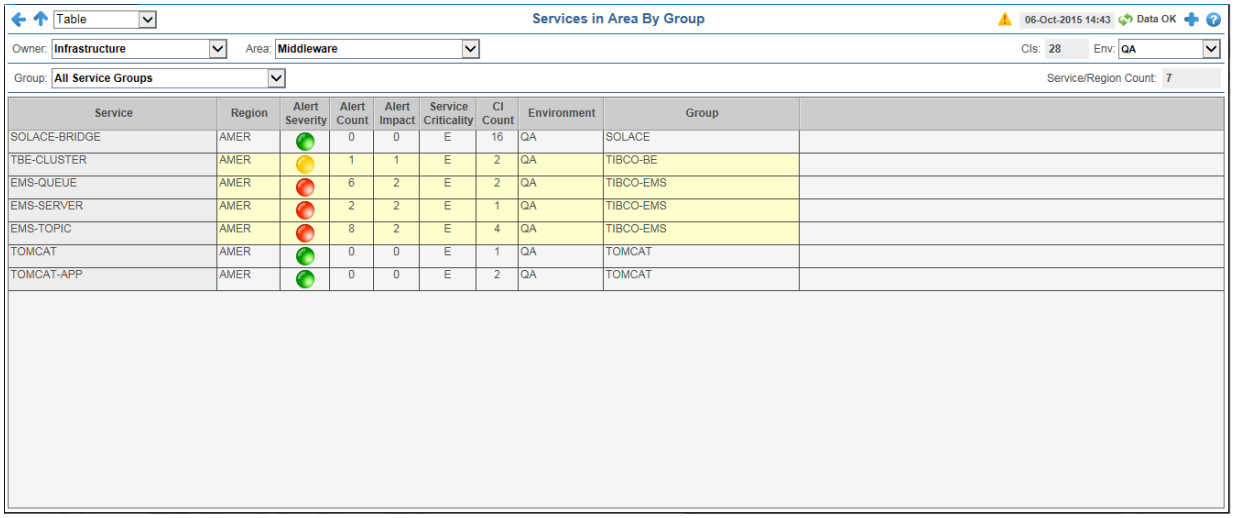
Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

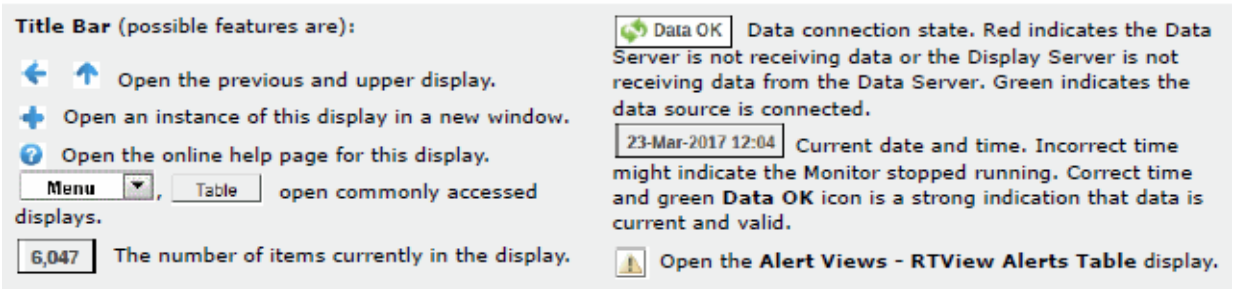
Alert Impact	The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient  bar, where **10** is the highest Alert Impact.
Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity. Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**. Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**. Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
Criticality	The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient  bar, where **5** is the highest Criticality. Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

Single Area: Group / Service Table

This table displays data shown in the **Group/Service** and **Region/Service** heatmaps. View Service metrics (Impact, Severity, Count and Criticality, and CI Count) for a specific Area, for one or all Owners, Groups, and Environments. The table lists Services by Owner and Area. Each row in the table is a different Service. The color of the circle in the **Alert Severity** column represents the most critical alert state for that Service.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data. Drill-down and investigate by clicking a row in the table to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metric Views**. For example, if the last selected display was the "Service Summary" display under "Service Summary Views" and you clicked on a row in the table, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a row in the table displays the details in the **Service KM Table**.





Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Group/Region Heatmap**, then clicking opens the "Group/Region Heatmap" display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

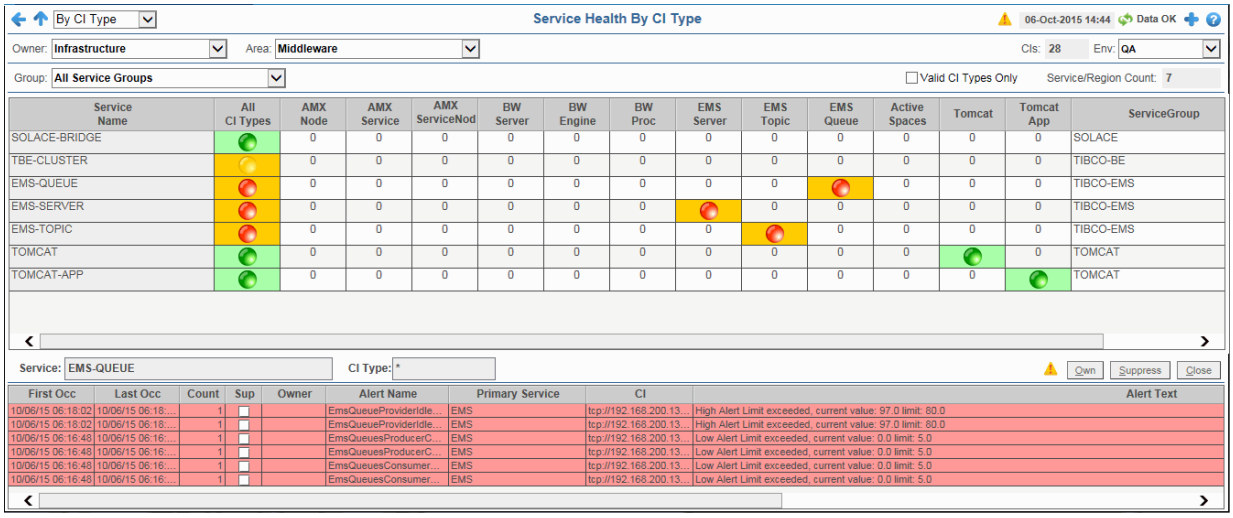
Fields and Data
This display includes:

Service/ Region Count	The total number of Services listed in the table. This value is determined by the selections made from display drop-down menus.
Area	The name of the Area where the alert data originated.
Service	The name of the Service where the alert data originated.
Region	The name of the Region to which the Service applies.
Severity	The maximum level of alerts in the row. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold in the Service. One or more alerts exceeded their WARNING LEVEL threshold in the Service. No alert thresholds have been exceeded in the Service.
Alert Count	The total number of critical and warning alerts for the Service.
Alert Impact	The maximum of the products of maximum Alert Severity multiplied by the Criticality of all CIs for the Service. Values range from **0** - **10**, where **10** is the highest Alert Impact.
Service Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views / CI Service Table** display, which range from A to E, where A is the highest Criticality.
CIs	The total number of configurable items in the display.
Environment	The name of the Environment to which the Service applies.
Group	The name of the Environment to which the Service applies.
CI Count	The total number of configurable items associated with the Area.

Single Area: Services CI Type Summary

This display lists the health state of Services by CI Type and allows you to manage alerts. In the upper table, each column is a CI Type and each row is a Service. Select a row in the table to view details in the lower table.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

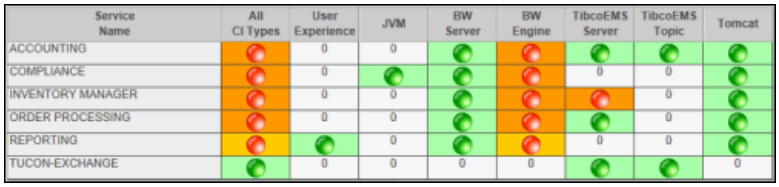
Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Group/Region Heatmap**, then clicking opens the "Group/Region Heatmap" display.

For each Service in a selected Group, the round indicator shows the current maximum Alert Severity of all the CIs associated with each CI Type.

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

The cell background color indicates the current maximum Alert Impact of all the CIs associated with the Service and CI Type. The Alert Impact is calculated for each CI, which is the product of the CI Criticality times the current maximum Alert Severity. Background colors range from green to red, green being the lowest possible alert impact and red the highest possible value.

For example, in the following figure the first five Services in the list have an alert condition due to a BW Engine problem, and additionally the **INVENTORY MANAGER** Service has a TIBCO EMS Server problem. The **All CI Types** column shows the global highest level for all CI Types.



Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Fields and Data
This display includes:

Valid CI Types Only	Check to only show CI Type columns that contain data in the table, uncheck to include columns that are empty. Including empty table columns can be helpful when you are comparing Services (using the **Group** drop-down menu) because the table columns retain their order.
Service / Region Count	The total number of Services currently listed in the table.
Service Name	The name of the Service.
All CI Types	The circular indicator shows the current maximum Alert Severity of all the CIs associated with the CI Type, and the cell background color shows the current maximum Alert Impact of all the CIs--across all CI Types-- associated with the Service.
Service	Shows the Service selected in the upper table.
CI Type	Shows the CI Type selected in the upper table.

Alerts Table
This table lists all open, unsuppressed alerts associated with the selection in the upper table. Each row in the table is a different active alert. Select one or more rows, right-click to open the **Alert** popup menu and choose an action to perform on the alert(s): **Details**, **Own**, **Suppress**, **Close**, **Annotate** or **Options**. Use the sort button to order column data. The row color indicates the following:

Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.

Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.

Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Opens the **Alerts Table** display in a new window.

Own Click to assign an Owner for the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.

Suppress Click to suppress the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.

Close Click to close the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.

Details Select an alert, right-click and choose **Alert/Details** to open the **Alert Detail** window and view alert details. Or, double-click an alert to open the **Alert Detail** window.

Annotate Select one or more alerts, right-click and choose **Alert/Annotate** to open the **Set Owner and Comments** dialog and enter comments or change alert owner.

Options Select an alert, right-click and choose **Alert/Options** to open the **Alert Options** dialog. This dialog is provided for customizing your own alert options.

- **First Occ** The date and time the alert first occurred.
- **Last Occ** The date and time the alert last occurred.
- **Count** The number of times the alert was generated.
- **Sup** When checked, the alert has been suppressed by a user.
- **Owner** The named owner assigned by the administrator.
- **Alert Name** The name of the alert.
- **Primary Service** The name of the Service with which the alert is associated.
- **CI** The CI alert source.
- **Alert Text** Description of the alert.
- **AlertClass** An optional alert field which can be used when integrating with other alerting systems.
- **CompID** An optional alert field which can be used when integrating with other alerting systems.
- **TicketID** An optional alert field which can be used when integrating with other alerting systems.
- **TicketGroup** An optional alert field which can be used when integrating with other alerting systems.

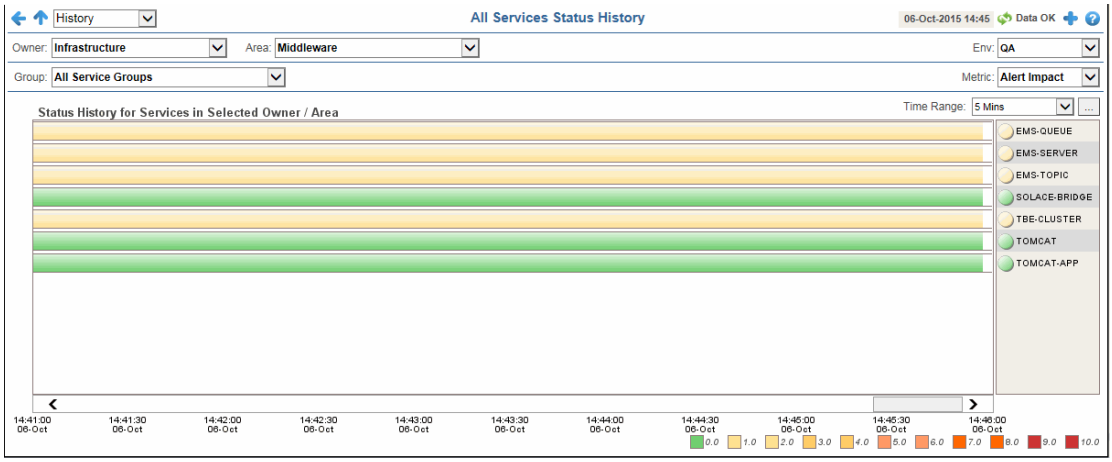
Single Area: Services History Heatmap

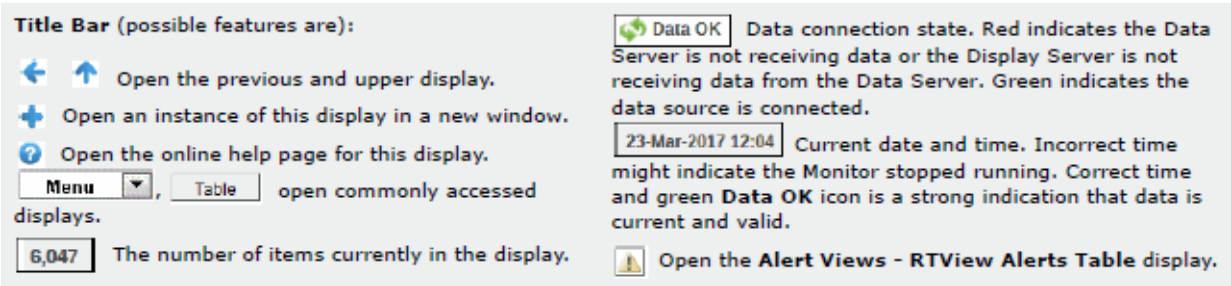
View history heatmap of alert states, over time, for Services in one Area, filtered by Group and Environment.

The history heatmap displays Services from one or more Groups and Environments of a given Owner and Area. Each row in the heatmap represents a different Service. The row color shows the Alert Impact or Alert Severity of a Service across time.

Use the available drop-down menus or right-click to filter data shown in the display. Mouse-over each row to see the time of alert state changes for particular Service occurred. For example, you can see at what time an alert state changed from green to red. Use the check-boxes ☑ to include or exclude labels in the heatmap. Drill-down and investigate by clicking a row in the heatmap to view details in the last display that was viewed under either the **Service Summary Views** or **Key Metric Views**.

For example, if the last selected display was the "Service KM Table" display under "Key Metrics Views" and you clicked on a row in the table, the details would display in the **Service Summary** display. If the last selected display was the "Service KM Table" display under "Key Metrics Views", then clicking a row in the table displays the details in the **Service KM Table**.





Note: The "Up" Arrow (↑) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Group/Region Heatmap**, then clicking ↑ opens the "Group/Region Heatmap" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

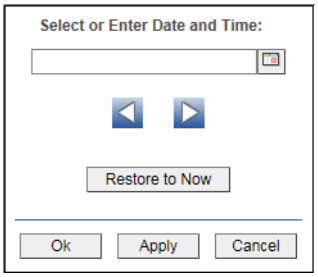
Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Color Code:
Row color indicates the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the row.

Time Range

Select a time range from the drop down menu varying from 2 Minutes to Last 7 Days, or display All Data. By default, the time range end point is the current time.



To change the time range for the graph, click Open Calendar , choose the date and time, then click **OK**. Or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the Time Range drop-down menu.

Click Restore to Now to reset the time range end point to the current time.

Service Summary Views

These displays present alert states at the component-level by Service in tabular and heatmap formats, while highlighting the most critical alert state. Data can be filtered by Owner, Area, Group, Service or Environment. Data is filtered by the $rtvOwnerMask, $rtvAreaMask, $rtvGroupMask and $rtvServiceMask values for the logged in user. For details, see **Configure User and Role Management**.

Use these displays to get alert details and detailed status information for a particular Service, such as a list of all the CI Types relevant to a Service and the quality of the performance metrics for each CI. Displays in this View are:

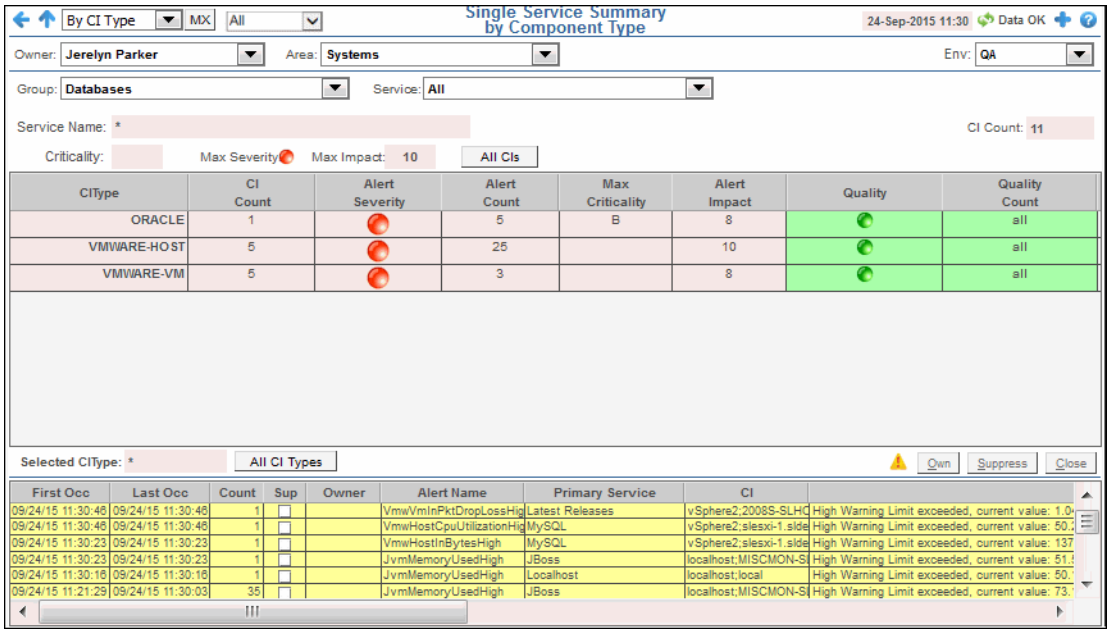
- "Service By CI Type": Table of alert states for a Service organized CI Type, with general alert information.
- "Service Summary": Table of CIs by Service, with detailed alert information.
- "Service Health Heatmap" on page 150: Heatmap of CIs by Service, with the option to filter by Owner, Area, Group, Environment and alert Metric, and show CI Names.

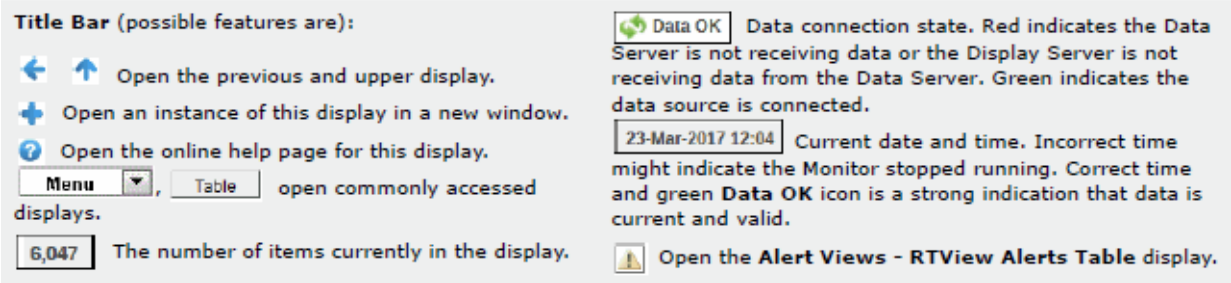
Service By CI Type

View alert states for a Service organized CI Type and manage alerts. See the CI Count for a Service and obtain alert statistics for CI Types such as Alert Severity and Alert Count. Use this display to summarize alerts occurring for a Service and determine which component types are malfunctioning. View a list of all active alerts associated with the CI Type.

The upper table lists all CI Types for the selected Service with alert details such as the highest Alert Severity. Each row is a CI Type. The color of each row represents the maximum Alert Impact for the row. Select a row that has an active alert (the Alert Severity is red or yellow) to view the active alerts in the lower table. Double-click a row to view a detailed list of CIs associated with the CI Type in the **Service Summary** display. In the lower table, each row is a different alert for a CI that is associated with the CI Type selected from the upper table.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data.





Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Fields and Data
This display includes:

Service Name	The name of the selected Service.
CI Count	The total number of configurable items in the display.
Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the Component Views / CI Service Table display, which range from **A** to **E**, where **A** is the highest Criticality. This value is used to determine the value for Alert Impact.
Max Severity	The highest Alert Severity value of any CI associated with the selected Service. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold in the Service. One or more alerts exceeded their WARNING LEVEL threshold in the Service. No alert thresholds have been exceeded in the Service.
Max Impact	The highest Alert Impact value of any CI associated with the selected Service.
All CIs	Opens the **Service Summary** display.

(CI Type Table)
This table lists all CI Types for the selected Service. Each row in the table is a CI Type. Click a row to view details in the lower table about alerts associated with the CI Type. Double-click a row to drill-down to Service Summary display describing alert details relevant to this CI Type.

CIType	The type of CI.
CI Count	The total number of configurable items associated with the CI Type.
Alert Severity	The highest Alert Severity value of any CI associated with the selected Service. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded.
Alert Count	The total number of active alerts for the CIs associated with the CI Type.
Quality	Shows whether performance metrics are being received from the CIs associated with the CI Type. One or more performance metrics are not being received from the CIs associated with the CI Type. All performance metrics are being received from he CIs associated with the CI Type.
Quality Count	Shows the number of CIs for that CI Type that have a known state. It displays all when that number is the total count of CI's. One or more performance metrics are not being received from the CIs associated with the CI Type. All performance metrics are being received from he CIs associated with the CI Type.

Selected CI Type	Shows the CI Type selected in the upper table.
All CI Types	Shows all active alerts for all CIs associated with the CI Type selected.

Alerts Table
This table lists all open, unsuppressed alerts associated with the selection in the upper table. Each row in the table is a different active alert. Select one or more rows, right-click to open the **Alert** popup menu and choose an action to perform on the alert(s): **Details**, **Own**, **Suppress**, **Close**, **Annotate** or **Options**. Use the sort button to order column data. The row color indicates the following:

Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.

Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.

Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Opens the **Alerts Table** display in a new window.

Own	Click to assign an Owner for the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Suppress	Click to suppress the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Close	Click to close the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Details	Select an alert, right-click and choose **Alert/Details** to open the **Alert Detail** window and view alert details. Or, double-click an alert to open the **Alert Detail** window.
Annotate	Select one or more alerts, right-click and choose **Alert/Annotate** to open the **Set Owner and Comments** dialog and enter comments or change alert owner.

Options Select an alert, right-click and choose **Alert/Options** to open the **Alert Options** dialog. This dialog is provided for customizing your own alert options.

First Occ	The date and time the alert first occurred.
Last Occ	The date and time the alert last occurred.
Count	The number of times the alert was generated.
Sup	When checked, the alert has been suppressed by a user.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert.
Primary Service	The name of the Service with which the alert is associated.
CI	The CI alert source.
Alert Text	Description of the alert.
AlertClass	An optional alert field which can be used when integrating with other alerting systems.
CompID	An optional alert field which can be used when integrating with other alerting systems.
TicketID	An optional alert field which can be used when integrating with other alerting systems.
TicketGroup	An optional alert field which can be used when integrating with other alerting systems.

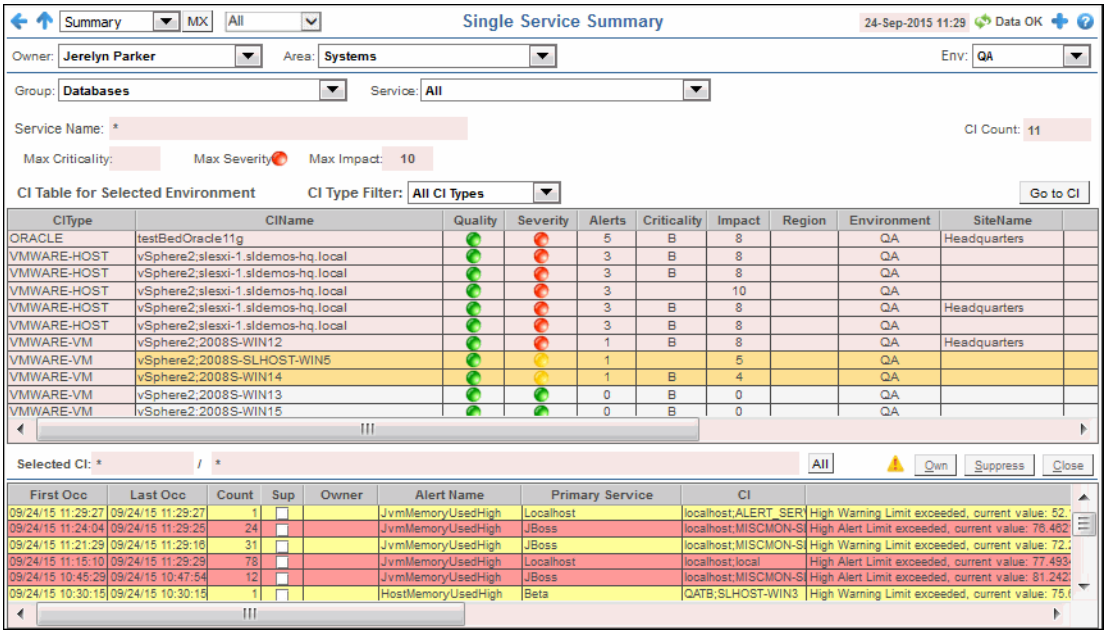
Service Summary

View alert states at the component-level per Service, manage alerts, obtain component details such as the number of active alerts for the component, which operating system the component uses and the Data Server associated with the component.

Use this display to monitor a Service in a specific Group or Environment anywhere in your organization, and determine whether a component is malfunctioning.

The table lists all components for a selected Service. Each row in the table is a different CI (configurable item or component). Each CI can have multiple alerts. Click a row to view details in the lower table about any alerts associated with the CI.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data. Double-click a row to drill-down to a summary page describing information relevant to this CI. This action can also be performed by selecting (a single click) on a row and selecting the **Go to CI** button.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
Use the available drop-down menus to filter data shown in the table. The display might include these filtering options:

Owner: Choose an Owner to see metrics in the heatmap for Areas associated with that Owner.

Area: Choose an Area to see metrics in the heatmap for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics in the heatmap for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics in the heatmap for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics in the heatmap for Environments associated with that Service, Group, Area and Owner.

Fields and Data
This display includes:

Service Name	The name of the selected Service.
Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the Component Views / CI Service Table display, which range from **A** to **E**, where **A** is the highest Criticality. This value is used to determine the value for Alert Impact.
CI Count	The total number of configurable items in the display.

CI Table for Selected Environment
This table lists all CIs for the selected Environment. Each row in the table is a CI. Each CI can have multiple alerts. Click a row to view details about any alerts associated with the CI in the lower table. Double-click a row to drill-down to a summary page describing information relevant to this CI. This action can also be performed by selecting (a single click) on a row and selecting the **Go to CI** button.

CI Type Filter	Select a CI Type to display in the table or select All CI Types.
Go to CI	Drill-down to a summary page describing information relevant to this CI.
CIType	The type of CI.
Quality	Shows whether performance metrics are being received from the CI: Performance metrics are not being received from the CI. Performance metrics are being received from the CI.
Severity	Shows the most critical alert state for the selected CI: One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded.
Alerts	The number of currently active alerts for the selected CI.
Region	The name of the Region for the CI.
SiteName	The name of the Site for the CI.
OSType	The operating system currently running on the CI.
City	The name of the City for the CI.
Country	The name of the Country for the CI.
Data Server	The name of the Data Server with which the CI is associated.

Selected CI	Shows the CI Type selected in the upper table.
All	Shows all active alerts for all CIs associated with the CI Type selected.

Alerts Table
This table lists all open, unsuppressed alerts associated with the selection in the upper table. Each row in the table is a different active alert. Select one or more rows, right-click to open the **Alert** popup menu and choose an action to perform on the alert(s): **Details**, **Own**, **Suppress**, **Close**, **Annotate** or **Options**. Use the sort button to order column data. The row color indicates the following:

Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.

Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.

Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Opens the **Alerts Table** display in a new window.

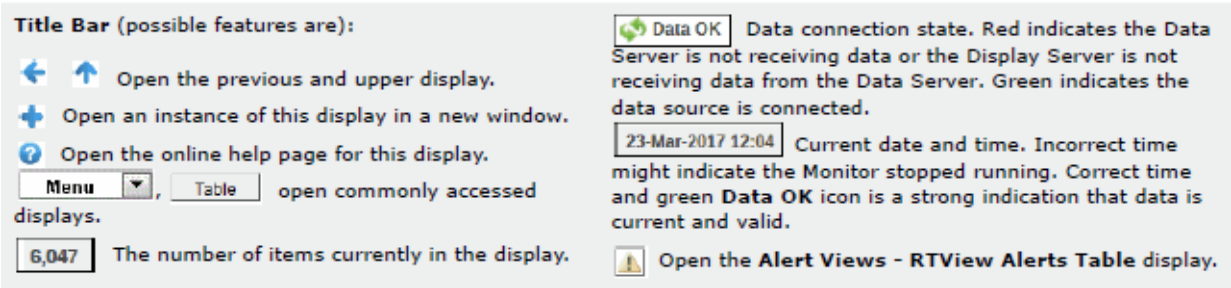
Own	Click to assign an Owner for the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Suppress	Click to suppress the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Close	Click to close the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.
Details	Select an alert, right-click and choose **Alert/Details** to open the **Alert Detail** window and view alert details. Or, double-click an alert to open the **Alert Detail** window.
Annotate	Select one or more alerts, right-click and choose **Alert/Annotate** to open the **Set Owner and Comments** dialog and enter comments or change alert owner.
Options	Select an alert, right-click and choose **Alert/Options** to open the **Alert Options** dialog. This dialog is provided for customizing your own alert options.

First Occ	The date and time the alert first occurred.
Last Occ	The date and time the alert last occurred.
Count	The number of times the alert was generated.
Sup	When checked, the alert has been suppressed by a user.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert.
Primary Service	The name of the Service with which the alert is associated.
CI	The CI alert source.
Alert Text	Description of the alert.
AlertClass	An optional alert field which can be used when integrating with other alerting systems.
CompID	An optional alert field which can be used when integrating with other alerting systems.
TicketID	An optional alert field which can be used when integrating with other alerting systems.
TicketGroup	An optional alert field which can be used when integrating with other alerting systems.

Service Health Heatmap

View heatmap of alert states for CIs associated with a Service. The heatmap organizes CIs by the Service selected. Each rectangle in the heatmap represents a CI (for example, **localhost-14**). Each Metric (selected from the drop-down menu) has a color gradient bar that maps relative values to colors.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. By default, this display shows Alert Impact.



Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient bar, where **10** is the highest Alert Impact.

Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity.

Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**.

Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**.

Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Criticality The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient bar, where **5** is the highest Criticality.

Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

Key Metrics Views

The Key Metrics (KM) feature is an entirely new way of looking at and interpreting application health and performance data.

In contrast to the traditional Alert Impact view showing your ACTIVE alerts and their impact on the overall application or service, the Key Metrics view shows how close a metric is approaching its threshold over a period of time – both before and after the alert threshold is reached.

This allows you to both proactively anticipate performance problems BEFORE the alert threshold is crossed as well analyze the circumstances that led up to error conditions AFTER you got an alert. Armed with this knowledge, you can avert disasters before they happen and resolve problems faster after they happen.

RTView does this by correlating the most valuable key metrics over multiple components within a service and displaying them in context with both real-time and historical data. This is valuable because health problems in one component may be caused by performance problems in another and only by viewing each of these metrics in context with one another over a period of time are you able to visually link the relationship between troubled components.

It is important to note that your Alert Impact heatmaps may look very different from your Key Metrics heatmaps given that KM will indicate potential threats BEFORE they show up as alerts.

Data is filtered by the $rtvOwnerMask, $rtvAreaMask, $rtvGroupMask and $rtvServiceMask values for the logged in user. For details, see **Configure User and Role Management**.

For Key Metrics definitions by technology, see "Available KM Metrics and Alerts" on page 168.

Dependencies

The KM package is dependent on the Metric Explorer package. Both must be included in your project in order for KM to work. If you are upgrading from a version previous to 1.5.0 and have not added Metric Explorer to your project, see the *RTView Enterprise Monitor® User's Guide* **Upgrade Notes** section for information about including it.

Displays in this View are:

- "Service KM Heatmap" on page 152: Heatmap of Key Metrics current data for one or more Services in your CMDB hierarchy.
- "Service KM Table" on page 156: Table of Key Metrics current data for one or more Services.
- "Service KM History" on page 159: History heatmap of Key Metrics historical data for one or more Services.
- "Service KM History (Alt)" on page 163: History heatmap of Key Metrics historical data for one or more Services.

This section also includes:

- "Available KM Metrics and Alerts" on page 168: List and descriptions of available key metrics.

Service KM Heatmap

View Key Metrics current data for one or more Services in your CMDB hierarchy in a heatmap. The **Service KM Heatmap** provides one view of all your Services and whether they are approaching an alert condition.

The most important overview of your Services is the Alert Impact View. The Alert Impact View lets you know what is a problem NOW. The **Service KM Heatmap** gives you a proactive view of which Services might be approaching a serious problem so that you can take action before they become critical. First look at the Alert Impact View to address current issues, then move to the **Service KM Heatmap** for proactive analysis.

The colors in the display are determined by the **Threshold %** and **Quality** values. As shown in the color gradient bar 

, a rectangle is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

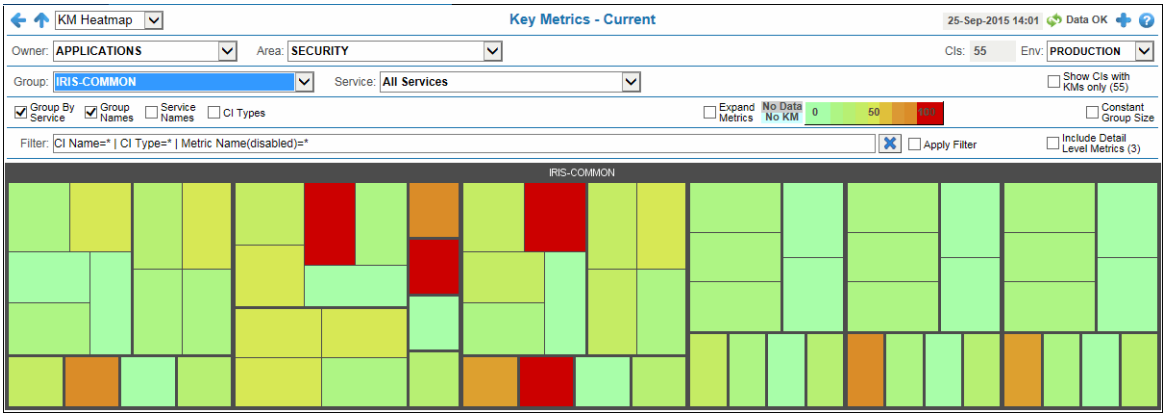
- Red indicates the value is at or over **100**.
- Yellow indicates the value is between **0** and **100**.
- Green indicates the value is close to **0**.
- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

Select **Group By Service** to include the **Group** and **Service** labels in the display. Select **Expand Metrics** to include the **Metric Name**, **Metric Value** and **Threshold** labels in the display.

For an overview about the Key Metrics feature, see "Key Metrics Views".

For Key Metrics definitions by technology, see "Available KM Metrics and Alerts" on page 168.

Use the available drop-down menus or right-click to filter data shown in the display. Drill-down and investigate by double-clicking a rectangle in the display to view details in the corresponding display.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

You can also filter KMs by **CI Name**, **CI Type** and **Metric Name**. To modify the **CI Name**, **CI Type** or **Metric Name** filter, right-click on an item in the display and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** . The **Filter:** field shows filter parameters and is highlighted in blue after it is applied. Click Clear to clear the filter.

Note: The **Metric Name** filter is only editable or applied when the **Expand Metrics** checkbox is selected.

Fields and Data
This display includes:

Show CIs with KMs only (x)	When selected, hides any CIs that do not have KMs defined. The number following the label (**x**) is the number of CIs with KMs defined.
Group By Service	When selected, includes the **Service Group** and **Service Name** in the KM data. CIs that are included in multiple Services will appear multiple times, once for each Service they are associated with.
Group Names	When selected, includes the **Group Name** in the display. Only available if **Group By Service** is selected.
Service Names	When selected, includes both the **Group Name** and **Service Name** in the display. Only available if **Group By Service** is selected.
CI Types	When selected, includes the CI Type in the display. If **Group By Service** is selected, this is shown in addition to the **Group Name** and **Service Name**.
Expand Metrics	When selected, shows one element (for example, a table row, status history row or heatmap cell) per KM per CI. When not selected, shows one element per CI with the aggregated value of all KMs for that CI. KMs are aggregated by taking the maximum **Threshold %** and the minimum **Quality** value for the CI.
	The **No Data No KM** indicates the **Quality** value for the data. If no KMs are defined for the CI Type, the **Quality** is set to **0** and the color is shown as teal. If KMs are defined for the CI Type, but no data was returned when the metric was queried, the **Quality** is set to -**1** and the color is shown as gray. If data was received for the metric, the **Quality** is set to **1** and the color is set based on the Threshold % value as described above. If the If the Expand Metrics checkbox is selected, this is the Quality of a single KM. If the Expand Metrics checkbox is not selected, this is the lowest Quality for all of the KMs on the CI.

The gradient bar is the legend for the display colors, which are determined by the **Threshold %** and **Quality** values. A row is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

- Red indicates the value is at or over **100**.
- Yellow indicates the value is between **0** and **100**.
- Green indicates the value is close to **0**.
- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

Constant Group Size When selected, Groups are equally sized in the display. When not selected, Groups are sized according to the number of elements in the Group (a Group containing the most elements is rendered with the largest rectangle).

Filter: Shows the current filter parameters and is highlighted in blue when the filter is applied.

By default, all data is shown:

CI Name=* | CI Type=* | Metric Name(disabled)=*

To modify the filter of KMs displayed, right-click on an item in the table and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter**  . Click Clear  to clear the filter.

 Clears the filter parameters.

 Applies the filter parameters.

Include Detail Level Metrics (##) When selected, includes **Detail Level** KMs in the display. When not selected, only includes high level KMs. The number following the label (**x**) is the number of detail level metrics available for the currently displayed KMs.

Mouseover
See the following details via mouseover:

Group The Group name. For displays showing current KM data, this column is only included if the **Group By Service** checkbox is selected. The table shows one row per Group that a CI is associated with.

Service The Service name. For displays showing current KM data, this column is only included if the **Group By Service** checkbox is selected. The table shows one row Service that a CI is associated with.

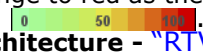
CI Type The CI Type.

CI Name The CI Name.

Metric Name The name of the metric. This is only included if the **Expand Metrics** checkbox is selected. It is the user-friendly metric name, which corresponds to a numeric column in one of the caches associated with the CI Type. To see which cache column provides data for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CACHENAME** column lists the name of the cache containing the metric and the **METRICNAME** column contains the name of the cache column.

Metric Value The value of the metric. This is only included if the **Expand Metrics** checkbox is selected.

Threshold The **Alarm Level** value for the alert associated with the metric. This column is only included if the **Expand Metrics** checkbox is selected. To see which alert is associated with this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **AlertName** column lists the name of the alert associated with the metric. **Note:** When looking up the alert threshold for a KM, RTView Enterprise Monitor first looks to see if there is an alert override on the alert where the **AlertIndex** exactly matches the CIName (ignoring the **~** and **;** delimiters). If an exact match is found, the override **Alarm Level** is used. If no exact match is found, the **Default Alarm Level** for the alert is used. Note that some alert overrides only contain a partial index and are not used for KM thresholds.

Threshold %	The percent of the **Metric Value** against the **Threshold**. If the **Expand Metrics** checkbox is selected, this is the **Threshold %** of a single KM. If the **Expand Metrics** checkbox is not selected, this is the highest **Threshold %** for all of the KMs on the CI. Depending on the KM, different scales are applied. By default, no scale is applied, but values are limited to **0-10000**. For memory metrics, an exponential scale is applied to the **Threshold %** so that lower values are diminished. For metrics where the alert is a low alert (an alert that executes when the value goes below the threshold), an inverse scale is applied. The colors in the KM displays are based on this value going from green when the value is close to **0** changing to yellow to orange to red as the value gets closer to **100**. Values at or over **100** are shown as red  . To see which **CalcMode** is used for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CalcMode** column lists the type of scale that is applied to the metric. If blank, no scale is applied.
Quality	Indicates the quality of the data. If the **Expand Metrics** checkbox is selected, the value is for a single KM on the CI. If the **Expand Metrics** checkbox is not selected, the value is for all the KMs on the CI, and shows the lowest **Quality** of those KMs. Possible values are: **0** = No KMs are defined for the CI Type (the color is shown as teal). **-1** = KMs are defined for the CI Type, but no data was returned when the metric was queried (the color is shown as gray). **1** = Data was received for the metric (the color is set based on the **Threshold %** value).
Time	The time stamp of the data.

Service KM Table

View Key Metrics current data for one or more Services in your CMDB hierarchy in a table.

The **Service KM Table** shows the same information as the "Service KM Heatmap". Use this display if, for example, you prefer to sort by **Service** or **Threshold %** to identify the Service for which you want to perform proactive health analysis.

The colors of the table rows are determined by the **Threshold %** and **Quality** values. As shown in the color gradient bar  , a row is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

- Red indicates the value is at or over **100**.
- Yellow indicates the value is between **0** and **100**.
- Green indicates the value is close to **0**.
- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

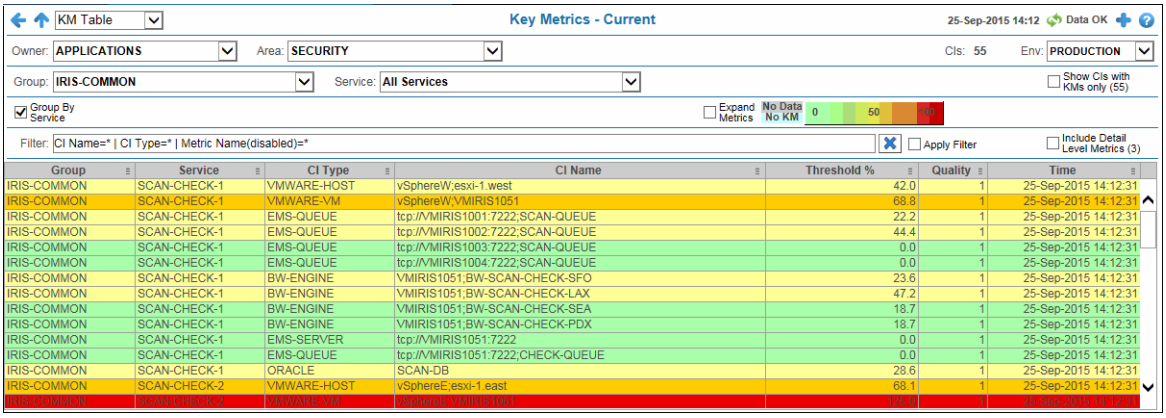
Select **Group By Service** to include the **Group** and **Service** columns in the table. Select **Expand Metrics** to include the **Metric Name**, **Metric Value** and **Threshold** columns in the table.

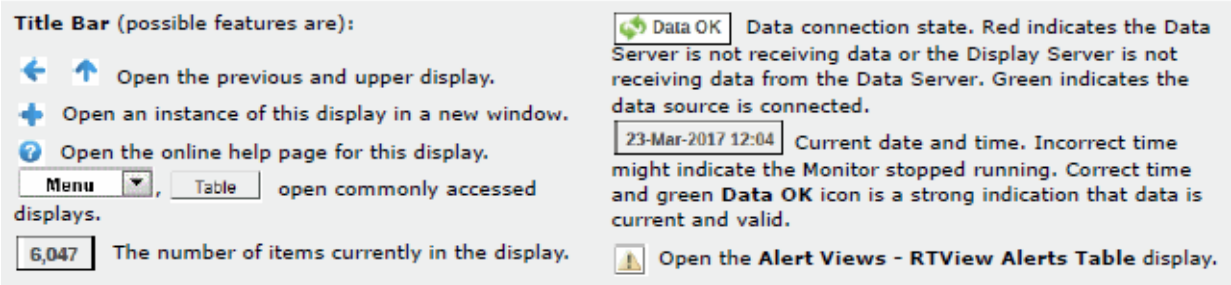
Note: The **CIs** label shows the number of CIs in the table. However, if the CI is associated with multiple Services it is only counted once.

For an overview about the Key Metrics feature, see "Key Metrics Views".

For Key Metrics definitions by technology, see "Available KM Metrics and Alerts" on page 168

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data. Drill-down and investigate by double-clicking a row in the table to view details in the corresponding display.





Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

You can also filter KMs by **CI Name**, **CI Type** and **Metric Name**. To modify the **CI Name**, **CI Type** or **Metric Name** filter, right-click on an item in the display and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** . The **Filter:** field shows filter parameters and is highlighted in blue after it is applied. Click Clear to clear the filter.

Note: The **Metric Name** filter is only editable or applied when the **Expand Metrics** checkbox is selected.

Fields and Data
This display includes:

Show CIs with KMs only (x) When selected, hides any CIs that do not have KMs defined. The number following the label (**x**) is the number of CIs with KMs defined.

Group By Service When selected, includes the **Service Group** and **Service Name** in the KM data. CIs that are included in multiple Services will appear multiple times, once for each Service they are associated with.

Expand Metrics When selected, shows one element (for example, a table row, status history row or heatmap cell) per KM per CI. When not selected, shows one element per CI with the aggregated value of all KMs for that CI. KMs are aggregated by taking the maximum **Threshold %** and the minimum **Quality** value for the CI.

The **No Data No KM** indicates the **Quality** value for the data. If no KMs are defined for the CI Type, the **Quality** is set to **0** and the color is shown as teal. If KMs are defined for the CI Type, but no data was returned when the metric was queried, the **Quality** is set to **-1** and the color is shown as gray. If data was received for the metric, the **Quality** is set to **1** and the color is set based on the Threshold % value as described above. If the If the Expand Metrics checkbox is selected, this is the Quality of a single KM. If the Expand Metrics checkbox is not selected, this is the lowest Quality for all of the KMs on the CI.

The gradient bar is the legend for the table row colors, which are determined by the **Threshold %** and **Quality** values. A row is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

- Red indicates the value is at or over **100**.
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- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

Filter: Shows the current filter parameters and is highlighted in blue when the filter is applied.

By default, all data is shown:

CI Name=* | CI Type=* | Metric Name(disabled)=*

To modify the filter of KMs displayed, right-click on an item in the table and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** . Click Clear to clear the filter.

 Clears the filter parameters.

 Applies the filter parameters.

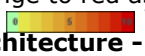
Include Detail Level Metrics (##) When selected, includes **Detail Level** KMs in the display. When not selected, only includes high level KMs. The number following the label (**x**) is the number of detail level metrics available for the currently displayed KMs.

Group The Group name. For displays showing current KM data, this column is only included if the **Group By Service** checkbox is selected. The table shows one row per Group that a CI is associated with.

Service The Service name. For displays showing current KM data, this column is only included if the **Group By Service** checkbox is selected. The table shows one row Service that a CI is associated with.

CI Type The CI Type.

CI Name The CI Name.

Metric Name	The name of the metric. This column is only included if the **Expand Metrics** checkbox is selected. It is the user-friendly metric name, which corresponds to a numeric column in one of the caches associated with the CI Type. To see which cache column provides data for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CACHENAME** column lists the name of the cache containing the metric and the **METRICNAME** column contains the name of the cache column.
Metric Value	The value of the metric. This column is only included if the **Expand Metrics** checkbox is selected.
Threshold	The **Alarm Level** value for the alert associated with the metric. This column is only included if the **Expand Metrics** checkbox is selected. To see which alert is associated with this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **AlertName** column lists the name of the alert associated with the metric. **Note:** When looking up the alert threshold for a KM, RTView Enterprise Monitor first looks to see if there is an alert override on the alert where the **AlertIndex** exactly matches the CIName (ignoring the **~** and **;** delimiters). If an exact match is found, the override **Alarm Level** is used. If no exact match is found, the **Default Alarm Level** for the alert is used. Note that some alert overrides only contain a partial index and are not used for KM thresholds.
Threshold %	The percent of the **Metric Value** against the **Threshold**. If the **Expand Metrics** checkbox is selected, this is the **Threshold %** of a single KM. If the **Expand Metrics** checkbox is not selected, this is the highest **Threshold %** for all of the KMs on the CI. Depending on the KM, different scales are applied. By default, no scale is applied, but values are limited to **0-10000**. For memory metrics, an exponential scale is applied to the **Threshold %** so that lower values are diminished. For metrics where the alert is a low alert (an alert that executes when the value goes below the threshold), an inverse scale is applied. The colors in the KM displays are based on this value going from green when the value is close to **0** changing to yellow to orange to red as the value gets closer to **100**. Values at or over **100** are shown as red  To see which **CalcMode** is used for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CalcMode** column lists the type of scale that is applied to the metric. If blank, no scale is applied.
Quality	Indicates the quality of the data. If the **Expand Metrics** checkbox is selected, the value is for a single KM on the CI. If the **Expand Metrics** checkbox is not selected, the value is for all the KMs on the CI, and shows the lowest **Quality** of those KMs. Possible values are: **0** = No KMs are defined for the CI Type (the color is shown as teal). **-1** = KMs are defined for the CI Type, but no data was returned when the metric was queried (the color is shown as gray). **1** = Data was received for the metric (the color is set based on the **Threshold %** value).
Time	The time stamp of the data.

Service KM History

View history heatmap of Key Metric data, over time, for a selected Group and Service.

This is the most important view for analyzing the correlation between a variety of Key Metrics over time that are related to a Service. You would navigate to this view if:

- you have identified a Service in the Alert Impact View that is having degradation right now. You can select the Service and navigate to the **Service KM History** display to determine if there are various factors causing the degradation.
- you have looked at the "Service KM Heatmap" or the "Service KM Table" and identified a Service that is about to become degraded. You can navigate to the **Service KM History** display to proactively analyze the Service before issues arise.

Each row in the history heatmap represents a different CI, unless the **Expand Metrics** checkbox is selected, in which case it represents a metric on a CI. The row color shows the **Threshold %** and **Quality** values.

The **Threshold %** value is rounded up to the closest **10** unless the **Quality** is less than **1**, in which case it shows the **Quality**. As shown in the color gradient bar 

, the color is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

- Red indicates the value is at or over **100**.
- Yellow indicates the value is between **0** and **100**.
- Green indicates the value is close to **0**.
- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

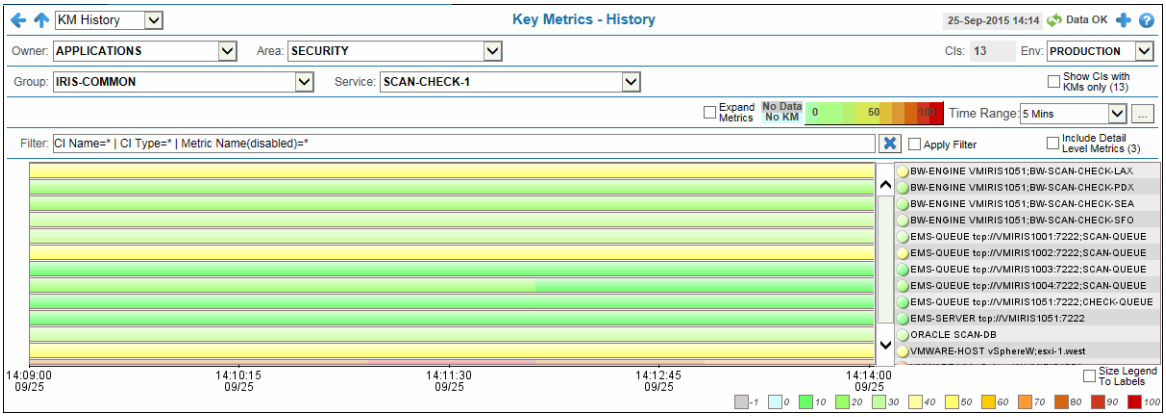
CIs associated with multiple Services are shown once for the first **Group** and **Service** they were associated with, and labeled **+ x more**, where **x** is the number of additional **Groups** and **Services** the CI is associated with.

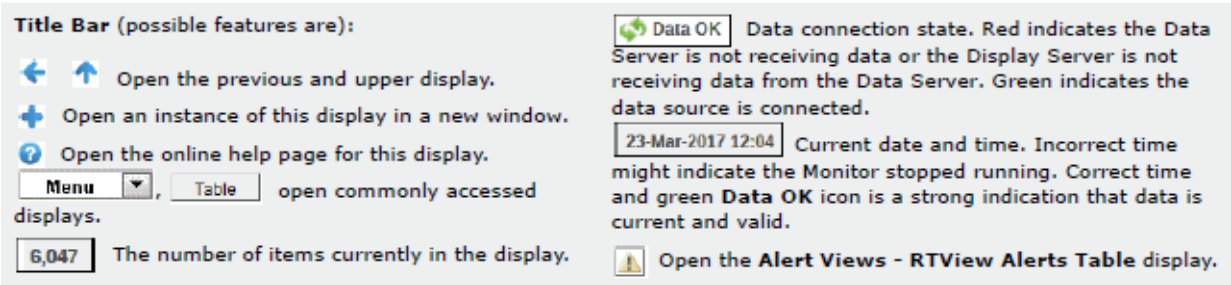
Select **Expand Metrics** to show each Key Metric in its own row and include the **Metric Name**, **Metric Value** and **Threshold** labels in the mouseover popup window.

For an overview about the Key Metrics feature, see "Key Metrics Views".

For Key Metrics definitions by technology, see "Available KM Metrics and Alerts" on page 168

Use the available drop-down menus or right-click to filter data shown in the display. Drill-down and investigate by double-clicking a row to view details in the corresponding display.





Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

You can also filter KMs by CI Name, CI Type and Metric Name. To modify the **CI Name**, **CI Type** or **Metric Name** filter, right-click on an item and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** ☑. The **Filter:** field shows filter parameters and is highlighted in blue after it is applied. Click Clear ✖ to clear the filter.

Note: The **Metric Name** filter is only editable or applied when the **Expand Metrics** checkbox is selected.

Fields and Data
This display includes:

Show CIs with KMs only (x) — When selected, hides any CIs that do not have KMs defined. The number following the label (**x**) is the number of CIs with KMs defined.

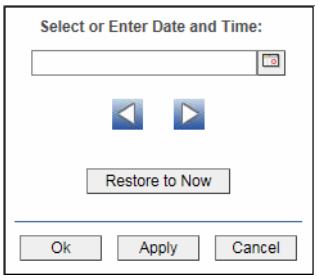
Expand Metrics — When selected, shows one element (for example, a table row, status history row or heatmap cell) per KM per CI. When not selected, shows one element per CI with the aggregated value of all KMs for that CI. KMs are aggregated by taking the maximum **Threshold %** and the minimum **Quality** value for the CI.

The **No Data No KM** is the legend for the display colors if the **Quality** value for the data is less than **1**. If no KMs are defined for the **CI Type**, the **Quality** is set to **0** and the color is shown as teal. If KMs are defined for the CI Type, but no data was returned when the metric was queried, the **Quality** is set to -**1** and the color is shown as gray. If data was received for the metric, the **Quality** is set to **1** and the color is set based on the **Threshold %** value as described above. If the If the **Expand Metrics** checkbox is selected, this is the **Quality** of a single KM. If the **Expand Metrics** checkbox is not selected, this is the lowest **Quality** for all of the KMs on the CI.

The gradient bar is the legend for the display colors, which are determined by the **Threshold %** and **Quality** values. A row is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

- Red indicates the value is at or over **100**.
- Yellow indicates the value is between **0** and **100**.
- Green indicates the value is close to **0**.
- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Note: To limit the memory used by the KM history displays, the available time ranges are limited by the number of CIs in the selected **Group** and **Service**. This limit can be modified using the **$rtvKmHistoryRowLimit** substitution. The **$rtvKmHistoryRowLimit** substitution sets the maximum number of rows that can be queried by a history display and this number is used to determine the available time ranges. The default value is **35000**. To change the limit (and the maximum amount of memory used by KM history display), set the following property to a different value: **sl.rtview.sub=$rtvKmHistoryRowLimit:35000**.

Filter: Shows the current filter parameters and is highlighted in blue when the filter is applied.

By default, all data is shown:

CI Name=* | CI Type=* | Metric Name(disabled)=*

To modify the filter of KMs displayed, right-click on an item in the table and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** . Click Clear to clear the filter.

	Clears the filter parameters.
	Applies the filter parameters.

Include Detail Level Metrics (##) When selected, includes **Detail Level** KMs in the display. When not selected, only includes high level KMs. The number following the label (**x**) is the number of detail level metrics available for the currently displayed KMs.

Mouseover
See the following details via mouseover:

Group The **Group** name. For CIs that are associated with multiple Groups, the name of the first **Group** the CI was associated with is shown and labeled **+ x more**, where **x** is the number of additional **Groups** the CI is associated with.

Service The **Service** name. For CIs that are associated with multiple Services, the name of the first **Service** the CI was associated with is shown and labeled **+ x more**, where **x** is the number of additional **Services** the CI is associated with.

CI Type The CI Type.

CI Name The CI Name.

Metric Name	The name of the metric. This is only included if the **Expand Metrics** checkbox is selected. It is the user-friendly metric name, which corresponds to a numeric column in one of the caches associated with the **CI Type**. To see which cache column provides data for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CACHENAME** column lists the name of the cache containing the metric and the **METRICNAME** column contains the name of the cache column.
Metric Value	The value of the metric. This is only included if the **Expand Metrics** checkbox is selected.
Threshold	The **Alarm Level** value for the alert associated with the metric. This column is only included if the **Expand Metrics** checkbox is selected. To see which alert is associated with this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **AlertName** column lists the name of the alert associated with the metric. **Note:** When looking up the alert threshold for a KM, RTView Enterprise Monitor first looks to see if there is an alert override on the alert where the **AlertIndex** exactly matches the CIName (ignoring the **~** and **;** delimiters). If an exact match is found, the override **Alarm Level** is used. If no exact match is found, the **Default Alarm Level** for the alert is used. Note that some alert overrides only contain a partial index and are not used for KM thresholds.
Threshold %	The percent of the **Metric Value** against the **Threshold**. If the **Expand Metrics** checkbox is selected, this is the **Threshold %** of a single KM. If the **Expand Metrics** checkbox is not selected, this is the highest **Threshold %** for all of the KMs on the CI. Depending on the KM, different scales are applied. By default, no scale is applied, but values are limited to **0-10000**. For memory metrics, an exponential scale is applied to the **Threshold %** so that lower values are diminished. For metrics where the alert is a low alert (an alert that executes when the value goes below the threshold), an inverse scale is applied. The colors in the KM displays are based on this value going from green when the value is close to **0** changing to yellow to orange to red as the value gets closer to **100**. Values at or over **100** are shown as red  . To see which **CalcMode** is used for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CalcMode** column lists the type of scale that is applied to the metric. If blank, no scale is applied.
Quality	Indicates the quality of the data. If the **Expand Metrics** checkbox is selected, the value is for a single KM on the CI. If the **Expand Metrics** checkbox is not selected, the value is for all the KMs on the CI, and shows the lowest **Quality** of those KMs. Possible values are: **0** = No KMs are defined for the CI Type (the color is shown as teal). **-1** = KMs are defined for the CI Type, but no data was returned when the metric was queried (the color is shown as gray). **1** = Data was received for the metric (the color is set based on the **Threshold %** value).
Time	The time stamp of the data.
Size Legend To Labels	When selected, the width of the legend is set to the widest label. When not selected, the width of the legend is set to 20% of the available space and labels that are too wide are clipped.

Service KM History (Alt)

View history heatmap of Key Metric data, over time, for a selected Group and Service. This display shows the same data as the "Service KM History" display but contains fewer labels. Each row in the history heatmap represents a different CI, unless the **Expand Metrics** checkbox is selected, in which case it represents a metric on a CI. The row color shows the **Threshold %** and **Quality** values.

As shown in the color gradient bar 

, the color is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red.

- Red indicates the value is at or over **100**.
- Yellow indicates the value is between **0** and **100**.
- Green indicates the value is close to **0**.
- Teal indicates no KMs are defined for the CI Type.
- Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

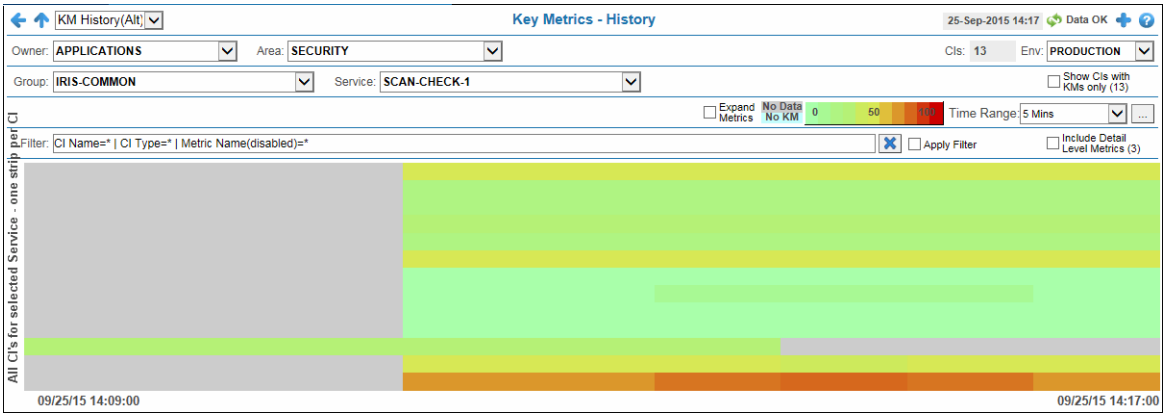
CIs associated with multiple Services are shown once for the first **Group** and **Service** they were associated with, and labeled **+ x more**, where **x** is the number of additional **Groups** and **Services** the CI is associated with.

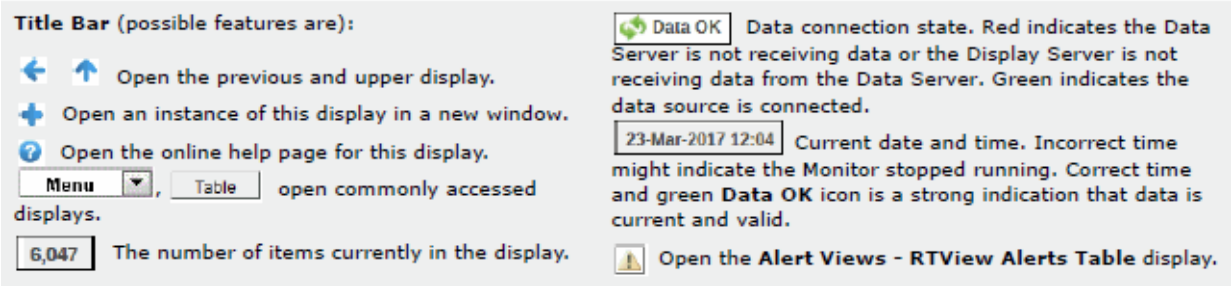
Select **Expand Metrics** to show each Key Metric in its own row and include the **Metric Name**, **Metric Value** and **Threshold** labels in the mouseover popup window.

For an overview about the Key Metrics feature, see "Key Metrics Views".

For Key Metrics definitions by technology, see "Available KM Metrics and Alerts" on page 168.

Use the available drop-down menus or right-click to filter data shown in the display. Drill-down and investigate by double-clicking a row to view details in the corresponding display.





Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

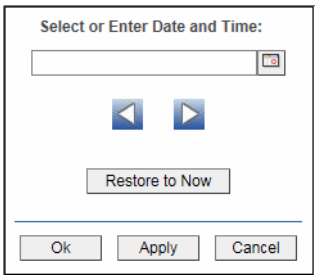
You can also filter KMs by CI Name, CI Type and Metric Name. To modify the **CI Name**, **CI Type** or **Metric Name** filter, right-click on an item and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** ☑. The **Filter:** field shows filter parameters and is highlighted in blue after it is applied. Click Clear ✖ to clear the filter.

Note: The **Metric Name** filter is only editable or applied when the **Expand Metrics** checkbox is selected.

Fields and Data
This display includes:

Show CIs with KMs only (x)	When selected, hides any CIs that do not have KMs defined. The number following the label (**x**) is the number of CIs with KMs defined.
Expand Metrics	When selected, shows one element (for example, a table row, status history row or heatmap cell) per KM per CI. When not selected, shows one element per CI with the aggregated value of all KMs for that CI. KMs are aggregated by taking the maximum **Threshold %** and the minimum **Quality** value for the CI.
	The **No Data No KM** is the legend for the display colors if the **Quality** value for the data is less than **1**. If no KMs are defined for the **CI Type**, the **Quality** is set to **0** and the color is shown as teal. If KMs are defined for the CI Type, but no data was returned when the metric was queried, the **Quality** is set to -**1** and the color is shown as gray. If data was received for the metric, the **Quality** is set to **1** and the color is set based on the **Threshold %** value as described above. If the If the **Expand Metrics** checkbox is selected, this is the **Quality** of a single KM. If the **Expand Metrics** checkbox is not selected, this is the lowest **Quality** for all of the KMs on the CI.
	The gradient bar is the legend for the display colors, which are determined by the **Threshold %** and **Quality** values. A row is green when the value is close to **0** changing to yellow, orange and red as the value gets closer to **100**. Values at or over **100** are shown as red. Red indicates the value is at or over **100**. Yellow indicates the value is between **0** and **100**. Green indicates the value is close to **0**. Teal indicates no KMs are defined for the CI Type. Grey indicates KMs are defined for the CI Type but no data was returned when the metric was queried.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Note: To limit the memory used by the KM history displays, the available time ranges are limited by the number of CIs in the selected **Group** and **Service**. This limit can be modified using the **$rtvKmHistoryRowLimit** substitution. The **$rtvKmHistoryRowLimit** substitution sets the maximum number of rows that can be queried by a history display and this number is used to determine the available time ranges. The default value is **35000**. To change the limit (and the maximum amount of memory used by KM history display), set the following property to a different value: **sl.rtview.sub=$rtvKmHistoryRowLimit:35000**.

Filter: Shows the current filter parameters and is highlighted in blue when the filter is applied.

By default, all data is shown:

CI Name=* | CI Type=* | Metric Name(disabled)=*

To modify the filter of KMs displayed, right-click on an item in the table and select **CI Name**, **CI Type** or **Metric Name** from **Add To Filter** or **Remove From Filter**, then click **Apply Filter** . Click Clear to clear the filter.

	Clears the filter parameters.
	Applies the filter parameters.

Include Detail Level Metrics (##) When selected, includes **Detail Level** KMs in the display. When not selected, only includes high level KMs. The number following the label (**x**) is the number of detail level metrics available for the currently displayed KMs.

Mouseover
See the following details via mouseover:

Group The **Group** name. For CIs that are associated with multiple Groups, the name of the first **Group** the CI was associated with is shown and labeled **+ x more**, where **x** is the number of additional **Groups** the CI is associated with.

Service The **Service** name. For CIs that are associated with multiple Services, the name of the first **Service** the CI was associated with is shown and labeled **+ x more**, where **x** is the number of additional **Services** the CI is associated with.

CI Type The CI Type.

CI Name The CI Name.

Metric Name The name of the metric. This is only included if the **Expand Metrics** checkbox is selected. It is the user-friendly metric name, which corresponds to a numeric column in one of the caches associated with the **CI Type**. To see which cache column provides data for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CACHENAME** column lists the name of the cache containing the metric and the **METRICNAME** column contains the name of the cache column.

Metric Value The value of the metric. This is only included if the **Expand Metrics** checkbox is selected.

Threshold The **Alarm Level** value for the alert associated with the metric. This column is only included if the **Expand Metrics** checkbox is selected. To see which alert is associated with this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **AlertName** column lists the name of the alert associated with the metric. **Note:** When looking up the alert threshold for a KM, RTView Enterprise Monitor first looks to see if there is an alert override on the alert where the **AlertIndex** exactly matches the CIName (ignoring the **~** and **;** delimiters). If an exact match is found, the override **Alarm Level** is used. If no exact match is found, the **Default Alarm Level** for the alert is used. Note that some alert overrides only contain a partial index and are not used for KM thresholds.

Threshold % The percent of the **Metric Value** against the **Threshold**. If the **Expand Metrics** checkbox is selected, this is the **Threshold %** of a single KM. If the **Expand Metrics** checkbox is not selected, this is the highest **Threshold %** for all of the KMs on the CI.

Depending on the KM, different scales are applied. By default, no scale is applied, but values are limited to **0-10000**. For memory metrics, an exponential scale is applied to the **Threshold %** so that lower values are diminished. For metrics where the alert is a low alert (an alert that executes when the value goes below the threshold), an inverse scale is applied. The colors in the KM displays are based on this value going from green when the value is close to **0** changing to yellow to orange to red as the value gets closer to **100**. Values at or over **100** are shown as red  . To see which **CalcMode** is used for this metric, navigate to **Architecture -** "RTView KM Defs". In the table, look in the **CITYPE** and **SELECTOR** columns to find the row for your metric. The **CalcMode** column lists the type of scale that is applied to the metric. If blank, no scale is applied.

Quality Indicates the quality of the data. If the **Expand Metrics** checkbox is selected, the value is for a single KM on the CI. If the **Expand Metrics** checkbox is not selected, the value is for all the KMs on the CI, and shows the lowest **Quality** of those KMs. Possible values are:

0 = No KMs are defined for the CI Type (the color is shown as teal).

-1 = KMs are defined for the CI Type, but no data was returned when the metric was queried (the color is shown as gray).

1 = Data was received for the metric (the color is set based on the **Threshold %** value).

Time The time stamp of the data.

Available KM Metrics and Alerts

This section lists available Key Metrics and their associated alerts.

Amazon AWS

The following KMs are available with the Solution Package for Amazon AWS. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.).

CI Type	Cache	Selector	Metric / Alert
ACW	AwsEc2InstanceStats	Instance CPU Usage	**CPUUtilization** / **AcwInstanceCpuHigh**

Custom Solution Package

The following KMs are available with the Custom Solution Package which comes with RTView EM. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
CUSTOM	CustomBirdData	Bird Too High	**Y** / **CustomBirdTooHigh**

Host Agent

The following KMs are available with the Solution Package for RTView Host Agent. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
HOST	HostStats	% CPU Utilization	**usedPerCentCpu** / **HostCpuPercentHigh**
HOST	HostStats	% Memory Used	**MemUsedPerCent** / **HostMemoryUsedHigh**

IBM DB2

The following KMs are available with the Solution Package for IBM DB2. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
DB2	Db2ResponseTime	Response Time	**ResponseTimeMilliSec** / **Db2ResponseTimeHigh**

IBM MQ

The following KMs are available with the Solution Package for IBM WebSphere MQ. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
MQ-BROKER	MqBrokers	Queue Depth	**Current queue depth** / **MqBrokerQueueDepthHigh**
MQ-QUEUE	MqQueues	Queue Depth	**Current queue depth** / **MqQueueDepthHigh**

IBM WebSphere

The following KMs are available with the Solution Package for IBM WebSphere. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
WAS	WasServerStats	Live Session Count	**LiveCount** / **WasLiveSessionCountHigh**
WAS	WasServerStats	WAS CPU %	**ProcessCpuUsage** / **WasJvmCpuHigh**
WAS	WasServerStats	Memory Used %	**usedMemoryPercent** / **WasMemoryUsedPercentHigh**
WAS-APP	WasServletTotalsByApp	Response Time	**responseTime** / **WasServletResponseTimeHigh**
WAS-APP	WasServletTotalsByApp	Requests/sec	**DeltatotalRequests** / **WasServletRequestRateHigh**

JBoss

The following KMs are available with the Solution Package for JBoss. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
JBOSS-APP	JbossDeployments	Active Sessions	**activeSessions** / **JbossAppActiveSessionsHigh**

JBOSS-SERVER	JbossServerStats	% Process CPU	**ProcessCpuLoadPercent** / **JbossServerProcessCpuLoadHigh**
JBOSS-SERVER	JbossDeploymentTotals	Active Sessions	**activeSessions / JbossServerActiveSessionsHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)

Oracle Coherence

The following KMs are available with the Solution Package for Oracle Coherence. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.) For alert definitions, see *RTView® Oracle® Coherence Monitor User's Guide*.

CI Type	Cache	Selector	Metric / Alert
OC-CACHE	OcCacheTotals	Rate Cache Misses	**RateCacheMisses** / **OcCacheRateCacheMissesHigh** This metric is the rate of cache misses against a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.
OC-CACHE	OcCacheTotals	Rate Store Reads	**RateStoreReads** / **OcCacheRateStoreReadsHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.) This metric is the rate of store reads (load operations) against a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.
OC-CACHE	OcCacheTotals	Rate Store Writes	**RateStoreWrites** / **OcCacheRateStoreWritesHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.) This metric is the rate of store writes (store and erase operations) against a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.
OC-CACHE	OcCacheTotals	Queue Size	**QueueSizePos** / **OcCacheQueueSizeHigh** This metric is the cache send queue size for a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.
OC-CACHE	OcCacheTotals	Rate Cache Puts	**RateTotalPuts** / **OcCacheRateTotalPutsHigh** This metric is the rate of cache puts against a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.

OC-CACHE	OcCacheTotals	Rate Cache Gets	**RateTotalGets** / **OcCacheRateTotalGetsHigh** This metric is the rate of cache gets against a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.
OC-CACHE	OcCacheTotals	Rate Store Reads	**RateStoreReads** / **OcCacheRateStoreReadsHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
OC-CACHE	OcCacheTotals	Rate Store Writes	**RateStoreWrites** / **OcCacheRateStoreWritesHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
OC-CACHE	OcCacheTotals	CacheSize	**CacheSize** / **OCCacheSizeHigh** The level of this Key Metric is **0**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.) This metric is the number of objects in a cache for a given tier of a given cache for a given service in a given (Coherence) cluster. The tier can be front, where appropriate, or back. Caches and services are named, and (Coherence) clusters are represented by their named monitoring connection.
OC-CLUSTER	OcPacketStats	Packet Loss	**SentFailureRate** / **OcBadCommunicationCluster** This metric is the (network/packet) sent failure rate averaged across all of the nodes of a cluster.
OC-CLUSTER NODES	OcNodeTotals	CPU Used %	**AvgCpuPercent** / **OcClusterNodesCPUHigh** This metric is the average CPU usage of all the nodes of a given storage class in a cluster. The storage class is represented by the **StorageEnabled** index column, which can be **true** or **false**. Thus metrics for storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = true**, and non storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = false**. This metric is shown as a trace in the **Cluster - Memory/Network Health** display**.** The metric is labeled Avg. CPU% and is displayed (for storage enabled nodes) in the Storage Nodes trend grouping and (for non storage enabled nodes) in the Process Nodes trend grouping.
OC-CLUSTER NODES	OcNodeTotals	Packet Rx Loss	**RcvdFailureRate100** / **OcClusterNodesRcvdFailureRateHigh** This metric is the (network/packet) received failure rate averaged across all of the nodes of a given storage class in a cluster. The storage class is the **StorageEnabled** index column, which can be **true** or **false**. Metrics for storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = true**, and non storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = false**.

OC-CLUSTER NODES	OcNodeTotals	Memory Used %	**MemoryUsedPct100** / **OcClusterNodesMemHigh** This metric is the memory used percentage averaged across all of the nodes of a given storage class in a cluster. The storage class is the **StorageEnabled** index column, which can be **true** or **false**. Metrics for storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = true**, and non storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = false**.
OC-CLUSTER NODES	OcNodeTotals	Packet Tx Loss	**SentFailureRate100** / **OcClusterNodesSentFailureRateHigh** This metric is the (network/packet) sent failure rate averaged across all of the nodes of a given storage class in a cluster. The storage class is the **StorageEnabled** index column, which can be **true** or **false**. Metrics for storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = true**, and non storage enabled nodes in a cluster are aggregated into a cache row where **StorageEnabled = false**.

Oracle Database

The following KMs are available with the Solution Package for Oracle Database. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.)

CI Type	Cache	Selector	Metric / Alert
ORACLE	OraDatabaseAvailability	Response Time	**ResponseTimeMilliSec** / **OraDatabaseResponseTimeHigh**

Oracle WebLogic

The following KMs are available with the Solution Package for Oracle WebLogic. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
WLS	WlsJvmStats	JVM CPU %	**JvmProcessorLoad** / **WlsServerCpuHigh**
WLS	WlsJvmStats	JVM Memory %	**MemoryUsedPercent** / **WlsServerMemoryUsageHigh**
WLS	WlsThreadPoolRuntime	Hogging Threads	**HoggingThreadCount** / **WlsHoggingThreadsHigh**
WLS	WlsServerRuntime	Open Sockets	**OpenSocketsCurrentCount** / **WlsOpenSocketsHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
WLS	WlsThreadPoolRuntime	Thread Total Count	**ExecuteThreadTotalCount** / **WlsThreadsTotalHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
WLS-APP	WlsSessionStats	Open Sessions	**OpenSessionsCurrentCount** / **WlsAppOpenSessionsHigh**

WLS-JMS-DEST	WlsJmsDestinationTotals	Messages Pending	**MessagesPendingCount/ WlsJmsDestinationMessagesPendingHigh**
WLS-JMS-SERVER	WlsJmsServerRuntime	Messages Pending	**MessagesPendingCount/ WlsJmsMessagesPendingHigh**

RTVMGR

The following KMs are available with the RTVMGR Solution Package which comes with RTView EM. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
JVM	JvmOperatingSystem	Cpu %	**CpuPercent** / **JvmCpuPercentHigh**
JVM	JvmMemory	Memory %	**MemoryUsedPercent** / **JvmMemoryUsedHigh**
JVM	JvmThreading	Thread Count	**ThreadCount** / **JvmThreadCountHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
TOMCAT	TomcatWebModuleTotals	Active Sessions	**activeSessions** / **TomcatActiveSessionsHigh**
TOMCAT	TomcatWebModuleTotals	Accesses / sec	**RateaccessCount** / **TomcatAccessRateHigh**
TOMCAT-APP	TomcatWebModuleStats	Active Sessions	**activeSessions** / **TomcatAppActiveSessionsHigh**
TOMCAT-APP	TomcatWebModuleStats	Accesses / sec	**RateaccessCount** / **TomcatAppAccessRateHigh**

RTVRULES

The following KMs are available with the RTVRULES Solution Package which comes with RTView EM. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
EM-SERVICE	RtvCmdbServiceStats_local	Alert Impact	**AlertImpact** / **RtvEmServiceAlertImpactHigh**

Solace

The following KMs are available with the Solution Package for Solace. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
SOLACE-MSGROUTER	SolAppliances	# Msgs Spooled	**num-messages-spooled** / **SolMsgRouterPendingMsgsHigh**
SOLACE-VPN	SolVpns	Connections	**connections** / **SolVpnConnectionCountHigh**
SOLACE-MSGROUTER	SolAppliances	OUT Msgs/sec	**total-cl-msgs-sent-per-sec** / **SolMsgRouterOutboundMsgRateHigh**
SOLACE-MSGROUTER	SolAppliances	IN Msgs/sec	**total-cl-msgs-rcvd-per-sec** / **SolMsgRouterInboundMsgRateHigh**

TIBCO ActiveMatrix

The following KMs are available with the Solution Package for TIBCO ActiveMatrix. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
AMX-SERVICE	AmxServiceTotals	Service Hits/Min	**Hits Per Minute** / **AmxServiceHitRateHigh**
AMX-SERVICE	AmxServiceTotals	Service Response Time	**Avg. Response Time** / **AmxServiceResponseTimeHigh**
AMX-SERVICENODE	AmxServices	Node Hits/Min	**Hits Per Minute** / **AmxServiceNodeHitRateHigh**
AMX-SERVICENODE	AmxServices	Node Response Time	**Avg. Response Time** / **AmxServiceNodeResponseTimeHigh**

TIBCO ActiveSpaces

The following KMs are available with the Solution Package for TIBCO ActiveSpaces. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
TAS-MEMBERBYSPACE	TasSeeders	Space Util by Seeder	**spaceUtilPerSeeder** / **TasMemberSeederCapacity**

TAS-SPACE	TasSpaceStatistics	Gets/sec	**RateGets** / **TasSpaceGetRateHigh**
TAS-SPACE	TasSpaceStatistics	Puts/sec	**RatePuts** / **TasSpacePutRateHigh**

TIBCO BusinessEvents

The following KMs are available with the Solution Package for TIBCO BusinessEvents. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
TBE-CLUSTER	TbeCluster Summary	Received Events Rate	**Received Events Rate** / **TbeClusterEventsRecvdRateHigh**
TBE-CLUSTER	TbeCluster Summary	Rules Fired Rate	**totalRateTotalNumberRulesFired** / **TbeClusterRuleFiringRateHigh**
TBE-CLUSTER	TbeCluster Summary	Concept Cache Ops Rate	**totalConceptOperationRate** / **TbeClusterConceptOpRateHigh**
TBE-CLUSTER	TbeCluster Summary	Backing Store Ops Rate	**totalBkngStoreOpsPerSec** / **TbeClusterBkngStoreOpRateHigh**

TIBCO BusinessWorks (Version 5) Monitor

The following KMs are available with the Solution Package for TIBCO BusinessWorks version 5. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
BW-ENGINE	BwEngines	CPU Used %	**CPU %** / **BwEngineCpuUsedHigh**
BW-ENGINE	BwEngines	Memory Used %	**PercentUsed** / **BwEngineMemUsedHigh**
BW-PROCESS	BwProcesses	AverageElapsed	**Process Avg Elapsed Time** / **BwProcessAvgElapsedTimeHigh**
BW-PROCESS	BwProcesses	RateCreated / sec	**Processes Created/sec** / **BwProcessCreatedRateHigh**
BW-PROCESS	BwProcesses	TotalCpuPercent	**Process Total CPU Percent** / **BwProcessTotalCpuPercentHigh**
BW-PROCESS	BwProcesses	Process Exec Time / sec	**RateTotalExecution** / **BwProcessExecutionTimeHigh**
BW-SERVER	BwServers	CPU Used %	**CPU Usage %** / **BwServerCpuUsedHigh**

TIBCO BusinessWorks (Version 6) Monitor

The following KMs are available with the Solution Package for TIBCO BusinessWorks version 6. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
BW6-APPNODE	Bw6AppNodes	CPU Used %	**Used CPU Percentage** / **Bw6AppNodeCpuUsedHigh**
BW6-APPNODE	Bw6AppNodes	Mem Used %	**Used Memory Percentage** / **Bw6AppNodeMemUsedHigh**
BW6-APP	Bw6ProcessTotalsByApp	App Created / sec	**RateCreated** / **Bw6AppProcessCreatedRateHigh**
BW6-APP	Bw6ProcessTotalsByApp	App Exec Time / sec	**RateTotal Execution** / **Bw6AppProcessExecutionTimeHigh**
BW6-PROCESS	Bw6Processes	Process Created / sec	**RateCreated** / **Bw6ProcessCreatedRateHigh**
BW6-PROCESS	Bw6Processes	Process Exec Time / sec	**RateTotal Execution** / **Bw6ProcessExecutionTimeHigh**

TIBCO EMS

The following KMs are available with the Solution Package for TIBCO EMS. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
EMS-QUEUE	EmsQueues	Pending Msgs	**pendingMessageCount** / **EmsQueuesPendingMsgsHigh**
EMS-QUEUE	EmsQueues	In Msgs / sec	**inboundMessageRate** / **EmsQueuesInMsgRateHigh**
EMS-QUEUE	EmsQueues	Out Msgs / sec	**outboundMessageRate** / **EmsQueuesOutMsgRateHigh**
EMS-QUEUE	EmsQueues	Consumers	**consumerCount** / **EmsQueuesConsumerCountHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
EMS-SERVER	EmsServerInfo	Pending Msgs	**pendingMessageCount** / **EmsServerPendingMsgsHigh**
EMS-SERVER	EmsServerInfo	In Msgs / sec	**inboundMessageRate** / **EmsServerInMsgRateHigh**
EMS-SERVER	EmsServerInfo	Out Msgs / sec	**outboundMessageRate** / **EmsServerOutMsgRateHigh**

EMS-SERVER	EmsServerInfo	Msg Mem %	**messageMemoryPct** / **EmsServerMemUsedHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
EMS-SERVER	EmsServerInfo	Connections	**connectionCount** / **EmsServerConnectionCountHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
EMS-SERVER	EmsServerInfo	Async DB Size	**asyncDBSize** / **EmsServerAsyncDBSyzeHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
EMS-SERVER	EmsServerInfo	Sync DB Size	**syncDBSize** / **EmsServerSyncDBSizeHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
EMS-TOPIC	EmsTopics	Pending Msgs	**pendingMessageCount** / **EmsTopicsPendingMsgsHigh**
EMS-TOPIC	EmsTopics	In Msgs / sec	**inboundMessageRate** / **EmsTopicsInMsgRateHigh**
EMS-TOPIC	EmsTopics	Out Msgs / sec	**outboundMessageRate** / **EmsTopicsOutMsgRateHigh**
EMS-TOPIC	EmsTopics	Consumers	**consumerCount** / **EmsTopicsConsumerCountHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)
EMS-TOPIC	EmsTopics	Subscribers	**subscriberCount** / **EmsTopicsSubscriberCountHigh** The level of this Key Metric is **1**. (Level **0** KMs are always displayed. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is checked.)

UX

The following KMs are available with the Solution Package for UX. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
UX-URL	UXURLData	Response Time	**MostRecentTime** / **UXURLResponseSlow**

VMWare vSphere

The following KMs are available with the Solution Package for VMWare vSphere. The level of the Key Metric is **0** except where noted. Level **0** KMs are always shown in displays. Level **1** KMs are displayed if the **Include Detail Level Metrics** checkbox is selected.

CI Type	Cache	Selector	Metric / Alert
VMWARE-HOST	VmwHostSystems	CPU Usage	**cpu.usage.average** / **VmwHostCpuUtilizationHigh**

VMWARE -HOST	VmwHostSystems	Memory Usage	**mem.usage.average** / **VmwHostMemoryUsageHigh**
VMWARE -VM	VmwVirtualMachines	CPU Usage	**cpu.usage.average** / **VmwVmCpuUtilizationHigh**
VMWARE -VM	VmwVirtualMachines	Memory Usage	**mem.usage.average** / **VmwVmMemoryUsageHigh**

Component Views

These displays present the lowest level view of CMDB contents--the component level. In these displays, alert states for components are shown by Service and Area in tabular and heatmap formats, while highlighting the most critical alert state for each component. Data can be filtered by Areas, Services, Groups, Regions and Environment. Data is filtered by the $rtvOwnerMask, $rtvAreaMask, $rtvGroupMask and $rtvServiceMask values for the logged in user. For details, see **Configure User and Role Management**.

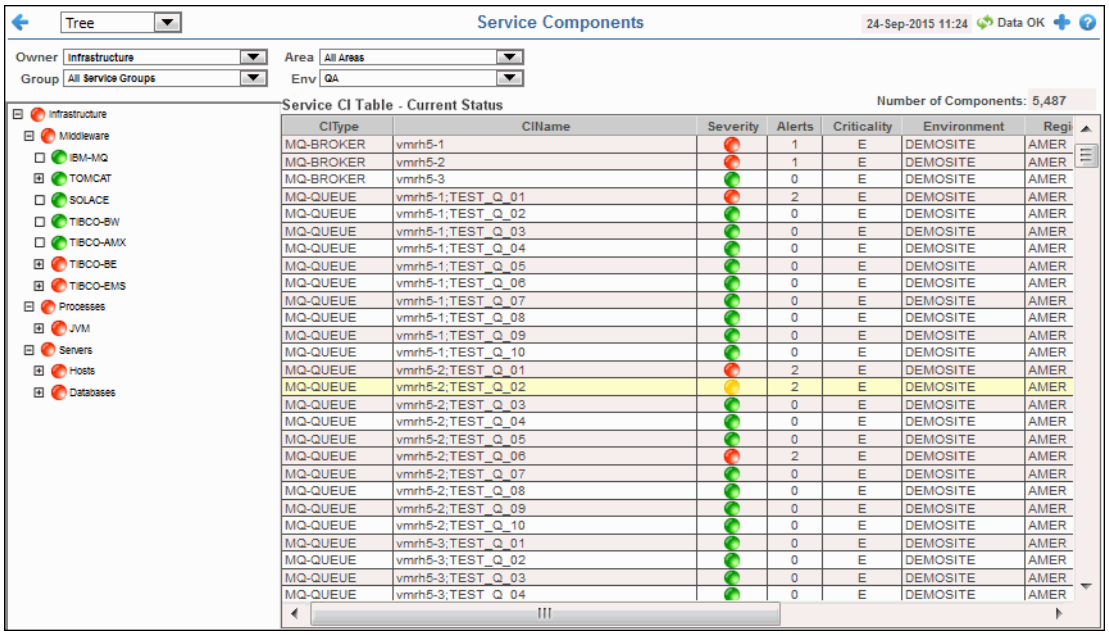
Use these displays to determine whether a component is malfunctioning. Displays in this View are:

- "CI / Service Tree View": Table of CMDB contents for all component-level details by Service for all Owners, Areas, Groups, Regions and Environments (without the option to filter).
- "CI / Service Table": Table of CMDB contents for all component-level details by Service for all Owners, Areas, Groups, Regions and Environments (without the option to filter).
- "CI / Type Heatmap": Heatmap of CMDB contents organized by CIType, with the option to filter by Owner, Area, Group, Environment and alert Metric, and show CI Names.
- "CI / Type Table": Table of CMDB contents for all component-level details for all Areas, Services, Groups, Regions and Environments, with the option to filter by Owner and one or all Areas, Groups and Environments.

CI / Service Tree View

View the contents of the CMDB hierarchically ordered in a navigation tree. Each row in the table is a different CI (for example, **localhost;RTVMGR_DATASERVER**).

Make a selection from the **Owner** drop-down menu, then use the navigation tree to filter data in the **Service CI Table**. The navigation tree, which provides a visual of the CMDB hierarchy, provides further filtering to the **Area**, **Group**, and **Environment** drop-down menus. Click Sort to order column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

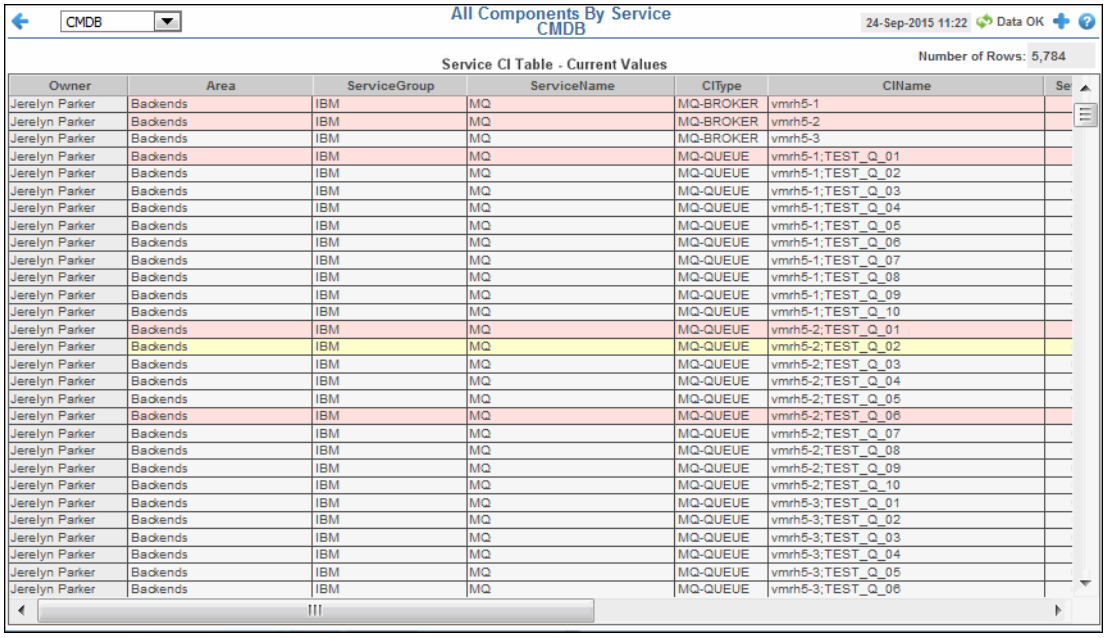
Fields and Data
This display includes:

Number of Components	The total number of CIs currently in the table.
CIType	The type of CI.
CIName	The name or address of the CI.
Severity	The maximum level of alerts for the CI. Values range from 0 to 2, where 2 is the greatest Alert Severity: One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded.
Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the Component Views / CI Service Table display, which range from A to E, where A is the highest Criticality. This value is used to determine the value for Alert Impact.
Environment	The Environment for the CI.
Region	The name of the Region for the CI.
City	The name of the City for the CI.
Country	The name of the Country for the CI.
SiteName	The name of the Site for the CI.
OSType	The operating system currently running on the CI.
City	The name of the City for the CI.
Country	The name of the Country for the CI.

CI / Service Table

View the contents of the CMDB, without filtering, in a tabular format. Each row in the able is a different CI (for example, **localhost;RTVMGR_DATASERVER**).

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

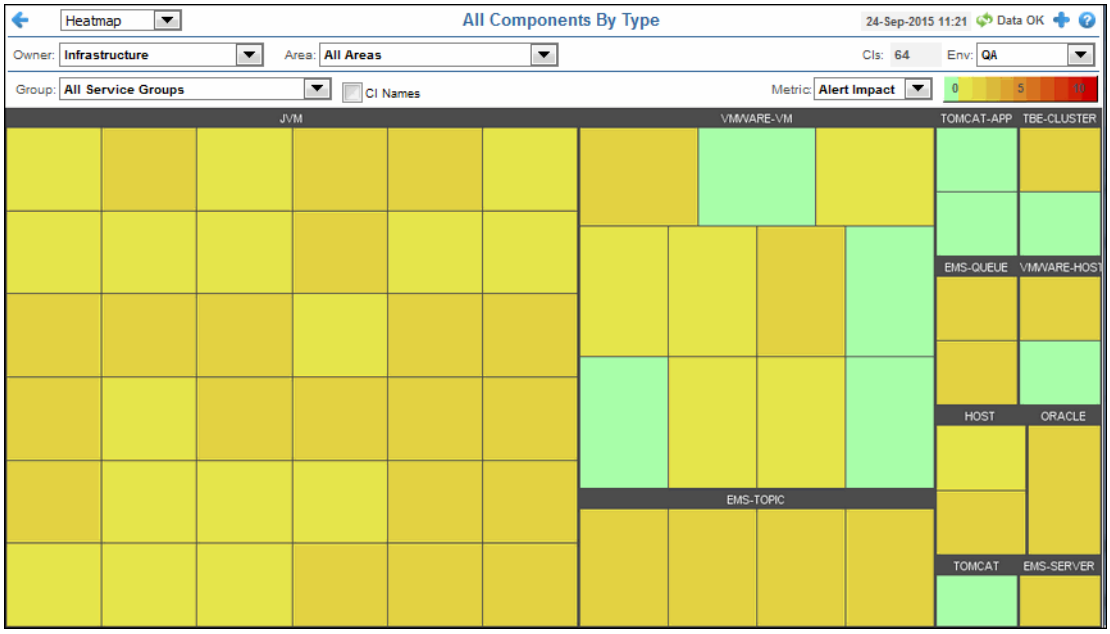
Fields and Data
This display includes:

Number of Rows	The current total number of rows in the table.
Service CI Table	
Owner	The Owner the CI is associated with.
Area	The Area the CI is associated with.
ServiceGroup	The Group the CI is associated with.
ServiceName	The Service the CI is associated with.
CIType	The type of CI.
CIName	The name or address of the CI.
Severity	The maximum level of alerts for the CI. Values range from **0** to **2**, where **2** is the greatest Alert Severity: One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded.
Criticality	The Criticality (rank of importance) specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views - CI Service Table** display, which range from **A** to **E**, where **A** is the highest Criticality. This value is used to determine the value for Alert Impact.
Environment	The Environment for the CI.
City	The name of the City for the CI.
Country	The name of the Country for the CI.
Region	The name of the Region for the CI.
SiteName	The name of the Site for the CI.

CI / Type Heatmap

View heatmap of alert states for CIs in all or one Area, Group or Environment. The heatmap organizes CIs by CI Type, and uses color to show the most critical alert state for each. Each rectangle in the heatmap represents a CI (for example, **localhost;RTVMGR_DATASERVER**).

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. Double-click (or right-click and select **Drill Down**) a rectangle in the heatmap to view details relevant to the CI Type. By default, this display shows all Areas, Groups, and Environments and alert Impact.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

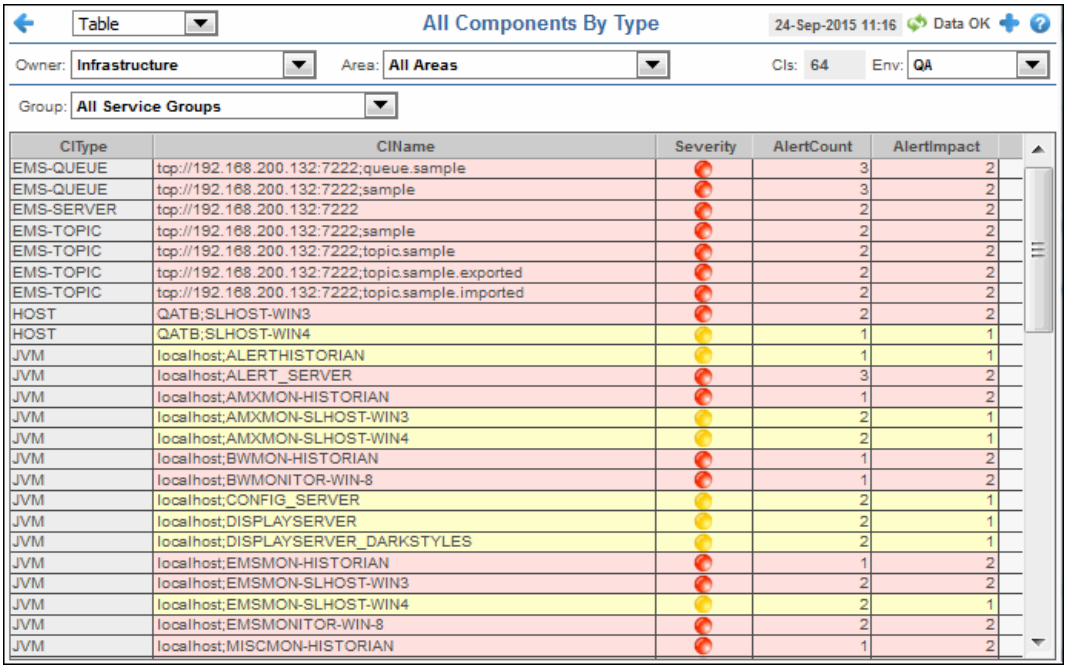
Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps relative values to colors:

Alert Impact	The product of the maximum Alert Severity of alerts in the heatmap rectangle multiplied by the maximum Criticality of alerts in the heatmap rectangle. Values range from **0** - **10**, as indicated in the color gradient  bar, where **10** is the highest Alert Impact.
Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity. Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**. Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**. Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
Criticality	The maximum level of Criticality (rank of importance) in the heatmap rectangle. Values range from **1** to **5**, as indicated in the color gradient  bar, where **5** is the highest Criticality. Criticality is specified in the Service Data Model (CMDB) by your administrator. Criticality values are listed in the **Component Views** - "CI / Service Table" display, which range from **A** to **E**, where **A** is the highest Criticality (level **5** maps to a Criticality of A and level **1** maps to a Criticality of **E** with equally spaced intermediate values).

CI / Type Table

View tabular list of all CIs by CIType, as well as their alert metrics (Impact, Severity and Count, for one or all Areas, Groups or Environments). Each row in the table is a different CI (for example, **localhost;RTVMGR_DATASERVER**). The row color represents the most critical alert state for the CI.

Use the available drop-down menus or right-click to filter data shown in the display. Click Sort to order column data.



CIType	CIName	Severity	AlertCount	AlertImpact
EMS-QUEUE	tcp://192.168.200.132:7222;queue.sample		3	2
EMS-QUEUE	tcp://192.168.200.132:7222;sample		3	2
EMS-SERVER	tcp://192.168.200.132:7222		2	2
EMS-TOPIC	tcp://192.168.200.132:7222;sample		2	2
EMS-TOPIC	tcp://192.168.200.132:7222;topic.sample		2	2
EMS-TOPIC	tcp://192.168.200.132:7222;topic.sample.exported		2	2
EMS-TOPIC	tcp://192.168.200.132:7222;topic.sample.imported		2	2
HOST	QATB;SLHOST-WIN3		2	2
HOST	QATB;SLHOST-WIN4		1	1
JVM	localhost;ALERTHISTORIAN		1	1
JVM	localhost;ALERT_SERVER		3	2
JVM	localhost;AMXMON-HISTORIAN		1	2
JVM	localhost;AMXMON-SLHOST-WIN3		2	1
JVM	localhost;AMXMON-SLHOST-WIN4		2	1
JVM	localhost;BWMON-HISTORIAN		1	2
JVM	localhost;BWMONITOR-WIN-8		1	2
JVM	localhost;CONFIG_SERVER		2	1
JVM	localhost;DISPLAYSERVER		2	1
JVM	localhost;DISPLAYSERVER_DARKSTYLES		2	1
JVM	localhost;EMSMON-HISTORIAN		1	2
JVM	localhost;EMSMON-SLHOST-WIN3		2	2
JVM	localhost;EMSMON-SLHOST-WIN4		2	1
JVM	localhost;EMSMONITOR-WIN-8		2	2
JVM	localhost;MISCMON-HISTORIAN		1	2

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The following filtering options are typically included:

Owner: Choose an Owner to see metrics for Areas associated with that Owner.

Area: Choose an Area to see metrics for Groups associated with that Area and Owner.

Group: Choose a Group to see metrics for Services associated with that Group, Area and Owner.

Service: Choose a Service to see metrics for Environments associated with that Service, Group, Area and Owner.

Env: Choose an Environment to see metrics for Environments associated with that Service, Group, Area and Owner.

Fields and Data
This display includes:

CI Count The total number of CIs listed in the table. This value is determined by the selections made from display drop-down menus. The totals number for each Environment are also shown.

CI Table
This table lists all CIs for the selected Group. Each row in the table is a CI. Each CI can have multiple alerts. Click a CI to view alerts for the CI in the lower table.

CIType The type of CI.

CIName The name or address of the CI.

Severity The maximum level of alerts for the CI. Values range from 0 to 2, where 2 is the greatest Alert Severity:
- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Alert Count The total number of critical and warning alerts for the CI.

Alert Impact The product of the maximum Alert Severity multiplied by the maximum Criticality of alerts. Values range from **0** - **10**, where **10** is the highest Alert Impact.

Metric Explorer

The Metric Explorer (MX) is a tool for creating and viewing custom dashboards, referred to as *MX Views*. An MX View contains a trend graph with up to five traces which you can configure to show numeric metrics from any EM Solution Package. While EM provides out-of-the-box Views of metric data, there might not be a single display that shows all the metrics that are critical to a single application. MX allows end-users to create Views containing the metrics that are important to them. The MX Views your end-users create are accessed from the MX **View** drop-down menu (rather than the navigation tree as RTView Enterprise Monitor Views are). Data is filtered by the $rtvOwnerMask, $rtvAreaMask, $rtvGroupMask and $rtvServiceMask values for the logged in user. For details, see **Configure User and Role Management**.

Displays in this View are:

- "Metric Explorer" on page 187:

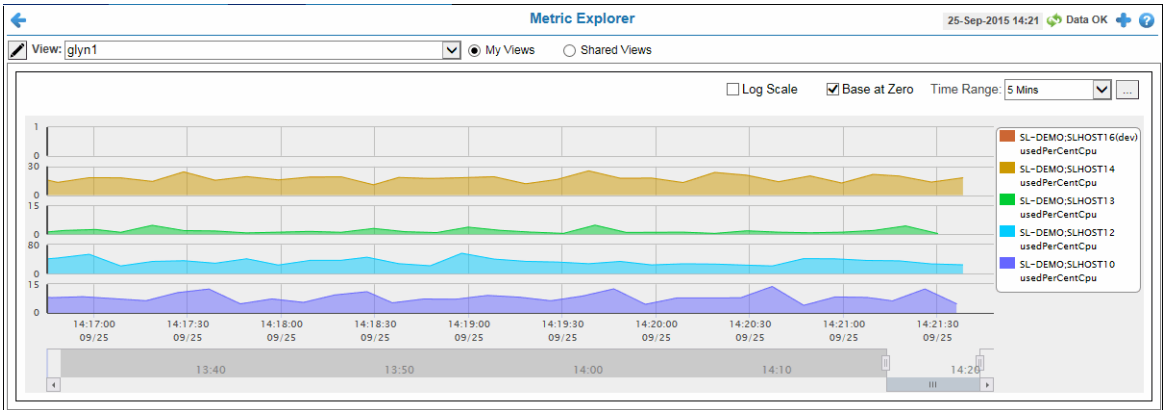
Note: The Metric Explorer was added in RTView Enterprise Monitor version 1.5.0. For instructions about adding the Metric Explorer to applications created with versions older than 1.5.0, see the RTView Enterprise Monitor Upgrade Notes.

Metric Explorer

View your previously created MX Views. Select an MX View from the **View** drop-down menu. The contents of the **View** drop-down menu depend on whether you choose **My Views** or **Shared Views**. Choose **My Views** to see public and private MX Views owned by you. Choose **Shared Views** to see public MX Views owned by you and other users. A public MX View is an MX View where the creator chose the **Share View with Others** option. The creator of the MX View is the owner.

Each MX View has options to apply **Log Scale**, **Base at Zero** and **Time Range** to your graphs.

To create or edit an MX View click Edit to open the edit pane. For details, see "Creating MX Views" on page 188.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
Options include:

	Open the edit pane.
View	Select an MX View from the **View** drop-down menu.

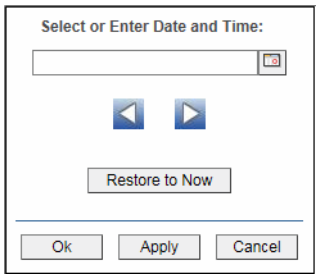
My Views Choose **My Views** to see public and private MX Views owned by you in the **View** drop-down menu.

Shared View Choose **Shared Views** to see public MX Views owned by you and other users. A public MX View is an MX View where the creator chose the **Share View with Others** option. The creator of the MX View is the owner.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



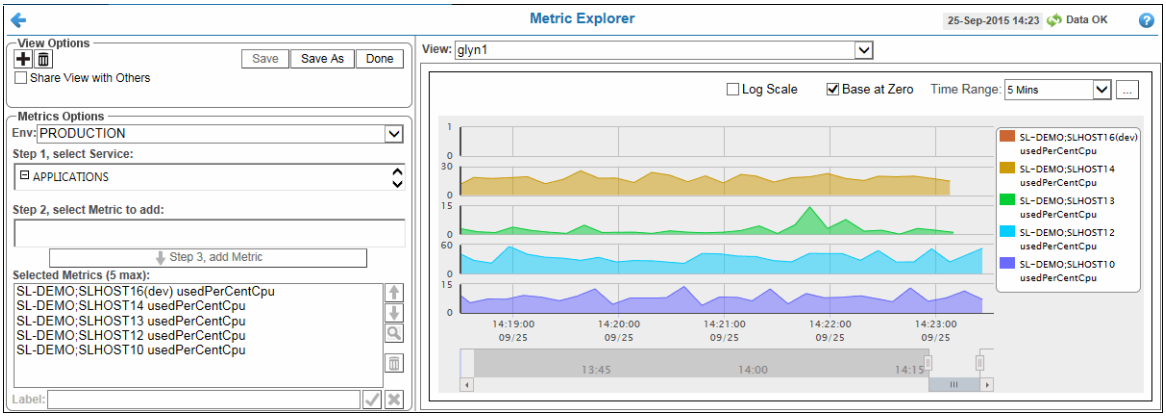
By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Creating MX Views

Click Edit to open the edit pane. If an MX View is already selected, click New to start a new MX View.



Select the Service containing the metric you want to see from the **Metrics Options/Service Tree**. The **Service Tree** is filtered by the environment in the **Env** menu. If necessary select the environment containing your Service. When you select a Service, all available metrics for that Service are listed in the **Metric Tree**. Because the metric will be displayed in a trend graph, only numeric metrics with history are listed in the **Metric Tree**. Select the metric you want to see from the **Metrics Options/Metric Tree** and click **Add Metric**. The metric is added to the **Selected Metrics** list and the MX View preview (in the right panel). Add up to five metrics to your MX View.

To change the order in which the metrics are displayed in the graph use the Up and Down arrows. To remove a metric, select it in the **Selected Metrics** and click Trash. To add a label to your metric, select it in the **Selected Metrics** list and enter your label text in the **Label** field. Click Apply to apply the label, or Cancel to cancel the label.

Click **Save** and enter a descriptive MX View name. Click **Share View with Others** to make your MX View public, otherwise, the MX View is only available to you. Click Confirm to write the MX View to the database. Click Cancel to return to edit mode. Click **Done** to return to the **Metric Explorer** page. The MX View you created is added to the **View** drop-down menu.

To create a new MX View with the Service already selected, select a Service from a **Service Summary Views** display and click MX (or the table context menu). This opens the MX edit pane with the Service already selected in the MX edit pane **Service Tree**. If you selected a CI Type or CI, these are also already selected in the MX edit pane **Metric Tree**. This spares you from having to search for the Service, CI Type or CI in the **Service** and **Metrics Trees**. The displays from which you can use this feature are:

- **Service Summary Views -** "Service By CI Type"
- **Service Summary Views -** "Service Summary"

Editing MX Views

In the Metric Explorer, select the MX View you want to edit and click Edit. The edit pane opens with the selected MX View in edit mode. To delete the MX View click Trash. To save your MX View under a new name, click **Save As**. Add, remove, reorder or label metrics as described in the "Creating MX Views" section (above). Select a metric in the **Selected Metrics** list and click on **Search** to update the selection in the **Service Tree** and **Metric Tree** to the values used when that metric was added to the MX View. This is useful when you want to see which Service contains a metric so you can add more metrics from the same Service.

When you are finished editing your metric, you can click **Cancel** to cancel your changes or **Save** to save your changes. To edit another MX View, select it from the **View** drop-down menu. Click **Done** to return to the Metric Explorer page.

Note: When you edit an MX View you do not own a copy of the MX View is automatically created and you are prompted to enter a name for the MX View when you save it.

View Options	
+	Create a new MX View.
	Delete the selected MX View.
Save	Save the selected MX View. If this is an existing MX View, the save is done immediately. If this is a new MX View, the **Name** field becomes available and you must enter a name and click **Confirm Save** to save your MX View.

Save As	Save the selected MX View under a new name. The **Name** field becomes available and you must enter a name and click **Confirm Save** to save your MX View.
Done	Close the edit pane. This option is available when you do not have unsaved changes.
Cancel	Cancel your edits.
Name	Enter a name for your MX View. This field is available when saving a new MX View or after you click **Save As**.
	Confirm that you want to save your MX View after you enter a name. This option is available when saving a new MX View or after you click **Save As**.
	Cancel the save. This is available when saving a new MX View or after you click **Save As**.
Share View	Select to make your MX View public. Public MX Views are available to all users in the **View** drop-down menu when the **Shared Views** option is selected. Deselect to make this MX View only available to you.

Metric Options	
Env	Select an Environment to filter the items in the Service Tree.
Service Tree	The CMDB service model (Owner, Area, Group, Service). Select a Service to populate the Metric Tree with metrics for that Service. The Services in the Service Tree are filtered by the following login substitutions: **$rtvOwnerMask**, **$rtvAreaMask**, **$rtvGroupMask** and **$rtvServiceMask**. For details, see the **Configure Role Management** section.
Metric Tree	The available metrics for the selected service. The tree hierarchy is CI Type, CI name, Metric (cache: metric). The tree only contains numeric metrics with history.
Add Metric	Add the selected metric to the MX View. When a metric is added to the MX View, it appears in the graph.
Selected Metrics	The list of metrics for this MX View.
	Move the metric up in the list of selected metrics.
	Move the metric down in the list of selected metrics.
	Set the selection in the Service and Metric trees to the values used when you added the selected metric to the MX View. **Note:** If your CMDB has changed such that the Service you used to add this metric no longer exists, the search button will fail
	Delete the selected metric from the MX View.
Label	Enter a label to use for the selected metric. This label is not applied until you click on the confirm label button. This label is used in the graph legend.
	Confirm the label you entered for the selected metric.
	Discard the label you entered for the selected metric (revert back to the previously applied value).

Limitations

- The Search button fails without an error if the Service that was selected when you initially added the metric is no longer in your CMDB. To fix this, delete the metric and add it again from a Service that is currently in your CMDB. **Note:** The missing Service only makes the Search button fail. It does not cause any problems with viewing the metric.
- When you try to add a metric to an MX View that already contains that metric, it will not be added again. In the Viewer, an error message will come up saying that the metric is already in the MX View. In the Thin Client, no error is shown.
- MX Views are limited to five metrics. After a view contains five metrics, the **Add Metric** button is disabled.
- There is no indicator that shows if the MX database or Central Configuration Server are off-line in the MX configuration display. Any changes you save when either the MX database or Central Configuration Server are off line will be lost.
- When you save an MX View, RTView writes to both the View Table and the Metrics Table to the database even if only one or the other changed.
- When you save an MX View, the MX Configuration UI temporarily reverts back to the previous version of the MX View for one update, then updates with the latest changes.
- By default, MX attaches to the history_combo table for the metric history. If the cache is not configured with a history_combo table, the Metric Explorer will instead make a one-time attachment to the history table. In this case, toggling the **Log Scale** check-box will cause all points plotted after the initial history query to be lost. On the next update of current data a straight line will be drawn from the last history point to the new current data point.

RTView Servers

These displays present performance data for all RTView Servers.

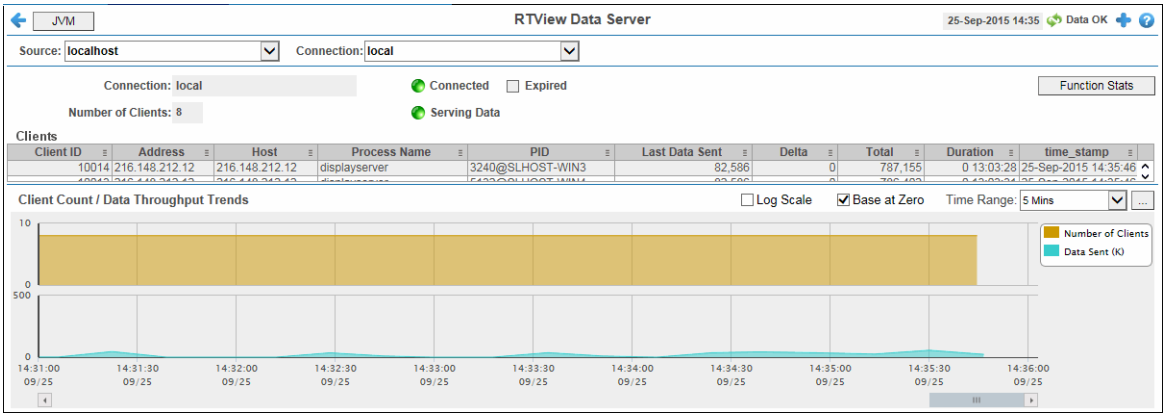
Displays in this View are:

- "Data Servers" on page 191: Shows metrics for RTView Data Servers.
- "Display Servers" on page 194: Shows metrics for RTView Display Servers.
- "Historian Servers" on page 195: Shows metrics for RTView Historian Servers.
- "Version Info" on page 197: Shows the version information of each jar used in each connected RTView application.

Data Servers

Track data transfer metrics for RTView Data Servers, client count and throughput trends.

Use the available drop-down menus or right-click to filter data shown in the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

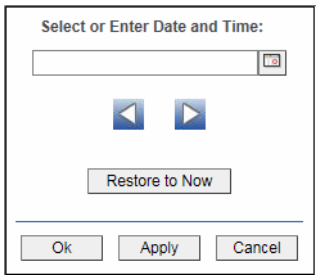
Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connection	The connection selected from the **Connection** drop-down menu.
Number of Clients	The number of clients currently server on this Data Server.
Connected	The Data Server connection state: Disconnected. Connected.
Serving Data	The Data Server is not currently serving data. The Data Server is currently serving data.
Expired	This server has been marked as expired after no activity.
Function Stats	Opens the **RTView Function Stats** display which shows detailed performance statistics for RTView functions in the selected Data Server. This button is only enabled if the RTView Monitor has a JMX connection defined for the selected Data Server.

Clients
This table describes all clients on the selected server.

Address	The client IP address.
Client ID	The unique client identifier.
Duration	The amount of time for this client session. Format: **dd HH:MM:SS** **<days> <hours>:<minutes>:<seconds>** **For example:** **10d 08:41:38**
Host	The client host name.
Last Data Sent	The amount of data, in bytes, last sent to the client.
Delta	The amount of data, in bytes, sent since the last update.
Total	The total amount of data, in bytes, sent to the client.
TIME_STAMP	The date and time this row of data was last updated.

Client Count / Data Throughput Trends
Shows throughput metrics for all clients on the selected server.

Log Scale	Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Use zero as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

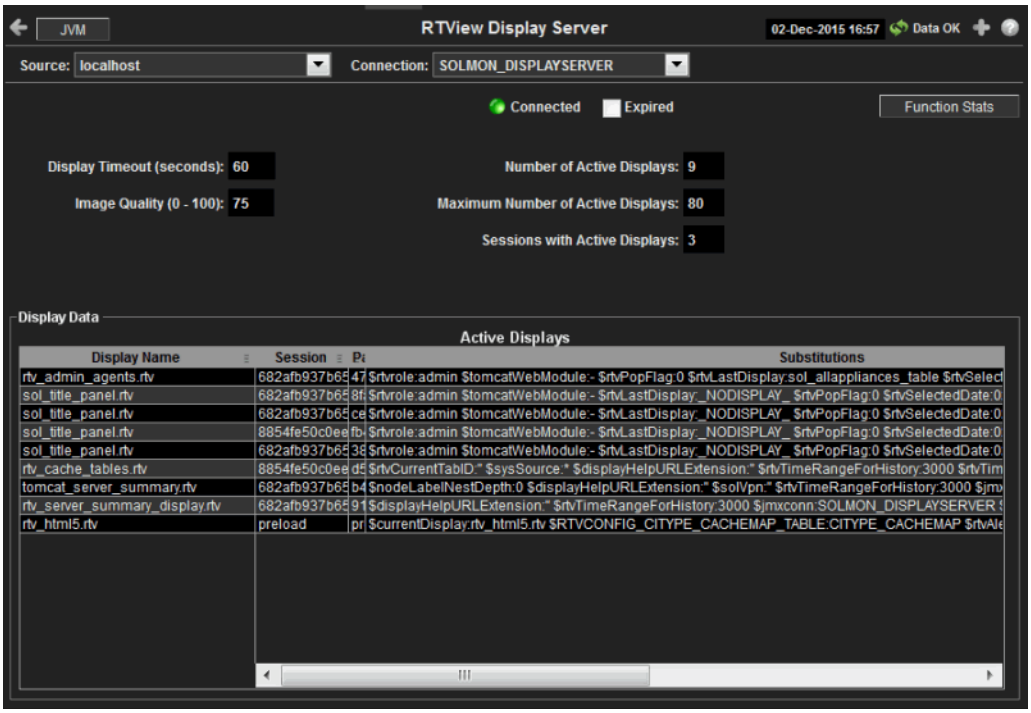
Click **Restore to Now** to reset the time range end point to the current time.

Number of Clients	Traces the number of clients being served by the Data Server.
Data Sent	Traces the total amount of data, in Kilobytes, sent to all clients.

Display Servers

Track display utilization metrics for RTView Display Servers.

Use the available drop-down menus or right-click to filter data shown in the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connected	The Display Server connection state: Disconnected. Connected.
Expired	This server has been marked as expired after no activity.
Function Stats	Opens the **RTView Function Stats** display which shows detailed performance statistics for RTView functions in the selected Display Server. This button is only enabled if the RTVMGR has a JMX connection defined for the selected Display Server.

Display Timeout (seconds)	The amount of time, in seconds, that a display can be kept in memory after the Display Servlet has stopped requesting it. The default is **60** seconds (to allow faster load time when switching between displays).
Image Quality (0-100)	A value between **0** and **100**, which controls the quality of the generated images. If the value is **100**, the Display Server outputs the highest quality image with the lowest compression. If the value is **0**, the Display Server outputs the lowest quality image using the highest compression. The default is **75**.
Number of Active Displays	The total number of displays currently being viewed by a user.
Maximum Number of Active Displays	The maximum number of displays kept in memory. The default is **20** (to optimize memory used by the Display Server).
Sessions with Active Displays	Number of clients accessing the Display Server.

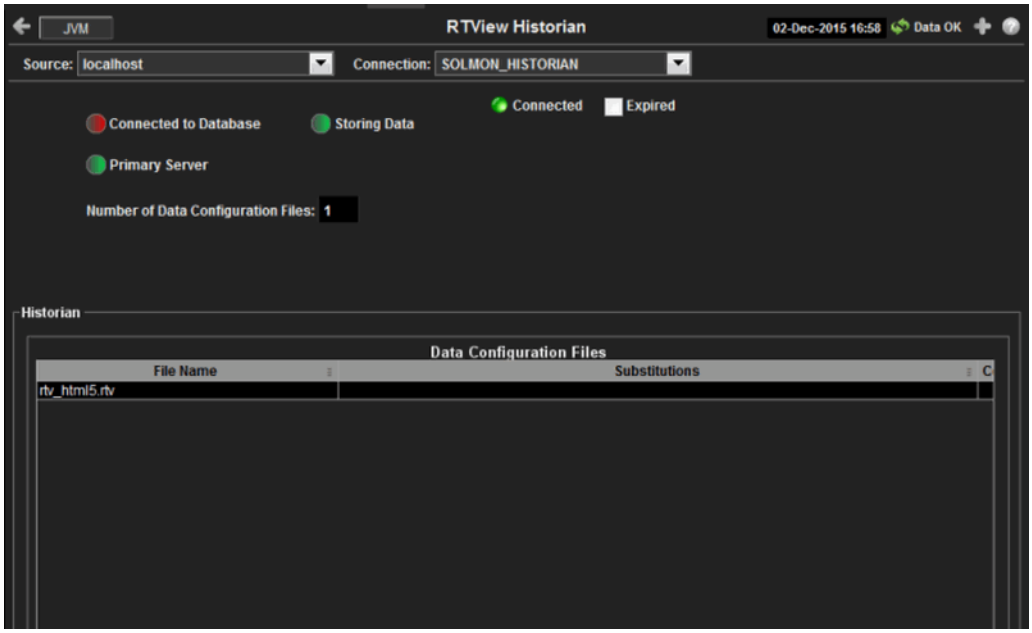
Display Data / Active Displays

Display Name	The name of the currently open display.
Session	A unique string identifier assigned to each session.
Panel ID	A unique string identifier assigned to each panel. The Display Server loads each display requested by each client into a panel. This ID can be useful in troubleshooting.
Substitutions	Lists the substitutions used for the display.
Last Ref	The amount of time that has elapsed since the display was last requested by a client.
ID	The client ID.
Preloaded	When checked, indicates that the display (**.rtv**) file is configured in the **DISPLAYSERVER.ini** file to be preloaded. The **history_config** option is used to configure display preloading. Preloading a display makes data immediately available. Preloaded displays are not unloaded unless the Display Server is restarted or the display cache is cleared via JMX. This option can be used multiple times to specify multiple displays to preload.

Historian Servers

Track the status of RTView Historian Servers and data configuration file usage. View the caches that are archived by the Historian application, substitution variables associated with the history cache configuration file, as well as the history cache status. You can also stop and start the Historian, and purge data.

Use the available drop-down menus or right-click to filter data shown in the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connected	The Historian Server connection state: Disconnected. Connected.
Expired	This server has been marked as expired after no activity.
Connected to Database	The Historian Server database connection state: Disconnected. Connected.

Primary Server	When green, indicates that this Historian, when used within a group of Historians, is the primary group member. If the primary member fails or shuts down, the standby member with the highest priority becomes the primary group member. When red, indicates that the Historian is a secondary server. The Historian Server member state: The Historian Server is a secondary group member. This Historian is the primary group member.
Number of Data Configuration Files	The number of configuration files that are used by the history cache.

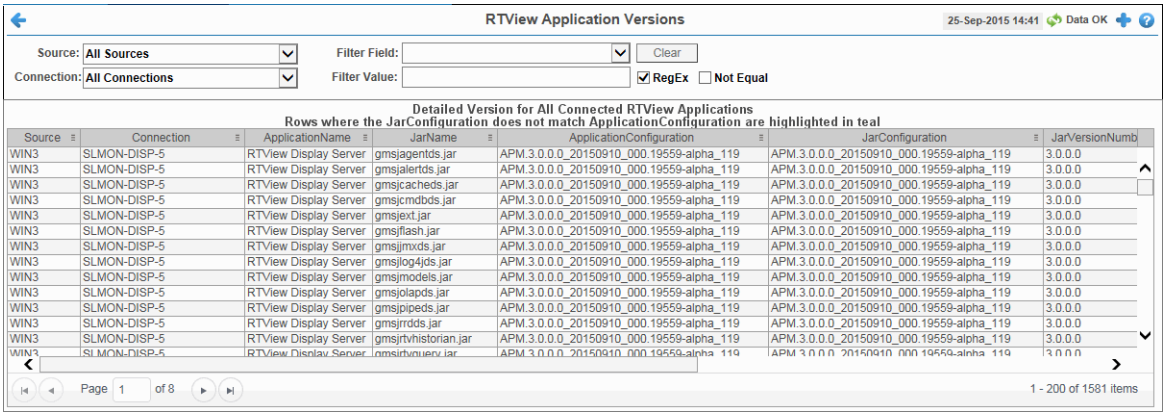
Historian / Data Configuration Files

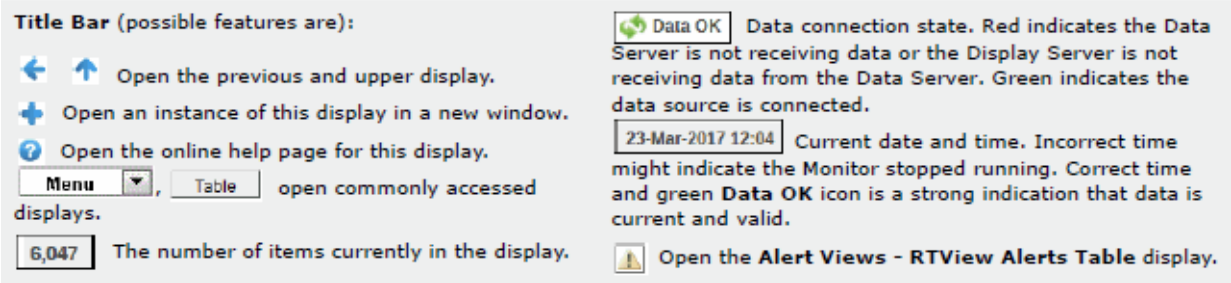
File Name	The name of the history cache configuration file.
Substitutions	Lists the substitutions specified in the history cache configuration file.

Version Info

This display provides detailed version information for all of the connected RTView applications. You can view specific applications by filtering data using the **Source**, **Connection**, **Filter Field**, and **Filter Value** fields at the top of the display. This display provides valuable information about the version of each jar that is used in each connected RTView application that can be used to help Technical Support when issues arise. All RTView applications use multiple jars and this display lists the version information for each jar in the application. The **ApplicationConfiguration** column shows the version of the jar that contains the main class for the application which is also the version that is printed to the console at startup. The **JarConfiguration** shows the version of the jar specified in the **JarName** field. When **ApplicationConfiguration** and **JarConfiguration** do not match, it indicates that the application is using jars from multiple releases of RTView or that the application is using a patched jar. Rows in the table where the **JarConfiguration** does not match the **ApplicationConfiguration** are highlighted in teal.

Note: RTView applications running versions previous to this enhancement will only have one row in the table and will display "version info not supported in this version" in the **ApplicationConfiguration** column.





Fields and Data
This display includes:

Source	Select a filter value for the **Source** column.
Connection	Select a filter value for the **Connection** column.
Filter Field	Select a table column from the drop-down menu to perform a search in: **ApplicationName, JarName, ApplicationConfiguration, JarConfiguration, JarVersionNumber,JarVersionDate, JarReleaseDate,** and **JarMicroVersion**. Filters limit display content and drop-down menu selections to only those items that pass through the selected filter's criteria. If no items match the filter, you might have zero search results (an empty table). Double-clicking on a specific field in the table will populate this field with the selected field's content. For example, double-clicking on the **DataServerName** field in one of the rows displays the entire field's content into this field.
Clear	Clears entries in the **Filter Field** display list, **Filter Value** field, and **Not Equal** check box.
Filter Value	Enter the (case-sensitive) string to search for in the selected **Filter Field**.
RegEx	Select to use the **Filter Value** as a regular expression when filtering. When selected, the **Not Equal** check box displays.
Not Equal	Works in conjunction with the **RegEx** field. Selecting this check box searches for values in the specified **Filter Field** that are NOT equal to the value defined in the **Filter Value** field. For example, if the **Filter Field** specified is **JarMicroVersion**, the **Filter Value** is specified as **317,** and this check box is selected, then only those rows containing **JarMicroVersion** fields NOT EQUAL to **317** will display. This field is only enabled when the **RegEx** check box is checked.
Source	The name of the source of the RTView Monitor.
Connection	Lists the name of the JMX connection to the RTView application.
Application Name	Lists the name of the application.
JarName	Lists the name of the jar used in the connected application.
Application Configuration	Lists the configuration string of the application. This string contains the main application version that corresponds to the version information printed to the console at startup.
JarConfiguration	Lists the configuration string for the jar.
JarVersionNumber	Lists the version number for the jar.
JarVersionDate	Lists the version date for the jar.

JarReleaseType	Lists the release type for the jar.
JarMicroVersion	Lists the micro version for the jar.
Expired	When checked, this connection is expired due to inactivity.
time_stamp	The time at which the information in the current row was last received.
DataServerName	The name of the RTView Monitor Data Server connection.

Alert Views

These displays present detailed information about all alerts that have occurred in your RTView Enterprise Monitor system (all Owners and all Areas). The type of alerts that appear in these displays depends on the Solution Packages installed on your RTView Enterprise Monitor system. Displays in this View are:

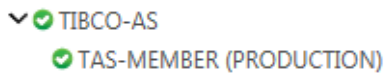
- "RTView Alerts Table" on page 199: Shows current alert data. Use this time-ordered tabular view to track, manage and assign alerts.
- "Alert History Table" on page 203: Shows historical alert data. Use this time-ordered tabular view to track alert status changes.

RTView Alerts Table

Use this display to track and manage all alerts that have occurred in the system, add comments, acknowledge or assign Owners to alerts.

The color coded navigation tree shows the contents of the CMDB hierarchically ordered. Choose a node to filter alerts shown in the table. The **Alerts Table** only shows alerts associated with the node you select. A green indicator means the node has no associated alerts. A red indicator means the node has one or more associated alerts.

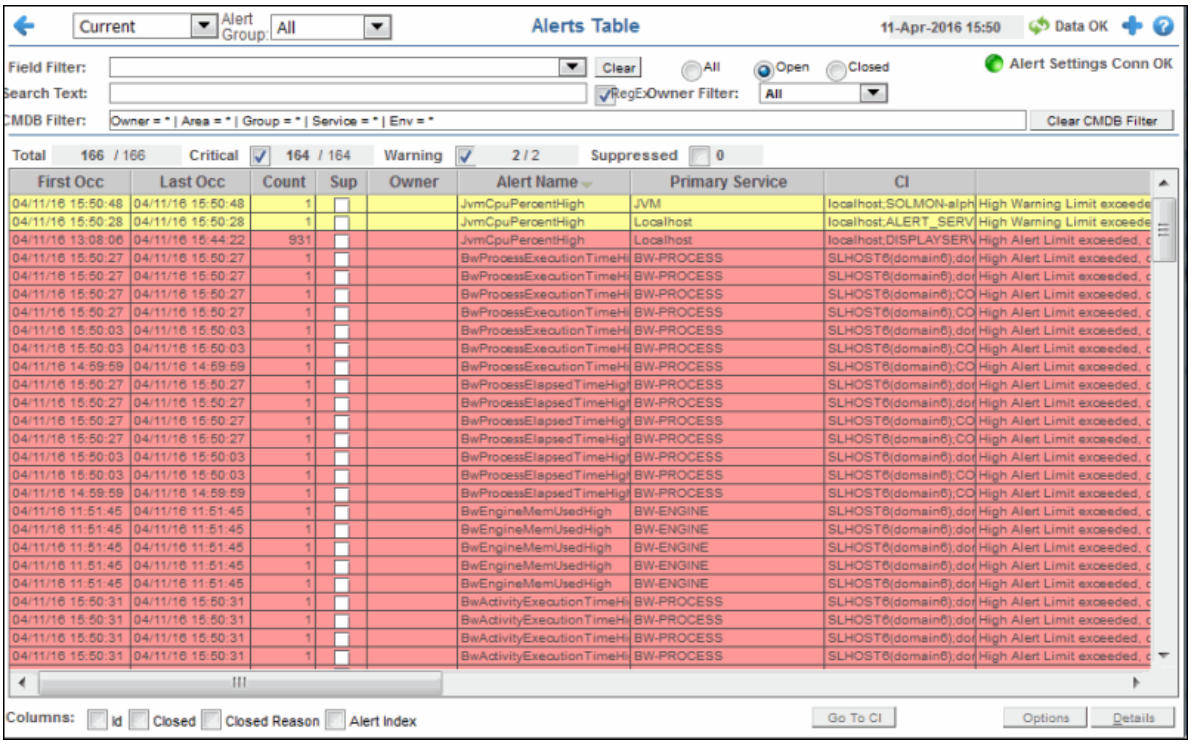
Service name labels are appended with the Environment and number of alerts. For example, the following illustrates that the **TBE** Service currently has no (**0**) associated alerts in the **PRODUCTION** Environment.



Each row in the table is a different active alert. Select one or more rows, right-click and choose **Alert** to see all actions that you can perform on the selected alert(s). Choose **Alert / Set Filter Field** to apply the selected cell data to the **Field Filter** and **Search Text** fields. Or enter filter criteria directly in the **Field Filter** and **Search Text** fields. Click **Clear** to clear the **Field Filter** and **Search Text** fields.

Click a column heading to sort the table on that column data.

Optionally, you can use the **$rtvUserShowDualTables** substitution to add a table that lists alerts owned by the logged in user.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

The row color indicates the following:

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.
- Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** options are disabled.

Fields and Data
This display includes:

Field Filter Select a table column from the drop-down menu to perform a search in: **Alert Name**, **Alert Text**, **Alert Class**, **Service**, **CI**, **Closed Reason**, **Closed**, **CompId**, **Count**, **First Occ**, **ID**, **Last Occ**, **Owner**, **Primary Service**, **Sup**, **TicketGroup**, **TicketID**.

Filters limit display content and drop-down menu selections to only those items that pass through the selected filter's criteria. If no items match the filter, you might have zero search results (an empty table).

Clear Clears the **Field Filter** and **Search Text** entries.

Search Text Enter the (case-sensitive) string to search for in the selected **Field Filter.**

CMDB Filter Shows the selected Owner, Area, Group, Service and Environment filters. By default, all components of the CMDB (*) are included in the search.

These **CMDB Filter** fields are populated when you click Open Alerts Table  , which is accessible from the **Multi Area Service Views** displays, to open the **Alerts Table** in a new window. The filters selected in the **All Management Areas** and **Multi Area Service Views** displays are applied to the **Alerts Table** (that opens in the new window). NOTE: When you use the navigation tree (in the left panel) to open the **Alerts Table** display, the **Environment** filter is applied to the display if it has a value other than ***** (asterisk).

Clear CMDB Filter Clears all of the values in the **CMDB Filter** (**Owner**, **Area**, **Group**, **Service** and **Environment** filters). NOTE: This action is not applied to any other display.

RegEx Toggles the **Search Text** field to accept Regular Expressions for filtering.

All Click to show all alerts in the table: **Open** and **Closed** alerts.

Open Click to only show **Open** alerts in the table.

Closed Click to only show **Closed** alerts in the table.

Owner Filter Select the alert **Owner** to show alerts for in the table.

- **All** Shows alerts for all Owners in the table: **Not Owned** and **Owned By Me** alerts.
- **Not Owned** Shows only alerts without Owners in the table.
- **Owned By Me** Shows only alerts for the current user in the table.

Alert Settings Conn OK The Alert Server connection state:
- Disconnected.
- Connected.

Total **X/Y** where **X** is the total number of alerts in the table with all selected filters applied. **Y** is the number of alerts in the table with only the **CMDB** and **Cleared** filters applied.

Critical Check to show alerts in the table that are currently in a critical state. NOTE: You must check **Critical** to see alerts that are in a critical state.

X/Y where **X** is the total number of critical alerts in the table with all selected filters applied. **Y** is the number of alerts in the table with only the **CMDB Filter** and **Cleared** filters applied.

Warning Check to show alerts in the table that are currently in a warning state. NOTE: You must check **Warning** to see alerts that are in a warning state.

X/Y where **X** is the total number of warning alerts in the table with all selected filters applied. **Y** is the number of alerts in the table with only the **CMDB** and **Cleared** filters applied.

Suppressed Check to show alerts in the table that are suppressed. The **Suppressed** count is not impacted by the **Critical** and **Warning** filters. It is impacted only by the **CMDB Filter** and the **Owner Filter**. NOTE: You must check **Suppressed** to see Suppressed alerts in the table.

Own Click to assign an Owner for the alert. This option is only visible when logged in as one of the following roles: event, full, admin, super. This option is disabled when you select a gray row. For details, see **Configure User and Role Management**.

Suppress Click to suppress the alert. This option is only visible when logged in as one of the following roles: event, full, admin, super. This option is disabled when you select a gray row. For details, see **Configure User and Role Management**.

UnSuppress Click to unsuppress the alert. This option is only visible when logged in as one of the following roles: event, full, admin, super. This option is disabled when you select a gray row or when you select a row. For details, see **Configure User and Role Management.**

Close Click to close the alert. This option is only visible to users with Administrator privileges. This option is disabled when you select a gray row or you select a row where the Primary Service is not in the $rtvManageableCompID list for the logged in user. For details, see **Configure User and Role Management**.

Alerts Table
This table lists all active alerts for the current filters. The table is empty unless you check **Critical**, **Warning**, or both. Filter the list using the search fields and drop-down menus (in the upper portion of the display). To view details about an alert, select an alert and click **Details** (in the bottom right portion of the display) to open the **Alert Detail** dialog. To view details about the CI source of the alert, select an alert and click **Go To CI** (in the bottom right portion of the display) to open its Summary display.

First Occ The date and time the alert first occurred.

Last Occ The date and time the alert last occurred.

Count The number of times the alert was generated.

Sup When checked, the alert has been suppressed by a user.

Owner The named owner assigned by the administrator.

Alert Name The name of the alert.

Primary Service The name of the Service with which the alert is associated.

CI The CI alert source.

Alert Text Description of the alert.

AlertClass An optional alert field which can be used when integrating with other alerting systems.

CompID An optional alert field which can be used when integrating with other alerting systems.

TicketID An optional alert field which can be used when integrating with other alerting systems.

TicketGroup An optional alert field which can be used when integrating with other alerting systems.

Columns

Id When checked, shows the **ID** column in the table.

Closed When checked, shows the **Closed** column in the table.

Closed Reason When checked, shows the **Closed Reason** column in the table.

Alert Index When checked, shows the **Alert Index** column in the table.

Go To CI Select an alert from the **Alerts Table**, then click **Go To CI** to view details for the selected CI in the Summary display.

Annotate Select one or more alerts from the **Alerts Table**, then click **Annotate** to open the **Set Owner and Comments** dialog and enter comments or change alert owner. This option is only visible when logged in as one of the following roles: event, full, admin, super. This option is disabled when you select a gray row or when you select a row where the Primary Service is not in the $rtvManageableCompID list for the logged in user. For details, see **Configure User and Role Management**.

- **ID** Lists the alert IDs, separated by semicolons, for the alerts selected from the **Alert Table**.
- **Source** Lists the name of the back-end Data Server reporting the alert, separated by semicolons.
- **Enter Owner** Enter the name of the owner for one or more alerts, click **Set Owner of One Alert** to assign the Owner, then click **Close**. By default, this field displays the current user name.
- **Enter Comment** Enter a comment for one or more alerts, click **Add Comment on One Alert** to apply the Comment, then click **Close**. By default, this field displays previously entered comments. The text appears in the **Comments** field for the alert.
- **Set Owner** Applies the name of the alert owner in the **Enter Owner** field for one or more alerts.
- **Add Comment** Applies the comment in the **Enter Comment** field for one or more alerts.
- **Clear Comments** Removes all comments for one or more alerts.
- **Close** Closes the dialog.

Options Select a single alert from the **Alerts Table**, then click **Options** to open the **Alert Options** dialog. This dialog is provided for customizing your own alert options. This option is disabled when you select a gray row or more than one row.

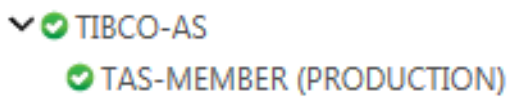
Details Select a single alert from the **Alerts Table**, then click **Details** to open the **Alert Detail** window and view alert details. This option is disabled when you select a gray row or more than one row.

`Alert History Table`

Use this display to track the history of any alert that has occurred in your RTView Enterprise Monitor system. There is one row in the table for each update to each alert. The table is limited to **20,000** rows. If there are more than **20,000** rows in the selected time range, the newest **20,000** rows are shown.

The color coded navigation tree shows the contents of the CMDB hierarchically ordered. Choose a node to filter alerts shown in the table. The **Alert History Table** only shows alerts associated with the node you select. A green indicator means the node has no associated alerts. A red indicator means the node has one or more associated alerts.

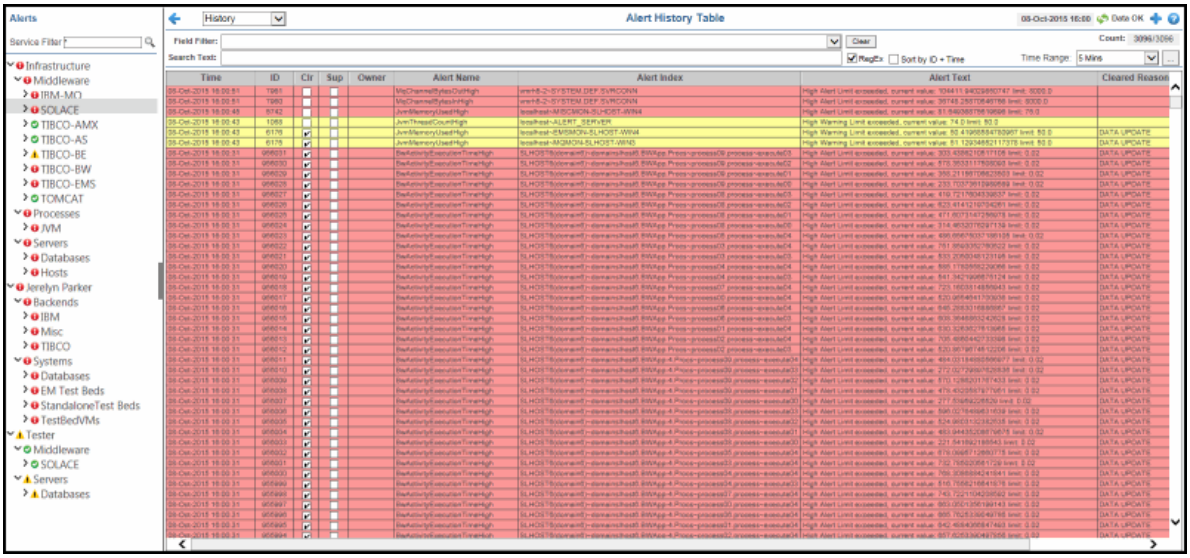
Service name labels are appended with the Environment. For example, the following illustrates that the **TAS-MEMBER** Service currently has no alerts in the **PRODUCTION** Environment.



To filter the table, select a table column from the **Field Filter** drop-down menu. In the **Search Text** field, enter the (case-sensitive) string to search for in the selected **Field Filter**, then click **<Enter>**. Click **Clear** to clear the **Field Filter** and **Search Text** fields.

The **Count** label shows two values: the filtered row count / the total row count.

Click a column heading to sort the table by the column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The **Count** field in the title bar of this display shows two values: the filtered row count and the unfiltered row count.

The row color indicates the most critical alert state for the row, as follows:

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Fields and Data
This display includes:

Field Filter Select a table column from the drop-down menu to perform a search in: **Alert Name**, **Alert Text**, **Cleared Reason**, **Clr**, **ID**, **Owner**, **Sev**, **Source**, **Sup**, **ID** or **Time**.

Filters limit display content and drop-down menu selections to only those items that pass through the selected filter's criteria. If no items match the filter, you might have zero search results (an empty table).

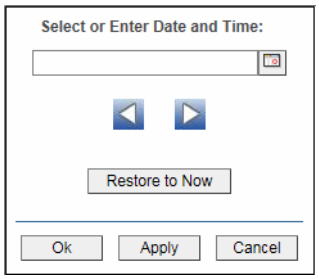
Clear Clears entries in the **Alert Name Filter** field and all table data.

Search Text Enter the (case-sensitive) string to search for in the selected **Field Filter**.

RegEx Toggles the **Search Text** field to accept Regular Expressions for filtering.

Sort by ID + Time When checked, table rows are sorted by the **Time** and **ID** columns.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Alerts Table
This table lists all alerts for all Owners and all Areas that have occurred in your RTView Enterprise Monitor system. Filter the list by alert names using the **Alert Name Filter** drop-down menu.

Time	The date and time the alert first occurred.
ID	The unique string identifier for the alert.
Clear	When checked, the alert has been cleared by a user.
Sup	When checked, the alert has been suppressed by a user.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert.
Alert Index	Lists the Alert Indexes, separated by tildes (**~**), for the alert.
Alert Text	Descriptive text about the alert.
Cleared Reason	**DATA UPDATE**: The metric returned to normal thresholds. **MANUAL**: A user cleared or closed the alert manually.
Sev	The severity level of the alert.
Source	The name of the back-end Data Server reporting the alert.

Administration

These displays enable you to set alert thresholds, and observe how alerts are managed. Displays in this View are:

- "Alert Administration" on page 206: Displays active alerts and provides interface to modify and manage alerts.
- "Alert Admin Audit" on page 212: Track modifications of alerts throughout your system, such as alert threshold modifications.
- "Alert Action Audit Trail" on page 214: Track alert management throughout your system, including the name of the user who performed the action, the time the action was performed and what the action was.

Alert Administration

Set global or override alert thresholds. Alert settings are global by default. Only users logged in with the admin or super roles can save changes to alert thresholds. For details, see **Configure User and Role Management**.

The table describes the global settings for all alerts on the system. To filter the alerts listed in the table, enter a string in the **Alert Filter** field and press **<enter>** or click elsewhere in the display. Filters are case sensitive and no wildcard characters are needed for partial strings. For example, if you enter Server in the **Alert Filter** field, it filters the table to show only alerts with **Server** in the name. Choose **Clear** to clear the filter.

Global Thresholds

To set a global alert, select an alert from the **Active Alert Table**. The name of the selected alert populates the **Settings for Selected Alert Name** field. Edit the **Settings for Selected Alert** and click **Save Settings** when finished.

The manner in which global alerts are applied depends on the Solution Package. For example, the EMS Monitor Solution Package has queue alerts, topic alerts and server alerts. When a queue alert is applied globally, it is applied to all queues on all servers. Likewise, a server alert applies to all servers, and a topic alert applies to all topics on all servers.

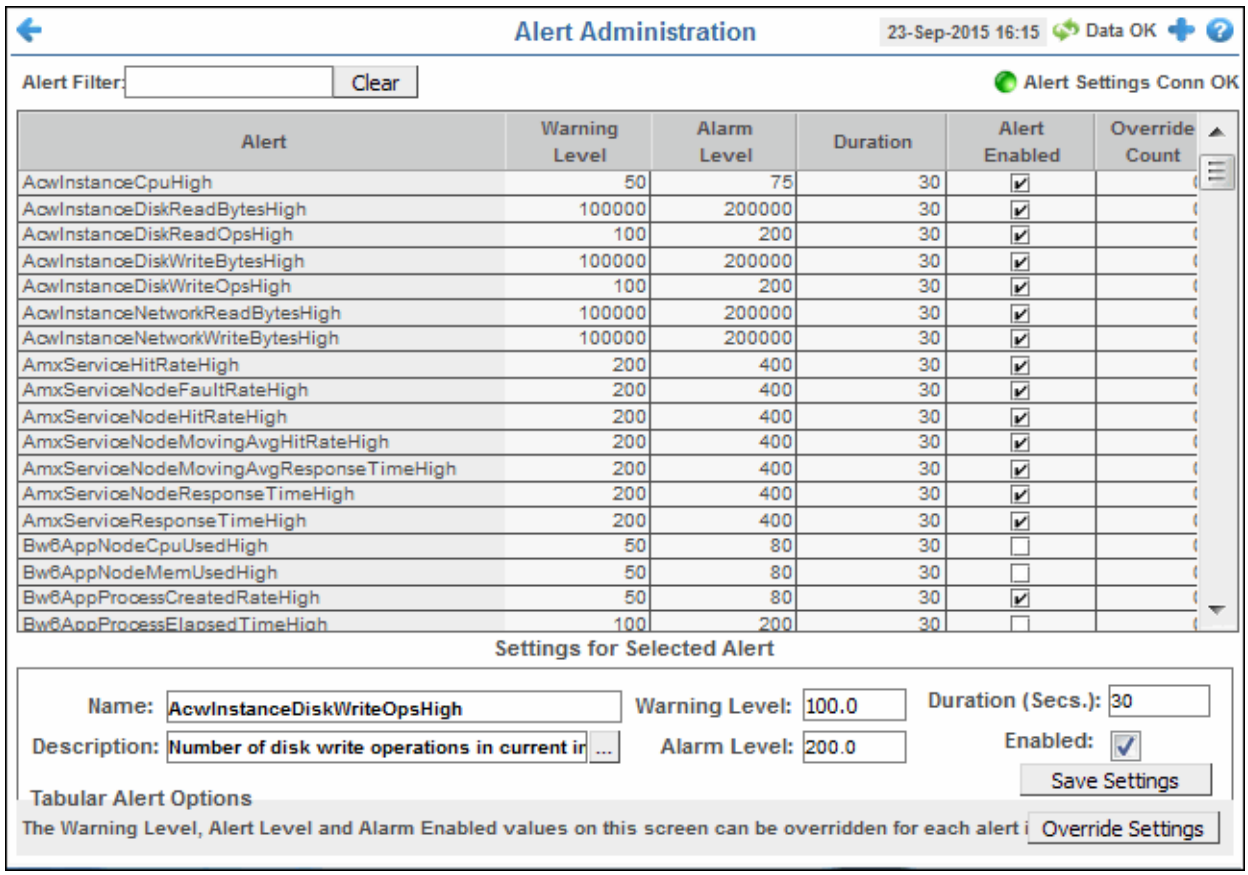
Override Thresholds

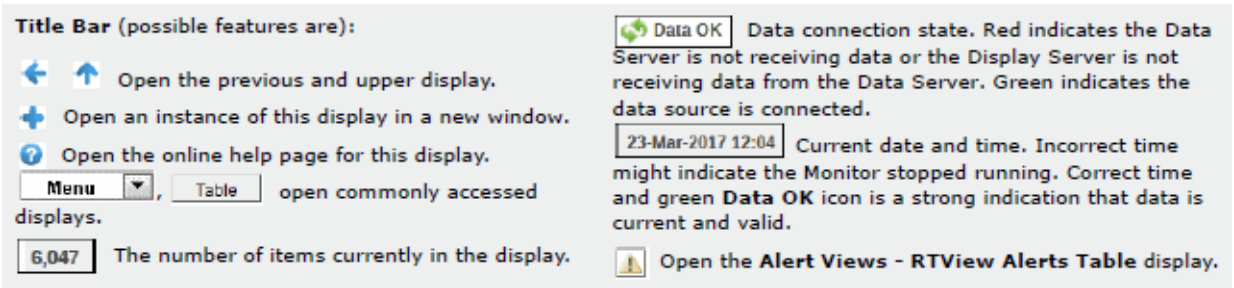
Setting override alerts allows you to set thresholds for a single resource (for example, a single server). Override alerts are useful if the majority of your alerts require the same threshold setting, but there are other alerts that require a different threshold setting. For example, you might not usually be concerned with execution time at a process level, but perhaps certain processes are critical. In this case, you can apply alert thresholds to each process individually.

To apply an individual alert you Index the Monitored Instance or resource (such as a message queue, in the case of the EMS Monitor package). The Index Types available are determined by the Solution Package installed. For example, with the EMS Monitor package you can set an alert for a specific topic on a specific server--the PerServerTopic Index option--rather than for all topics on all servers.

For information about setting override alerts, see "Tabular Alert Administration" on page 209.

Note: To filter the alerts shown in the **Administration - Alert Administration** display by Solution Package, use the **$rtvAlertPackageMask** substitution.





Fields and Data
This display includes:

Alert Filter Enter the (case-sensitive) string to filter the table by the **Alert** table column value. NOTE: Partial strings can be used without wildcard characters. Press **<enter>** or click elsewhere in the display to apply the filter.

Clear Clears the **Alert Filter** entry.

Alert Settings The Alert Server connection state:
- Disconnected.
- Connected.

Active Alert Table
This table describes the global settings for all alerts on the system. Select an alert. The name of the selected alert populates the **Settings for Selected Alert Name** field (in the lower panel). Edit **Settings for Selected Alert** fields and click **Save Settings** when finished.

Alert	The name of the alert.
Warning Level	The global warning threshold for the selected alert. When the specified value is exceeded a warning is executed.
Alarm Level	The global alarm threshold for the selected alert. When the specified value is exceeded an alarm is executed.
Duration (Secs)	The amount of time (in seconds) that the value must be above the specified Warning Level or Alarm Level threshold before an alert is executed. **0** is for immediate execution.
Alert Enabled	When checked, the alert is enabled globally.
Override Count	The number of times thresholds for this alert have been defined individually in the **Tabular Alert Administration** display. A value of: **-0** indicates that no overrides are applied to the alert. **-1** indicates that the alert does not support overrides.

Settings for Selected Alert
To view or edit Global settings, select an alert from the **Active Alert Table**. Edit the **Settings for Selected Alert** fields and click **Save Settings** when finished.

To set override alerts, click on **Override Settings** to open the **Tabular Alert Administration** display.

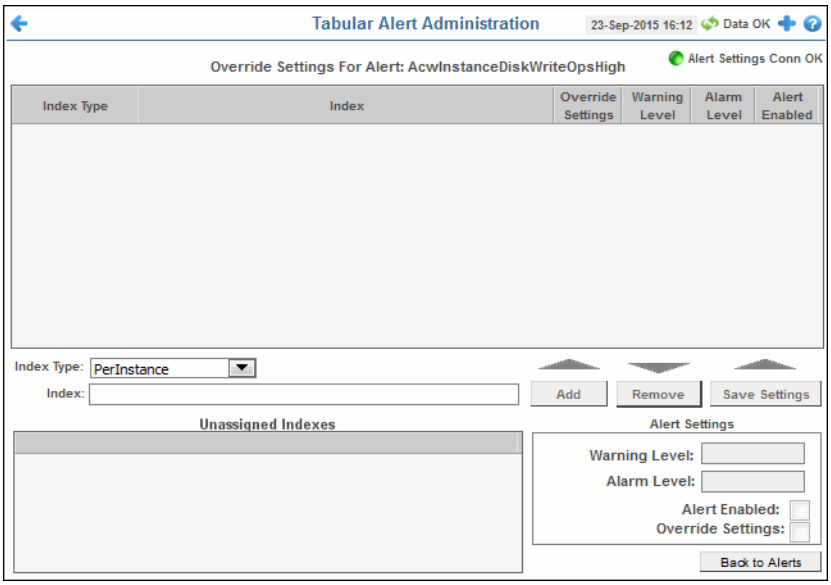
Name	The name of the alert selected in the **Active Alert Table**.
Description	Description of the selected alert. Click Calendar ... for more detail.
Warning Level	Set the Global warning threshold for the selected alert. When the specified value is exceeded a warning is executed. To set the warning to occur sooner, reduce the Warning Level value. To set the warning to occur later, increase the Warning Level value. NOTE: For low value-based alerts (such as **EmsQueuesConsumerCountLow**), to set the warning to occur sooner, increase the Warning Level value. To set the warning to occur later, reduce the Warning Level value.
Alarm Level	Set the Global alarm threshold for the selected alert. When the specified value is exceeded an alarm is executed. To set the alarm to occur sooner, reduce the Alarm Level value. To set the warning to occur later, increase the Alarm Level value. NOTE: For low value-based alerts (such as **EmsQueuesConsumerCountLow**), to set the alarm to occur sooner, increase the Alarm Level value. To set the alarm to occur later, reduce the Alarm Level value.
Duration	Set the amount of time (in seconds) that the value must be above the specified Warning Level or Alarm Level threshold before an alert is executed. **0** is for immediate execution. This setting is global.
Enabled	Check to enable alert globally.

Save Settings	Click to apply alert settings.
Override Settings	Click to open the **Tabular Alert Administration** display to set override alerts on the selected alert.

Tabular Alert Administration

Set override alerts (override global alert settings). This display opens when you select an alert in the **Alert Administration** display and then select **Override Settings**.

For step-by-step instructions setting thresholds for individual alerts, see **Setting Override Alerts**..



Fields and Data
This display includes:

Alert Settings Conn OK	The connection state. No servers are found. One or more servers are delivering data.

Override Settings For Alert:(name)
This table lists and describes alerts that have override settings for the selected alert. Select a row to edit alert thresholds. The selected item appears in the Index field. Edit settings in the Alert Settings fields, then click Save Settings.

Index Type Select the type of alert index to show in the Values table. Options in this drop-down menu are populated by the type of alert selected, which are determined by the Package installed. For example, with the EMS Monitor package the following Index Types are available:

- PerServer: Alert settings are applied to a specific server.
- PerQueue: Alert settings are applied to the queue on each server that has the queue defined.
- PerServerQueue: Alert settings are applied to a single queue on a specific server.
- PerTopic: Alert settings are applied to the topic on each server that has the topic defined.
- PerServerTopic: Alert settings are applied to a single topic on a specific server.

Index The value of the index column.

Override Settings When checked, the override settings are applied.

Alert Enabled When checked, the alert is enabled.

Index Type Select the index type. The index type specifies how to apply alert settings. For example, to a queue (topic or JVM, and so forth) across all servers, or to a queue on a single server. NOTE: Options in this drop-down menu are populated by the type of alert selected from the Alert Administration display. Index Types available depend on the Package installed.

Index The selected index column to be edited. This field is populated by the selection made in the **Unassigned Indexes** table.

Unassigned Indexes This table lists all possible indexes corresponding to the Index Type chosen in the drop-down list. Select a row to apply individual alert thresholds. The selected item appears in the **Index** field. Edit settings in the **Alert Settings** fields, then click **Add**.

Add Click to add changes made in **Alert Settings**, then click **OK** to confirm.

Remove Click to remove an alert selected in the **Index Alert Settings** table, then click **OK** to confirm.

Save Settings Click to save changes made to alert settings.

Alert Settings
Select a topic, server or queue from the **Unassigned Indexes** table and edit the following settings.

Warning Level Set the warning threshold for the selected alert. When the specified value is exceeded a warning is executed. To set the warning to occur sooner, reduce the Warning Level value. To set the warning to occur later, increase the Warning Level value.

NOTE: For low value-based alerts (such as **EmsQueuesConsumerCountLow**), to set the warning to occur sooner, increase the Warning Level value. To set the warning to occur later, reduce the Warning Level value.

Click Save Settings to save settings.

Alarm Level Set the alarm threshold for the selected alert. When the specified value is exceeded an alarm is executed. To set the alarm to occur sooner, reduce the Alarm Level value. To set the warning to occur later, increase the Alarm Level value.
NOTE: For low value-based alerts (such as **EmsQueuesConsumerCountLow**), to set the alarm to occur sooner, increase the Alarm Level value. To set the alarm to occur later, reduce the Alarm Level value. Click **Save Settings** to save settings.

	Alert Enabled	Check to enable the alert, then click **Save Settings**.
	Override Settings	Check to enable override global setting, then click **Save Settings**.
Back to Alerts	Returns to the **Administration** - **Alert Administration** display.	

Setting Override Alerts

Perform the following steps to set an override alert. Index Types available depend on the Solution Package installed. In this example, we use the EMS Monitor Package to illustrate.

Note: To turn on an alert, both **Alert Enabled** and **Levels Enabled** must be selected.

To turn on/off, change threshold settings, enable/disable or remove an alert on a single resource:

1. In the **Alert Administration** display, select a tabular alert in the **Active Alert Table** and click **Override Settings**. The **Tabular Alert Administration** display opens.

Note: Alerts that do not support overrides have a value of **-1** for the **Override Count** column and the **Override Settings** option is not present when you select such an alert.

---

2. In the **Tabular Alert Administration** display, select the Index type from the **Index Type** drop-down menu (options are populated by the type of alert you previously selected). For example, with the EMS Monitor package, select PerServerQueue, PerServerTopic or PerServer. NOTE: If you select PerServerQueue or PerServerTopic, the alert settings are applied to the queue or topic on a single server.
3. In the **Unassigned Indexes** table, select the item you want to apply an override alert setting to, click **Add** and **OK** in the confirmation dialog. After a few moments the override setting appears in the **AlertLevels** table.
4. Select the item in the **AlertLevels** table.
5. In the Alert Settings panel (lower right), if needed, modify the Warning Level and Alarm Level settings.
6. In the **Alert Settings** panel, set the following as appropriate.

- To turn on the alert for this index with the given thresholds:

  Alert Enabled Select this option.

  Override Settings Select this option.

  NOTE: To turn on an alert, both **Alert Enabled** and **Override Settings** must be selected.
- To turn off the alert for only this index (global alert thresholds will no longer apply to this index):

Alert Enabled Deselect this option.

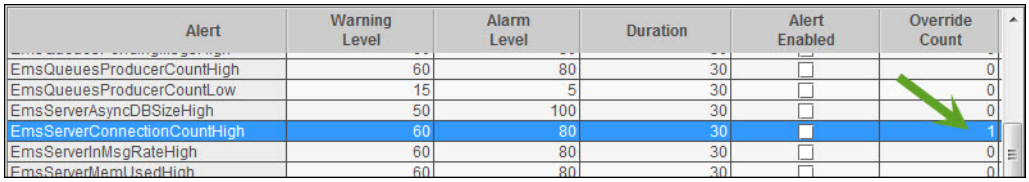
Override Settings Select this option.

- To no longer evaluate this indexed alert and revert to global settings (or, optionally, Remove it if it is never to be used again):

  Alert Enabled Not used.

  Override Settings Deselect this option.

7. Click **Save Settings**. In a few moments the modifications are updated and a new record appears in the **AlertLevels** table. For example, in the following figure, the EmsServerConnectionCountHigh alert has a new override applied. New overrides increment the alert **Override Count** in the **ALERTLEVELS** table.

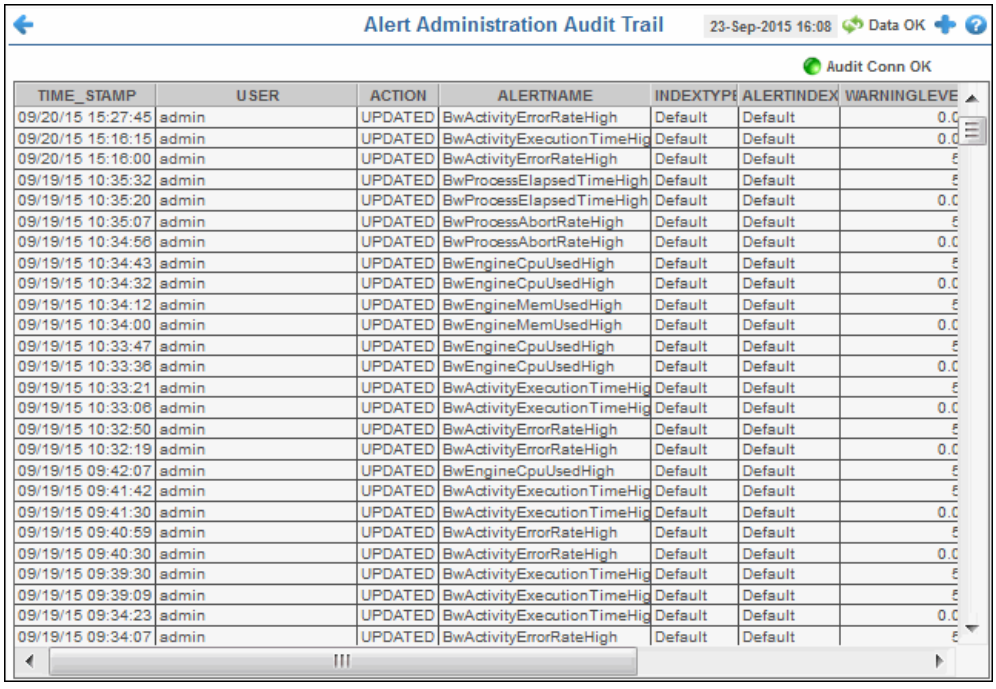


Alert	Warning Level	Alarm Level	Duration	Alert Enabled	Override Count
EmsQueuesProducerCountHigh	60	80	30	☐	0
EmsQueuesProducerCountLow	15	5	30	☐	0
EmsServerAsyncDBSizeHigh	50	100	30	☐	0
EmsServerConnectionCountHigh	60	80	30	☐	1
EmsServerInMsgRateHigh	60	80	30	☐	0
EmsServerMemUsedHigh	60	80	30	☐	0

Alert Admin Audit

View alert management details such as alert threshold modifications.

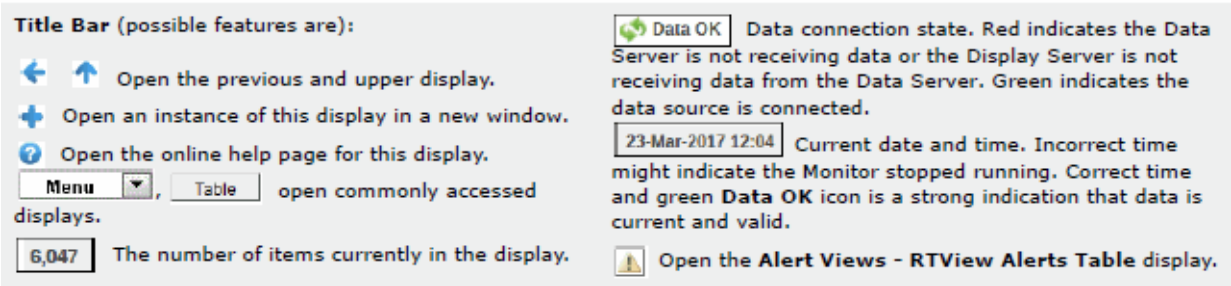
Each table row is a single modification made to an alert. To view modifications for a single alert in a group, click Sort to order the **ALERTNAME** column.



Alert Administration Audit Trail 23-Sep-2015 16:08 Data OK

Audit Conn OK

TIME_STAMP	USER	ACTION	ALERTNAME	INDEXTYPE	ALERTINDEX	WARNINGLEVE
09/20/15 15:27:45	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	0.0
09/20/15 15:16:15	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	0.0
09/20/15 15:16:00	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	5
09/19/15 10:35:32	admin	UPDATED	BwProcessElapsedTimeHigh	Default	Default	5
09/19/15 10:35:20	admin	UPDATED	BwProcessElapsedTimeHigh	Default	Default	0.0
09/19/15 10:35:07	admin	UPDATED	BwProcessAbortRateHigh	Default	Default	5
09/19/15 10:34:56	admin	UPDATED	BwProcessAbortRateHigh	Default	Default	0.0
09/19/15 10:34:43	admin	UPDATED	BwEngineCpuUsedHigh	Default	Default	5
09/19/15 10:34:32	admin	UPDATED	BwEngineCpuUsedHigh	Default	Default	0.0
09/19/15 10:34:12	admin	UPDATED	BwEngineMemUsedHigh	Default	Default	5
09/19/15 10:34:00	admin	UPDATED	BwEngineMemUsedHigh	Default	Default	0.0
09/19/15 10:33:47	admin	UPDATED	BwEngineCpuUsedHigh	Default	Default	5
09/19/15 10:33:36	admin	UPDATED	BwEngineCpuUsedHigh	Default	Default	0.0
09/19/15 10:33:21	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	5
09/19/15 10:33:06	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	0.0
09/19/15 10:32:50	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	5
09/19/15 10:32:19	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	0.0
09/19/15 09:42:07	admin	UPDATED	BwEngineCpuUsedHigh	Default	Default	5
09/19/15 09:41:42	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	5
09/19/15 09:41:30	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	0.0
09/19/15 09:40:59	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	5
09/19/15 09:40:30	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	0.0
09/19/15 09:39:30	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	5
09/19/15 09:39:09	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	5
09/19/15 09:34:23	admin	UPDATED	BwActivityExecutionTimeHig	Default	Default	0.0
09/19/15 09:34:07	admin	UPDATED	BwActivityErrorRateHigh	Default	Default	5

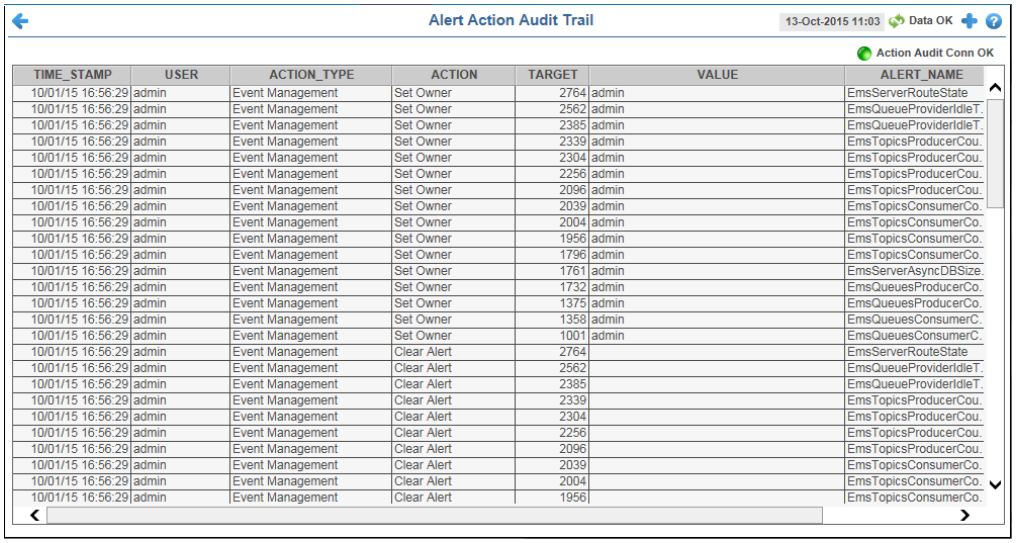


Fields and Data
This display includes:

Audit Conn OK	The Alert Server connection state. Disconnected. Connected.
TIME_STAMP	The date and time of the modification.
USER	The user name of the administrator who made the modification.
ACTION	The type of modification made to the alert, such as **UPDATED**.
ALERTNAME	The name of the alert modified.
INDEXTYPE	The type of alert Index. Index Type refers to the manner in which alert settings are applied and vary among CI Types. For example, the JVM CI Type has a PerJvm Index Type, the EMS CI Type has PerServer, PerTopic and PerQueue Index Types which apply alerts to servers, topics and queues, respectively.
ALERTINDEX	The index of the alert which identifies its source.
WARNINGLEVEL	The warning threshold value for the alert at the time this modification was made, as indicated in the **TIME_STAMP** column. The warning level is a threshold that, when exceeded, a warning is executed.
ALARMLEVEL	The alarm threshold value for the alert at the time this modification was made, as indicated in the **TIME_STAMP** column. The alarm level is a threshold that, when exceeded, an alarm is executed.
DURATION	The duration value for the alert at the time this modification was made, as indicated in the **TIME_STAMP** column. The alert duration is the amount of time (in seconds) that a value must be above the specified Warning Level or Alarm Level threshold before an alert is executed. **0** is for immediate execution.
ENABLED	When checked, indicates the alert was enabled at the time this modification was made, as indicated in the **TIME_STAMP** column.
USEINDEX	When checked, indicates the alert override was enabled at the time this modification was made, as indicated in the **TIME_STAMP** column. For details about alert overrides, see **Alert Administration**.

Alert Action Audit Trail

The **Alert Action Audit Trail** display shows all user actions concerning alert management, including the name of the user who performed the action, the time the action was performed and what the action was. This display can help managers of the RTView Enterprise Monitor solution determine how and when user interactions have impacted the alert system and help manage users so that best practices for alert handling are maintained.



TIME_STAMP	USER	ACTION_TYPE	ACTION	TARGET	VALUE	ALERT_NAME
10/01/15 16:56:29	admin	Event Management	Set Owner	2764	admin	EmsServerRouteState
10/01/15 16:56:29	admin	Event Management	Set Owner	2562	admin	EmsQueueProviderIdleT.
10/01/15 16:56:29	admin	Event Management	Set Owner	2385	admin	EmsQueueProviderIdleT.
10/01/15 16:56:29	admin	Event Management	Set Owner	2339	admin	EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Set Owner	2304	admin	EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Set Owner	2256	admin	EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Set Owner	2096	admin	EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Set Owner	2039	admin	EmsTopicsConsumerCo.
10/01/15 16:56:29	admin	Event Management	Set Owner	2004	admin	EmsTopicsConsumerCo.
10/01/15 16:56:29	admin	Event Management	Set Owner	1956	admin	EmsTopicsConsumerCo.
10/01/15 16:56:29	admin	Event Management	Set Owner	1796	admin	EmsTopicsConsumerCo.
10/01/15 16:56:29	admin	Event Management	Set Owner	1761	admin	EmsServerAsyncDBSize.
10/01/15 16:56:29	admin	Event Management	Set Owner	1732	admin	EmsQueuesProducerCo.
10/01/15 16:56:29	admin	Event Management	Set Owner	1375	admin	EmsQueuesProducerCo.
10/01/15 16:56:29	admin	Event Management	Set Owner	1358	admin	EmsQueuesConsumerC.
10/01/15 16:56:29	admin	Event Management	Set Owner	1001	admin	EmsQueuesConsumerC.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2764		EmsServerRouteState
10/01/15 16:56:29	admin	Event Management	Clear Alert	2562		EmsQueueProviderIdleT.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2385		EmsQueueProviderIdleT.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2339		EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2304		EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2256		EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2096		EmsTopicsProducerCou.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2039		EmsTopicsConsumerCo.
10/01/15 16:56:29	admin	Event Management	Clear Alert	2004		EmsTopicsConsumerCo.
10/01/15 16:56:29	admin	Event Management	Clear Alert	1956		EmsTopicsConsumerCo.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Action Audit Conn OK	The Alert Action database connection availability. The connection to the Alert Action database is not available. The connection to the Alert Action database is available.
Time_Stamp	The time the action was performed.
User	The log in name of the user who performed the action.
Action_Type	The type of action which was performed.
Action	The action which was performed.
Target	The alert ID on which the action was performed.
Value	Any value associated with the alert action.

Alert_Name	The name of the alert on which the action was performed.
Alert_Index	The index of the alert which identifies its source.

CMDB Administration

This display allows you to modify your Service Data Model.

- "CMDB Admin" on page 215: View or modify your Service Data Model.

CMDB Admin

Use this display to setup, view or modify your Service Data Model (CMDB), including: adding, renaming, deleting or merging your CMDB hierarchical elements (Owners, Areas, Groups or Services), associating CIs with Services and assigning or modifying CI attributes (such as Criticality). Only users logged in with the admin or super roles can apply changes in this display. For details, see "Configure User and Role Management" on page 52.

The **CI List for Selected Service** (upper) table lists the CIs that are associated with the Service selected (from the **Service** drop-down menu).

The **Available Components** (lower) table is not part of the CMDB. The **Available Components** table lists all available CIs for the CI Type (selected from the **Selected CI Type** drop-down menu) that are in your RTView Enterprise Monitor system--whether or not they are in the CMDB. Filter this list using the **CIName Filter** field.

You add CIs to the CMDB by associating them with an Owner, Area, Group, and Service. To do so, select the CI Type from the **Selected CI Type** drop-down menu, choose one or more CIs from the **Available Components** table, then click **Add CI**.

It is not necessary to restart the Configuration Server after making changes to the Service Data Model using the **CMDB Admin** display.

Creating a new Service, Group, Area or Owner:
Select the CI Type from the **Selected CI Type** drop-down menu, choose one or more CIs from the **Available Components** table, then click **Add CI To...**. Assign a new or existing Owner, Area, Group or Service, review your entries and click **OK**. Your changes are visible in drop-down menus and displays.

Associating CIs with a Service:
This option is useful when you want to define which CIs are to be monitored for Services. CIs can be associated with more than one Service, Group, Area or Owner. Select the Owner, Area, Group and Service to which you want to associate one or more CIs using the drop-down menus. The **CI List Table** (the upper table) populates with all CIs already associated with the Owner, Area, Group and Service you select. Select the CI Type of the CI(s) you want to associate. The **Available Components** table (the lower table) populates with all CIs that are categorized as that CI Type. Select one or more CIs in the **Available Components** table, set the Criticality and other optional assignments using the drop-down menus (on the right). Click **Add CI** to associate the CI(s) with the Service. A row is added for each associated CI to the **CI List Table**. Your changes are visible in the drop-down menus and displays.

Renaming a Service, Group, Area or Owner:
This option is useful when, for example, a *new* Owner is replacing a retiring Owner, a name is misspelled or a more relevant name is required. Select the relevant Owner, Area, Group or Service using the drop-down menus, then click the corresponding **Manage** (**Owner**, **Area**, **Group** or **Service**) option for what you are renaming. The **Manage** (**Owner**, **Area**, **Group** or **Service**) dialog opens. In the **Manage** (**Owner**, **Area**, **Group** or **Service**) dialog, type the new name in the **New Name** field, click **Rename** and **OK**. Your changes are visible in the drop-down menus and displays.

Deleting a Service, Group, Area or Owner:
This option is useful when, for example, an Owner, Area, Group or Service and all the CIs associated with it are not relevant in your RTView Enterprise Monitor system. When you delete a Service, Group, Area or Owner everything underneath it (lower CMDB levels and associated CIs) is also removed from the CMDB database and displays. Select the relevant Owner, Area, Group or Service using the drop-down menus, then click the corresponding **Manage** (**Owner**, **Area**, **Group** or **Service**) option for what you are deleting. The **Manage** (**Owner**, **Area**, **Group** or **Service**) dialog opens. In the **Manage** (**Owner**, **Area**, **Group** or **Service**) dialog click **Delete** and **OK**. Your changes are visible in the drop-down menus and displays.

Important: There is no option to undo a deletion from the CMDB. To restore a deletion you must recreate the Owner, Area, Group or Service and the CIs must be re-associated.

Moving a Service, Group or Area:
This option is useful when, for example, an Area belongs under a different Owner, a Group belongs under a different Area or a Service belongs under a different Group. When you move a Service, Group or Area (Owners cannot be moved) everything underneath it (lower CMDB levels and associated CIs) moves with it. Select the Area, Group or Service you want to move using the drop-down menus, then click the relevant **Manage** (**Area**, **Group** or **Service**) option for what you are moving. The **Manage** (**Area**, **Group** or **Service**) dialog opens. In the **Manage** (**Area**, **Group** or **Service**) dialog, select the new Owner, Area, Group or Service to move to from the **New** (**Area**, **Group** or **Service**) drop-down menus, click **Move** and **OK**. Your changes are visible in the drop-down menus and displays.

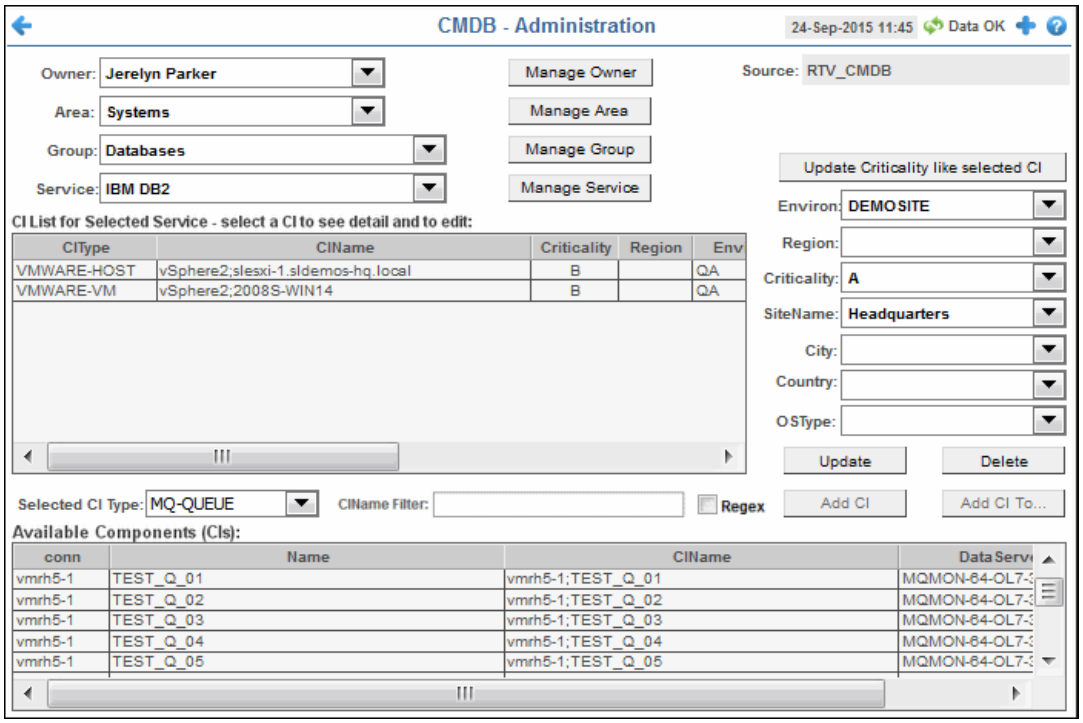
Merging Services, Groups, Areas or Owners:
This option is useful when, for example, an *existing* Owner is taking over for a retiring Owner. When you merge a Service, Group, Area or Owner its name changes to that of the target Service, Group, Area or Owner, and everything underneath it (lower CMDB levels and associated CIs) goes with it. Select the Area, Group or Service you want to merge using the drop-down menus, then click the relevant **Manage** (**Area**, **Group** or **Service**) option for what you are merging. The **Manage** (**Area**, **Group** or **Service**) dialog opens. In the **Manage** (**Area**, **Group** or **Service**) dialog, select an existing Owner, Area, Group or Service to merge to in the **New Name** field, click **Merge** and **OK**. Your changes are visible in the drop-down menus and displays.

Deleting a CI:
Select a CI from the **CI List Table**, click **Delete** and **OK**. The CI is removed from the CMDB database and displays. Your changes are visible in the drop-down menus and displays.

Applying Criticality value to multiple CIs:
In the **CI List Table** select a CI that has the Criticality value you want to apply to all CIs in the **CI List Table**, click **Update Criticality like selected CI** and **OK**. The **Criticality** column for all CIs is updated. Your changes are visible in the drop-down menus and displays.

Changing CI attributes
In the **CI List Table** select the CI you want to modify attributes for, use the **Environment**, **Region**, **SiteName**, **Criticality**, **City**, **Country** and **OSType** drop-down menus to apply attributes, then click **Update** and **OK**. The **CI List Table** is updated. Your changes are visible in the drop-down menus and displays.

By default, the Owner named **Infrastructure** is created. **Infrastructure** organizes all available CIs collected through all Data Servers configured under RTView EM by technology. This default organization can be disabled if needed.



Title Bar (possible features are):

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Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Owner Select an Owner to filter by. The Owner selected populates the **Area**, **Group** and **Service** drop-down menus.

Manage Owner Opens a dialog that enables you to **Delete**, **Rename** or **Merge** the Owner.

Delete removes the Owner from the CMDB database as well as all CMDB data and CIs associated with the Owner.

Rename Changes all records for the Owner to a new name. **Rename** is disabled when the name you are typing in the text box already exists in the CMDB.

Merge Changes all records for the Owner to a different, already existing name in the CMDB. **Merge** is enabled when the name you are typing in the text box already exists in the CMDB.

Note:: You cannot move Owners.

Area Select an Area to filter by. The Area selected populates the **Group** and **Service** drop-down menus.

Manage Area Opens a dialog that enables you to **Delete**, **Rename** or **Merge** the Area.

Delete removes the Area from the CMDB database as well as all CMDB data and CIs associated with the Area.

Rename Changes all records for the Area to a new name. **Rename** is disabled when the name you are typing in the text box already exists in the CMDB.

Merge Changes all records for the Area to a different, already existing name in the CMDB. **Merge** is enabled when the name you are typing in the text box already exists in the CMDB.

Move Changes all records for the Area to a different, already existing name in the CMDB that you choose from the **New Area** drop-down menu.

Group Select a Group to filter by. The Group selected populates the **Service** drop-down menu.

Manage Group Opens a dialog that enables you to **Delete**, **Rename** or **Merge** the Group.

Delete removes the Group from the CMDB database as well as all CMDB data and CIs associated with the Group.

Rename Changes all records for the Group to a new name. **Rename** is disabled when the name you are typing in the text box already exists in the CMDB.

Merge Changes all records for the Group to a different, already existing name in the CMDB. **Merge** is enabled when the name you are typing in the text box already exists in the CMDB.

Move Changes all records for the Group to a different, already existing name in the CMDB that you choose from the **New Group** drop-down menu.

Service Select a Service to edit, then click **Update**.

Manage Service Opens a dialog that enables you to **Delete**, **Rename** or **Merge** the Service.

Delete removes the Service from the CMDB database as well as all CMDB data and CIs associated with the Service.

Rename Changes all records for the Service to a new name. **Rename** is disabled when the name you are typing in the text box already exists in the CMDB.

Merge Changes all records for the Service to a different, already existing name in the CMDB. **Merge** is enabled when the name you are typing in the text box already exists in the CMDB.

Move Changes all records for the Service to a different, already existing name in the CMDB that you choose from the **New Service** drop-down menu.

CI List Table
This table lists all CIs associated with the selected Service. Each table row is a different CI. Select a CI to see its attributes in the drop-down menus at the right of the table. Use the **OSType**, **Region**, **SiteName**, **Criticality**, **City** and **Country** drop-down assign attributes, then click **Update**. To associate CIs with the Service, select one or more CIs from the **Available Components** table, then click **Add CI** (to associate the CI(s) with the selected Service.) or **Add CI To...** (to create a new Service and associate the CI(s) with it).

CIType	The type of CI. For example, server or application.
CIName	A unique identifier for the CI.
Criticality	The importance level of the CI in your organization. Values range from **A** to **E**, where **A** is the highest Criticality and **E** is the lowest Criticality (with equally spaced intermediate values). This value is used to calculate the Alert Impact (maximum Alert Severity multiplied by the maximum Criticality equals Alert Impact). Criticality values are listed in the **Component Views - CI Service Table** display. Criticality values are also shown in heatmaps and tables.
Region	The name of the Region for the CI.
Environment	The name of the Environment for the CI.
SiteName	The name of the Site for the CI.
OSType	The operating system on the CI.
City	The name of the City for the CI.
Country	The name of the Country for the CI.

Update Criticality like selected CI	Updates the Criticality attribute assigned to all CIs in the **CI List** table to match the selected CI level.
Environ	Select or type the Environment for the CI selected in the **CI List Table**, or the CI selected in the **Available Components** and added into the **CI List Table**.
Region	Select or type the region for the CI selected in the **CI List Table**, or the CI selected in the **Available Components** and added into the **CI List Table**.
SiteName	Select or type the site name for the CI selected in the **CI List Table**, or the CI selected in the **Available Components** and added into the **CI List Table**.
Criticality	Specify the importance level of a Service or a CI for your organization. Select a Service or a CI and set the Criticality value from **A** to **E**, where **A** is the highest Criticality and **E** is the lowest Criticality (with equally spaced intermediate values). This value is used to calculate Alert Impact (maximum Alert Severity multiplied by the maximum Criticality equals Alert Impact). Criticality values are listed in the **Component Views - CI Service Table** display. Criticality values are also shown in heatmaps and tables.
Country	Select or type the country for the CI selected in the **CI List Table**, or the CI selected in the **Available Components** and added into the **CI List Table**.
OSType	Select or type the operating system for the CI selected in the **CI List Table**, or the CI selected in the **Available Components** and added into the **CI List Table**.
Update	Updates the CI selected in the **CI List Table** with attributes selected from the drop-down menus (on the right).
Delete	Removes the selected CI from the CMDB database.

Available Components Table
This table lists all available CIs in your RTView Enterprise Monitor system whether they are in the CMDB or not. Each row in the table is a different CI (for example, a server or a process). Select one or more CIs to associate with the currently selected Service, then click **Add CI** (to associate the CI(s) with the selected Service.) or **Add CI To...** (to create a new Service and associate the CI(s) with it).

Selected CI Type	Select the type of CI to include in the **Available Components** table. All CIs of this type are listed. A CI can be associated with multiple Services.
CIName Filter	Enter a string to filter the list of available components.
Regex	Check to enable Regex filtering.
Add CI	Associates the CI selected in the **Available Components** table with the selected Service, and applies the attributes selected from the drop-down menus (on the right) to the CI. To associate a CI with the currently selected Service, select a CI from the **Available Components** table, use the drop-down menus on the right (**Environ**, **Region**, **SiteName**, etc.) to modify attributes for the CI, click **Add CI** and then click **Update**. The CI appears in the **CI List Table**.
Add CI To...	Creates a new Service and associates the selected CI with it. To create a new Service and associate a CI with it, select a CI from the **Available Components** table, use the drop-down menus on the right (**Environ**, **Region**, **SiteName**, etc.) to modify attributes for the CI, click **Add CI To...**, enter the name of the new Service, then click **Update**. The new Service is added to the list of Services and the CI appears in the **CI List Table**.

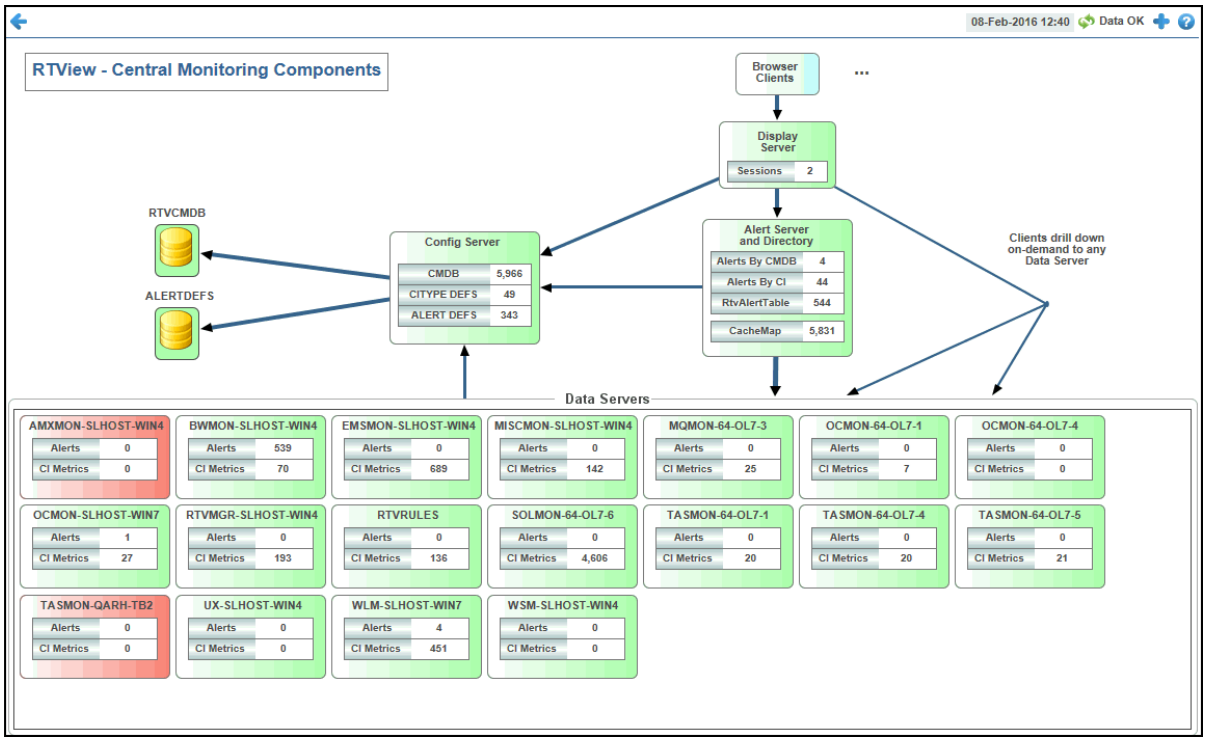
Architecture

These displays provide a view of RTView Enterprise Monitor component connectivity, mapping between component types, and component level connection and performance information. The Architecture displays are provided with RTView Enterprise Monitor. Displays in this View are:

- "System Overview" on page 221 Topology map of the main RTView Enterprise Monitor components. Objects are color-coded to show component status.
- "RTView Data Servers" on page 223: Configuration and connection details for RTView Data Servers.
- "Data Server Summary" on page 225: Connection and query statistics for RTView Data Servers.
- "RTView History Table Statistics" on page 227: Performance of historical data being stored from caches with history.
- "RTView Cache Tables" on page 228: Configuration and alert details for RTView Cache Tables.
- "RTView CI Stats Tables" on page 230: Alert details for RTView Cache Tables by CI.
- "RTView CI Type Defs" on page 231: CI Type definitions, cache map and alert map by CI Type.
- "RTView KM Defs" on page 233: Key Metrics definitions for all CI Types.
- "About" on page 234: This display shows details about the RTView Enterprise Monitor version and data sources available to your system.

System Overview

View the topology of the central RTView Enterprise Monitor monitoring components and their current connection state. Each object represents a component which are color-coded to indicate component status. Red indicates the component stopped running. Green indicates the component is running.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Config Server
The Configuration Server provides configurations to all central RTView Enterprise Monitor components.

CMDB	The number of CIs in the CMDB.
CITYPE DEFS	The current number of CITYPE definitions.
ALERTDEFS	The current number of alert settings and override definitions.

Alert Server and Directory
The Alert and Directory Server centralizes access to all alerts sent by remote Data Servers, and maintains a directory table of CI locations. The CI location is the name of the source Data Server.

Alerts By CMDB	The number of Services in the CMDB that currently have at least one associated alert.
Alerts By CI	The number of CIs in the CMDB that currently have at least one associated alert.
RtvAlertTable	The number of currently active alerts in the system.
CacheMap	The number of entries currently in the directory table.

Display Server
The Display Server generates HTML displays for browser clients.

Sessions	The current number of users connected to the Display Server.

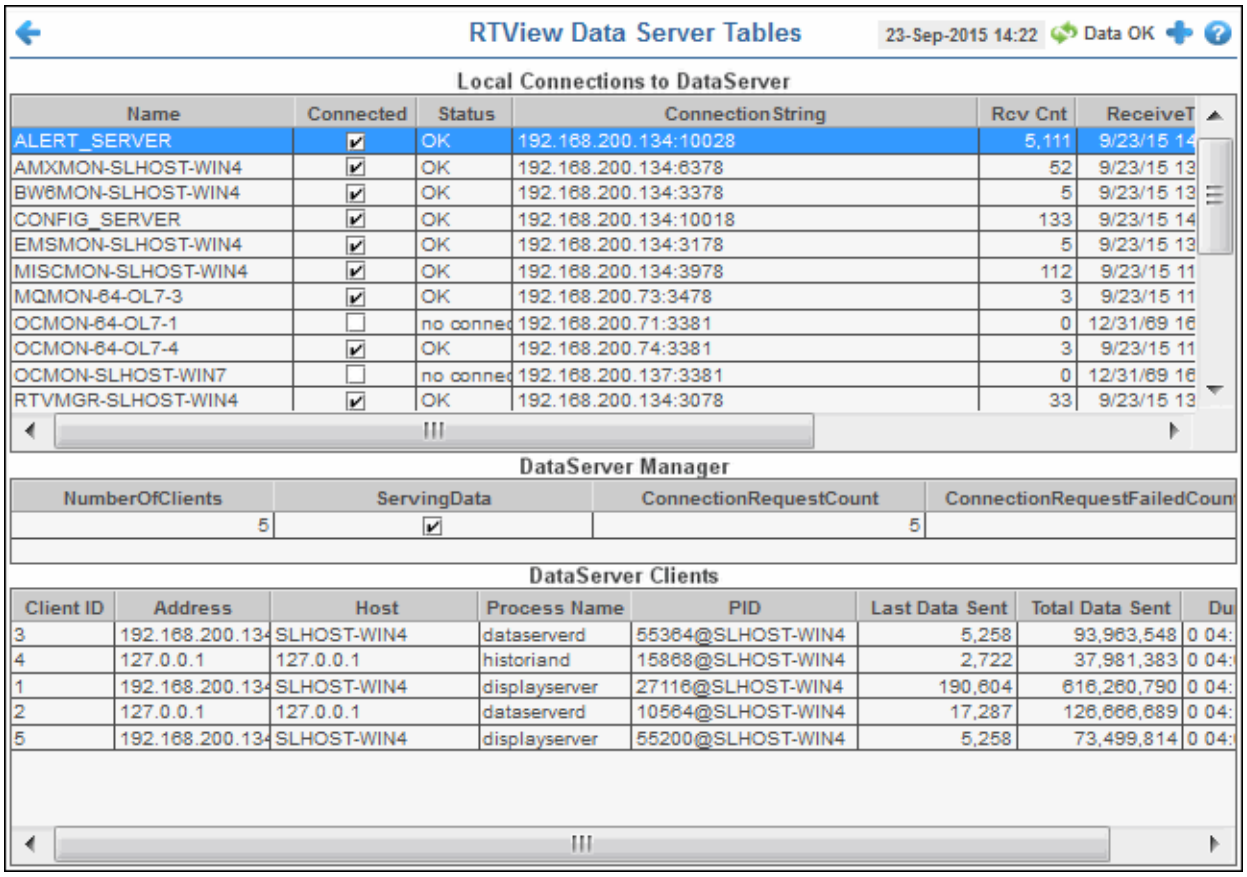
Browser Clients	The browser clients are represented in the topology as a single object. No data is shown for browser clients.

Data Servers
This panel in the topology shows all Data Servers.

Alerts	The number of currently activated alerts for the Data Server.
CI Metrics	The count of CI metrics that the remote Data Server is sending.

RTView Data Servers

View Data Server connection status and detailed client connection information.



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Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Local Connections to Data Server
This table lists all Data Servers and detailed connection information. Select a Data Server to view further details (in the lower tables).

Name	The Data Server name.
Connected	When checked, the connection is currently connected.
Status	The Data Server connection status.

Connection String	The host name and port number for TCP connections, or the URL for servlet connections.
Rcv Cnt	The number of data updates received from that Data Server.
ReceiveTime	The time that data was last received.
Config	The RTView version running on the Data Server.

Data Server Manager
This table shows connection information for the Data Server selected from the **Local Connections to Data Server** table.

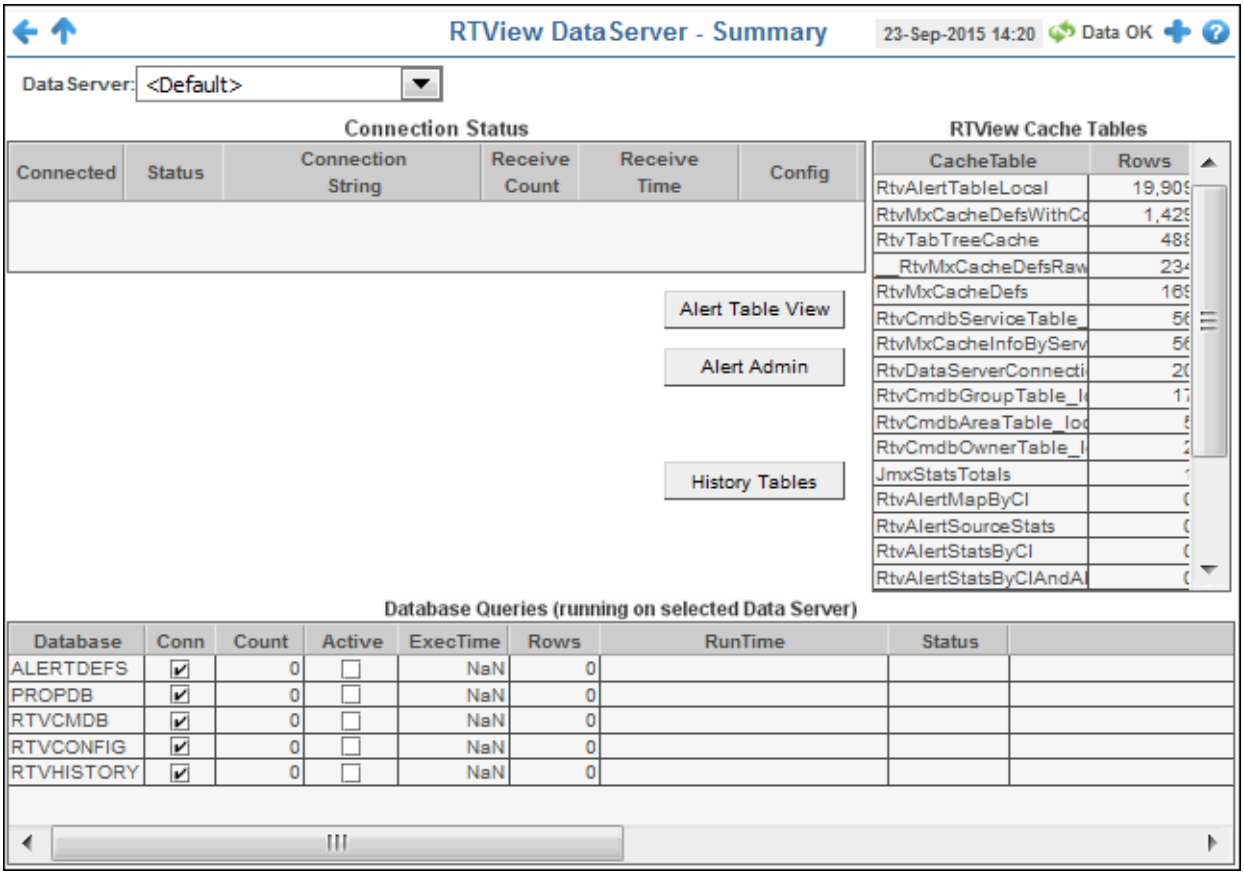
NumberOf Clients	The number of clients currently connected to the Data Server.
ServingData	When checked, the Data Server is currently serving data.
Connection Request Count	The number of client requests to connect to the Data Server.
Connection Request FailedCount	The number of client requests to connect to the Data Server that were unable to connect.

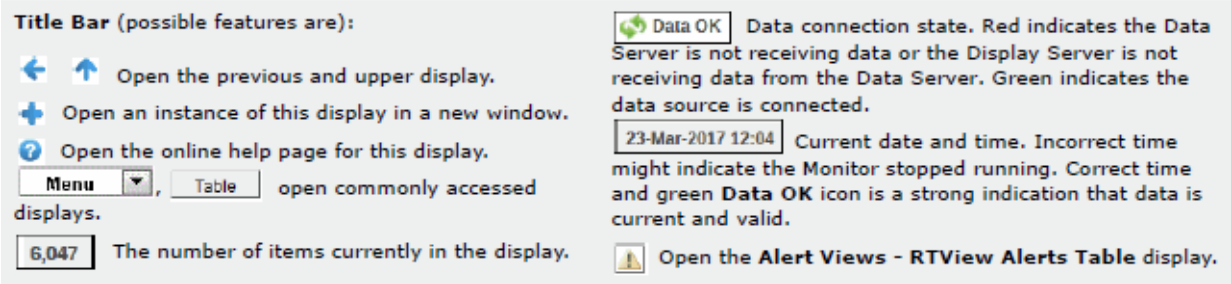
Data Server Clients
This table shows information for clients connected to the Data Server selected from the **Local Connections to Data Server** table.

ClientID	A unique string identifier for the client.
Address	The client IP address.
Duration	The client session length of time.
Host	The address of the client host.
Last Data Sent	The amount of data, in bytes, the Data Server last sent to the client.
Total Data Sent	The total amount of data, in bytes, the Data Server has sent to the client.

Data Server Summary

View Data Server connection status, cache table sizes and database query metrics. Use the available drop-down menus or right-click to filter data shown in the display.





Fields and Data
This display includes:

Data Server Select a Data Server from the drop-down menu to view details for in the display.

Connection Status
This table shows connection details for the selected Data Server.

Connected	When checked, the Data Server is currently connected.
Status	The Data Server connection status.
Connection String	The host name and port number for TCP connections, or the URL for servlet connections.
Rcv Cnt	The number of data updates received from that Data Server.
ReceiveTime	The time that data was last received.
Config	The RTView version running on the Data Server.

Alert Table View Select to view or manage current alerts for the selected Data Server in the **RTView Alerts Table** display.

Alert Admin Select to view or manage alert thresholds for the selected Data Server in the **Alert Administration** display.

History Tables Select to view database table statistics for each cache for the selected Data Server in the "RTView History Table Statistics" display.

RTView Cache Tables
This table lists Cache Tables and their size, in number of rows, for the selected Data Server. Select a Cache Table to view details in the **RTView Cache Tables** display.

Use this data for debugging. This display is typically used for troubleshooting with SL Technical Support.

CacheTable	The name of the Cache Table.
Rows	The current number of rows in the Cache Table.

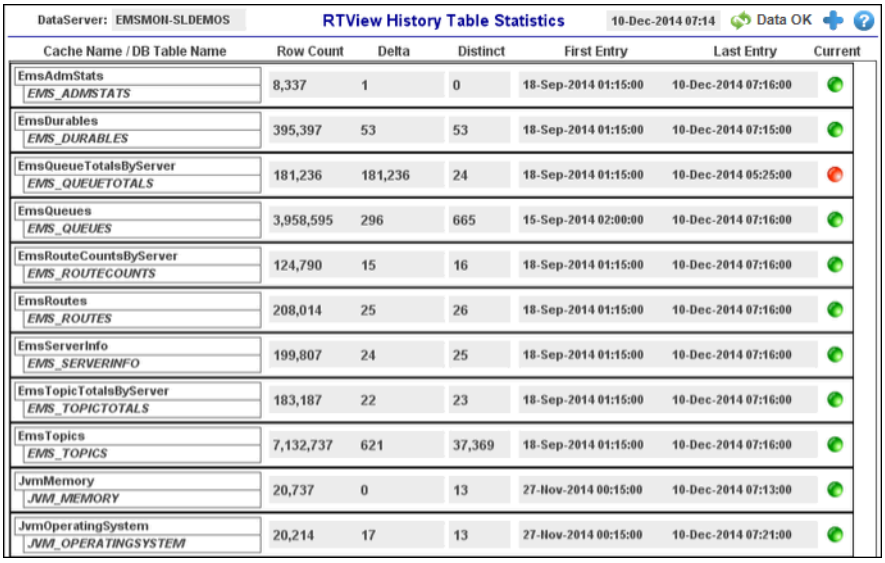
Database Queries
This table lists the databases and query details for the selected Data Server. Each table row describes a different query.

Database	The name of the database.
Conn	When checked, the database is currently connected.
Count	The number of query requests from current Data Server.
Active	When checked, the query is currently running.
ExecTime	The amount of time, in milliseconds, to execute the query.
Rows	The number of rows the query created.
RunTime	The time the query was executed.
Status	The latest result status of the query.
Query	The query that was executed.

RTView History Table Statistics

This display opens when you click **History Tables** from the **Architecture -** "Data Server Summary" on page 225 display. View information about the performance of historical data being stored from caches with history. Use this display to verify your tables are growing as expected by:

- seeing how many rows are in the database table (**Row Count**).
- seeing how many rows are added at each update period (**Delta**).
- verifying that the range of the data stored in the table is consistent with defined compaction rules and that behavior is as expected. To do this, compare the time of **First Entry** and **Last Entry** and verify the dates match the defined compaction interval (for example, **2 weeks** by default). For this verification, you must first confirm the historian has been operating for at least the defined compaction time interval, otherwise the range of data will be shorter.



Cache Name / DB Table Name	Row Count	Delta	Distinct	First Entry	Last Entry	Current
EmsAdmStats *EMS_ADMSTATS*	8,337	1	0	18-Sep-2014 01:15:00	10-Dec-2014 07:16:00	
EmsDurables *EMS_DURABLES*	395,397	53	53	18-Sep-2014 01:15:00	10-Dec-2014 07:15:00	
EmsQueueTotalsByServer *EMS_QUEUETOTALS*	181,236	181,236	24	18-Sep-2014 01:15:00	10-Dec-2014 05:25:00	
EmsQueues *EMS_QUEUES*	3,958,595	296	665	15-Sep-2014 02:00:00	10-Dec-2014 07:16:00	
EmsRouteCountsByServer *EMS_ROUTECOUNTS*	124,790	15	16	18-Sep-2014 01:15:00	10-Dec-2014 07:16:00	
EmsRoutes *EMS_ROUTES*	208,014	25	26	18-Sep-2014 01:15:00	10-Dec-2014 07:16:00	
EmsServerInfo *EMS_SERVERINFO*	199,807	24	25	18-Sep-2014 01:15:00	10-Dec-2014 07:16:00	
EmsTopicTotalsByServer *EMS_TOPICTOTALS*	183,187	22	23	18-Sep-2014 01:15:00	10-Dec-2014 07:16:00	
EmsTopics *EMS_TOPICS*	7,132,737	621	37,369	18-Sep-2014 01:15:00	10-Dec-2014 07:16:00	
JvmMemory *JVM_MEMORY*	20,737	0	13	27-Nov-2014 00:15:00	10-Dec-2014 07:13:00	
JvmOperatingSystem *JVM_OPERATINGSYSTEM*	20,214	17	13	27-Nov-2014 00:15:00	10-Dec-2014 07:21:00	

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

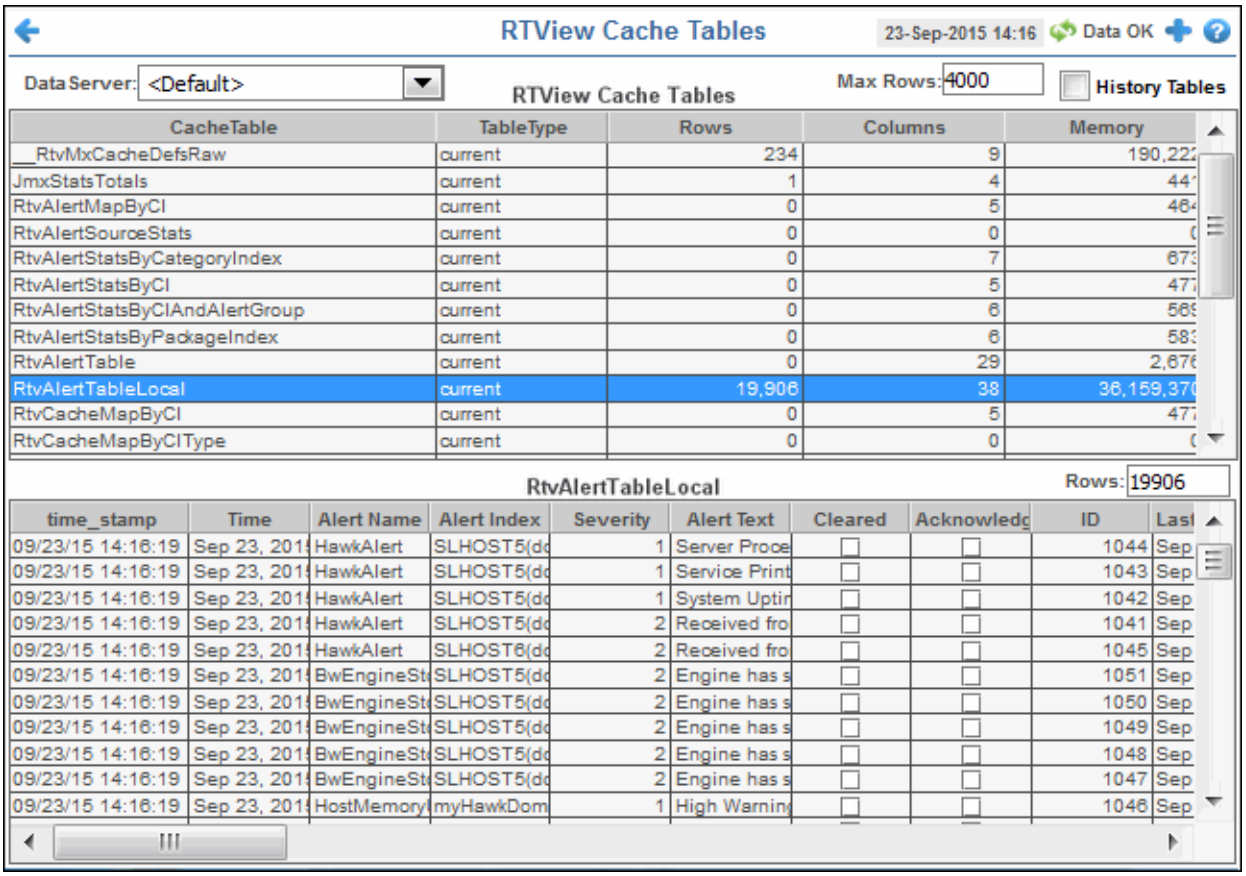
Fields and Data
This display includes:

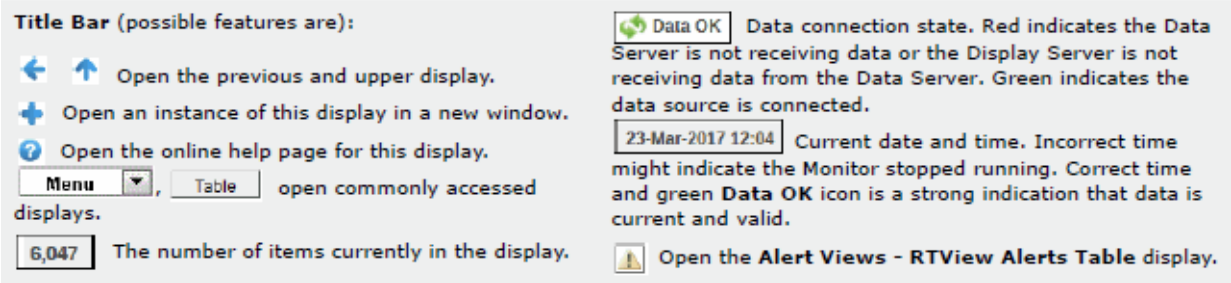
Cache Name / DB Table Name	The name of the cache and the name of the database table. Mouse-over to see the **Index** columns for the cache.
Row Count	The number of rows in the table.
Delta	The number of rows added since the last update.

Distinct	The number of distinct indexes in the table.
First Entry	The time stamp of the oldest entry written to the table.
Last Entry	The time stamp of the most recent entry written to the table.
Current	The current writing state of the table. ● (**Time ≥ 10m**) The writing latency is equal to or greater than ten minutes. ● (**Time ≥ 4m** and **< 10m**) The writing latency is equal to or greater than four minutes and less than ten minutes. ● (**Time < 4m**) The writing latency is less than four minutes.

RTView Cache Tables

View Data Server Cache table sizes and contents. Select a cache table in the upper table and view its contents in the lower table. Use the available drop-down menus or right-click to filter data shown in the display.





Fields and Data
This display includes:

Data Server Select a Data Server from the drop-down menu to view details for in the display.

Max Rows Enter the maximum number of rows to include in the lower table, then click Enter.

History Tables Select to include all defined history tables in the **RTView Cache Tables** list.

RTView Cache Tables
This table lists cache tables for the selected Data Server. Select a cache table to view details in the lower table.

CacheTable The name of the cache table.

TableType The type of cache table.

current	This table is a current table which shows the current values for each index.
current_condensed	This table is a current table with primary compaction configured.
history	This table is a history table.
history_condensed	This table is a history table with primary compaction configured.
history_combo	This table is a history table with primary compaction configured, and which is also configured to store rows of recent raw data followed by rows of older condensed data.

Rows The number of rows currently in the table.

Columns The number of columns currently in the table.

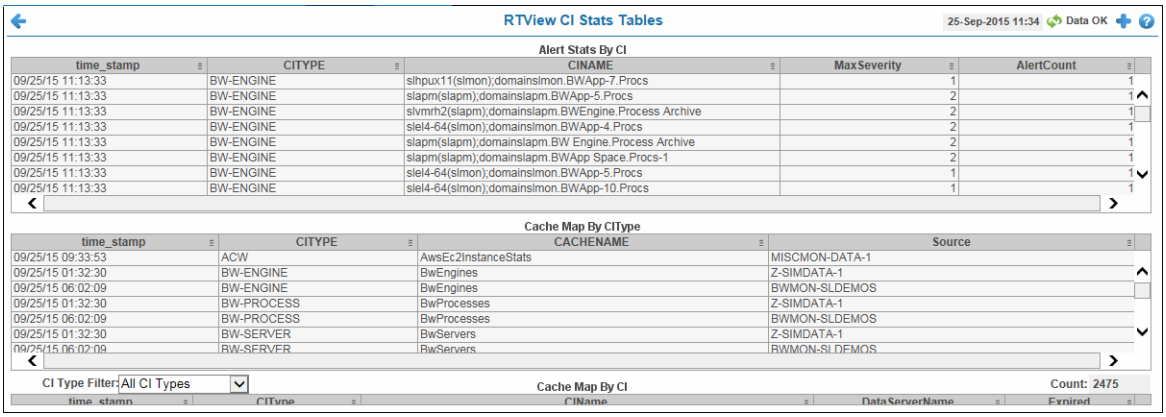
Memory The amount of space, in bytes, used by the table.

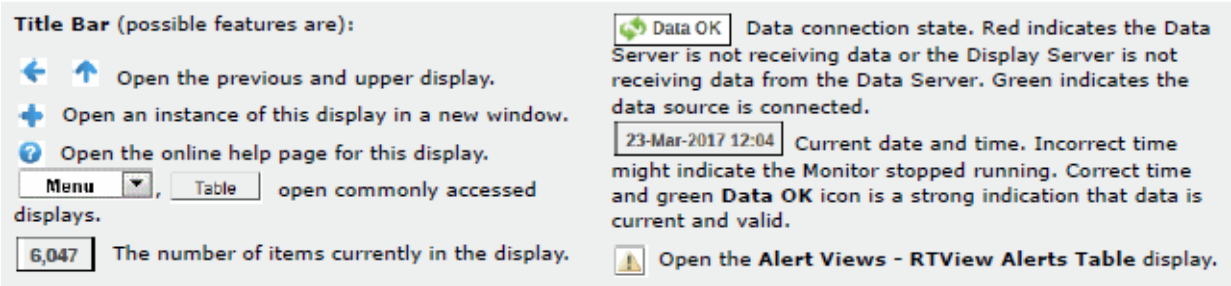
(Lower Table)
This table shows the contents of the selected cache table. Available columns vary by cache. For example, a JVM cache table might provide **BootClassPath** and **InputArgument** columns, and a Tomcat cache might provide **RateAccess** and **cacheMaxSize** columns.

Rows The number of rows currently in the table.

RTView CI Stats Tables

View details for components that currently have an active warning or alarm alert.





Fields and Data
This display includes:

Alert Stats By CI
This table provides summary alert details for all CIs that currently have active warning or alarm alerts.

time_stamp	The date and time this table row of data was last updated. Format: **MM/DD/YY HH:MM:SS** **<month>/ <day>/<year> <hours>:<minutes>:<seconds>**
CIType	The component type.
CIName	The name of the component.
MaxSeverity	The most critical alert state of all current alerts for this component.
AlertCount	The number of current warning and alarm alerts for this component.

Cache Map By CIType
This table provides mapping of all component types to caches.

time_stamp	The date and time this table row of data was last updated. Format: **MM/DD/YY HH:MM:SS** **<month>/ <day>/<year> <hours>:<minutes>:<seconds>**
CIType	The component type.

CACHENAME The name of the cache associated with the component type.

Source The name of the Data Server alert sending data for that component type.

Cache Map By CI
This table provides the location of all CIs.

CI Type Filter: Select the CI Type to filter by in this table, or select **All CI Types**.

Count The number of CIs currently in this table.

time_stamp The date and time this table row of data was last updated.
Format:
MM/DD/YY HH:MM:SS
<month>/ <day>/<year> <hours>:<minutes>:<seconds>

CIType The component type.

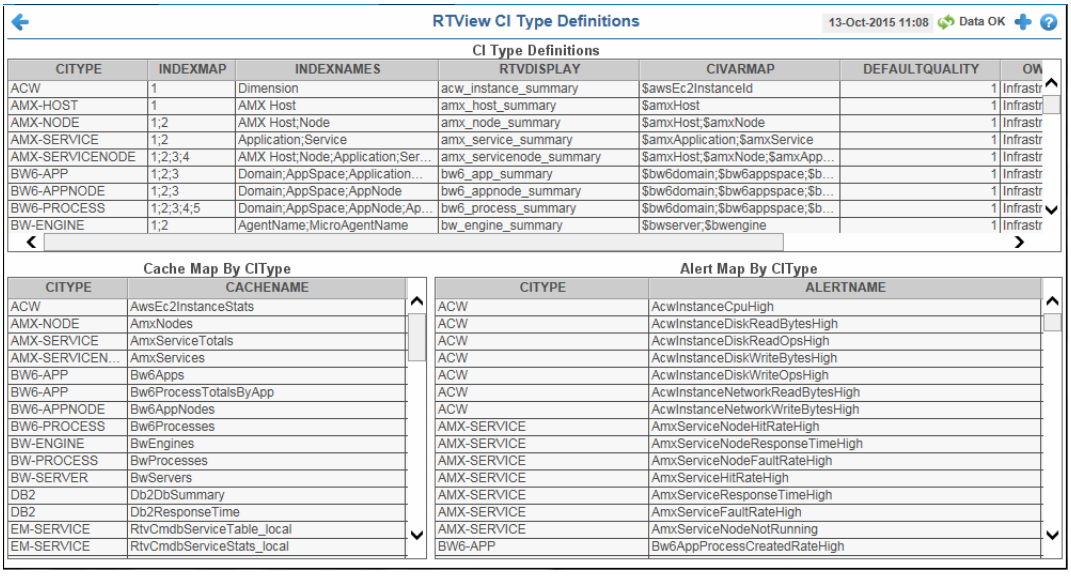
CIName The name of the component.

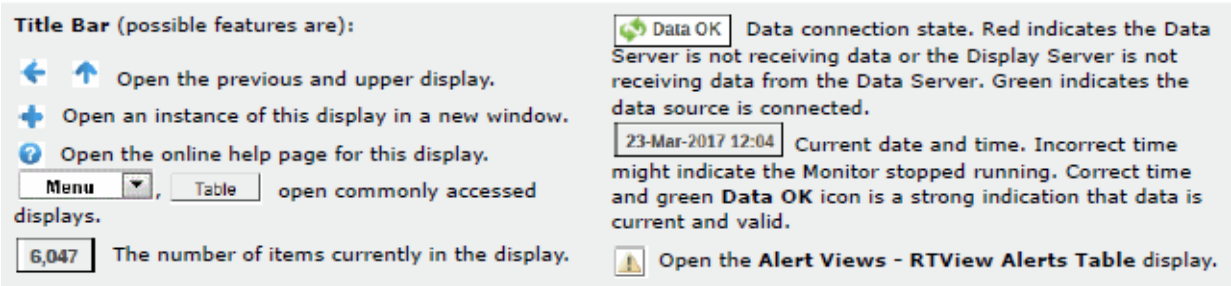
DataServerName The name of the Data Server which sent this CI.

Expired When checked, data has not been received within the time specified in the Solution Package that is hosting the data. If the Solution Package is configured to delete expired data, this row will be deleted if no data is received within the time specified for deletion. See the documentation for the Solution Package that is hosting the data for information on how to configure expiration and deletion times.

RTView CI Type Defs

This display provides component type definitions and shows the mapping of component types to caches as well as component types to alerts.





Fields and Data
This display includes:

CI Type Definitions
This table provides definitions for all CI Types.

CIType	The component type.
INDEXMAP	Number of indexes and the order in which they are used to form the CI Name.
INDEXNAMES	Semicolon-separated list of the index columns.
RTVDISPLAY	The name of the RTView display to drill-down to from the **Alerts Table** to see summary data for this CI Type. This is the target of the **Go To CI** button in the **Alerts Table** and in the **Service Summary** display.
CIVARMAP	The names of substitutions that must be set to drill-down to the display.
DEFAULTQUALITY	A flag indicating whether the lack of data is considered an error condition or not.
OWNER	The Owner the CIType is associated with, when the CMDB is populated automatically from CIs of this type.
AREA	The Area the CIType is associated with.
SERVICEGROUP	The SERVICEGROUP the CIType is associated with, when the CMDB is populated automatically from CIs of this type.

Cache Map By CIType
This table provides mapping of component types to caches for all component types.

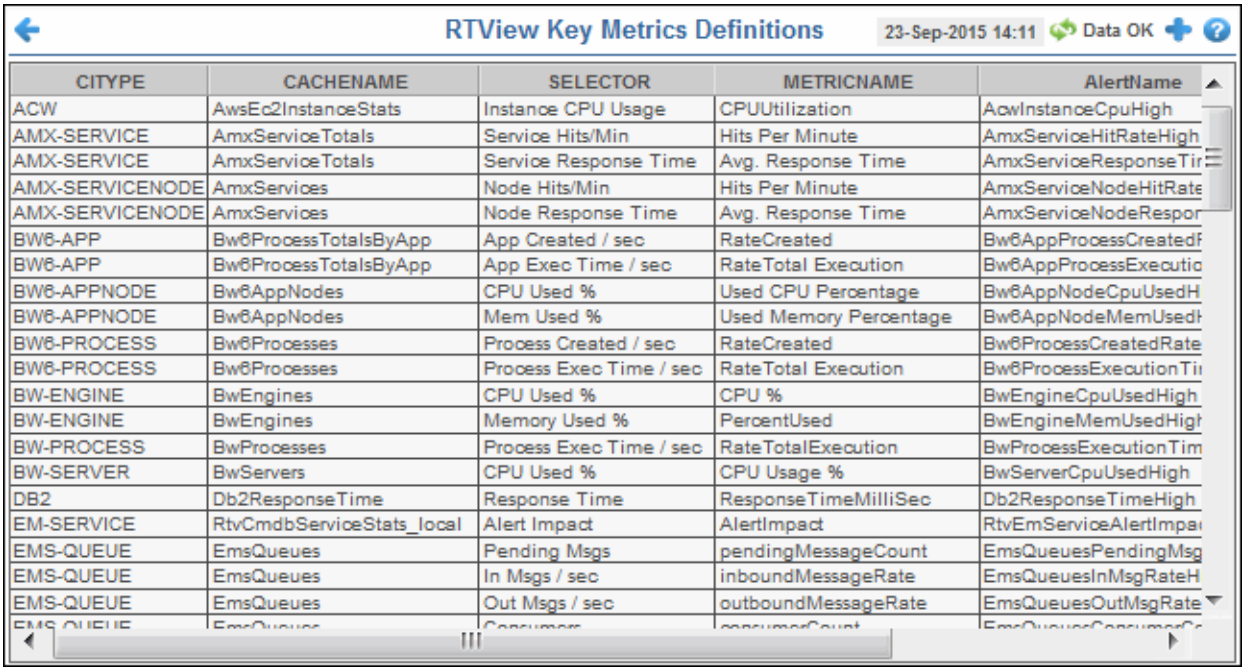
CIType	The type of CI.
CACHENAME	The name of the cache associated with the component type.

Alert Map By CIType
This table provides mapping of component types to alerts.

CIType	The type of CI.
ALERTNAME	The name of the alert.

RTView KM Defs

This display shows the Key Metrics definitions for all CI Types. For details, see "Available KM Metrics and Alerts" on page 168.



CITYPE	CACHENAME	SELECTOR	METRICNAME	AlertName
ACW	AwsEc2InstanceStats	Instance CPU Usage	CPUUtilization	AcwInstanceCpuHigh
AMX-SERVICE	AmxServiceTotals	Service Hits/Min	Hits Per Minute	AmxServiceHitRateHigh
AMX-SERVICE	AmxServiceTotals	Service Response Time	Avg. Response Time	AmxServiceResponseTi
AMX-SERVICENODE	AmxServices	Node Hits/Min	Hits Per Minute	AmxServiceNodeHitRate
AMX-SERVICENODE	AmxServices	Node Response Time	Avg. Response Time	AmxServiceNodeRespor
BW6-APP	Bw6ProcessTotalsByApp	App Created / sec	RateCreated	Bw6AppProcessCreatedF
BW6-APP	Bw6ProcessTotalsByApp	App Exec Time / sec	RateTotal Execution	Bw6AppProcessExecutio
BW6-APPNODE	Bw6AppNodes	CPU Used %	Used CPU Percentage	Bw6AppNodeCpuUsedH
BW6-APPNODE	Bw6AppNodes	Mem Used %	Used Memory Percentage	Bw6AppNodeMemUsedH
BW6-PROCESS	Bw6Processes	Process Created / sec	RateCreated	Bw6ProcessCreatedRate
BW6-PROCESS	Bw6Processes	Process Exec Time / sec	RateTotal Execution	Bw6ProcessExecutionTi
BW-ENGINE	BwEngines	CPU Used %	CPU %	BwEngineCpuUsedHigh
BW-ENGINE	BwEngines	Memory Used %	PercentUsed	BwEngineMemUsedHigh
BW-PROCESS	BwProcesses	Process Exec Time / sec	RateTotalExecution	BwProcessExecutionTim
BW-SERVER	BwServers	CPU Used %	CPU Usage %	BwServerCpuUsedHigh
DB2	Db2ResponseTime	Response Time	ResponseTimeMilliSec	Db2ResponseTimeHigh
EM-SERVICE	RtvCmdbServiceStats_local	Alert Impact	AlertImpact	RtvEmServiceAlertImpa
EMS-QUEUE	EmsQueues	Pending Msgs	pendingMessageCount	EmsQueuesPendingMsg
EMS-QUEUE	EmsQueues	In Msgs / sec	inboundMessageRate	EmsQueuesInMsgRateH
EMS-QUEUE	EmsQueues	Out Msgs / sec	outboundMessageRate	EmsQueuesOutMsgRate

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

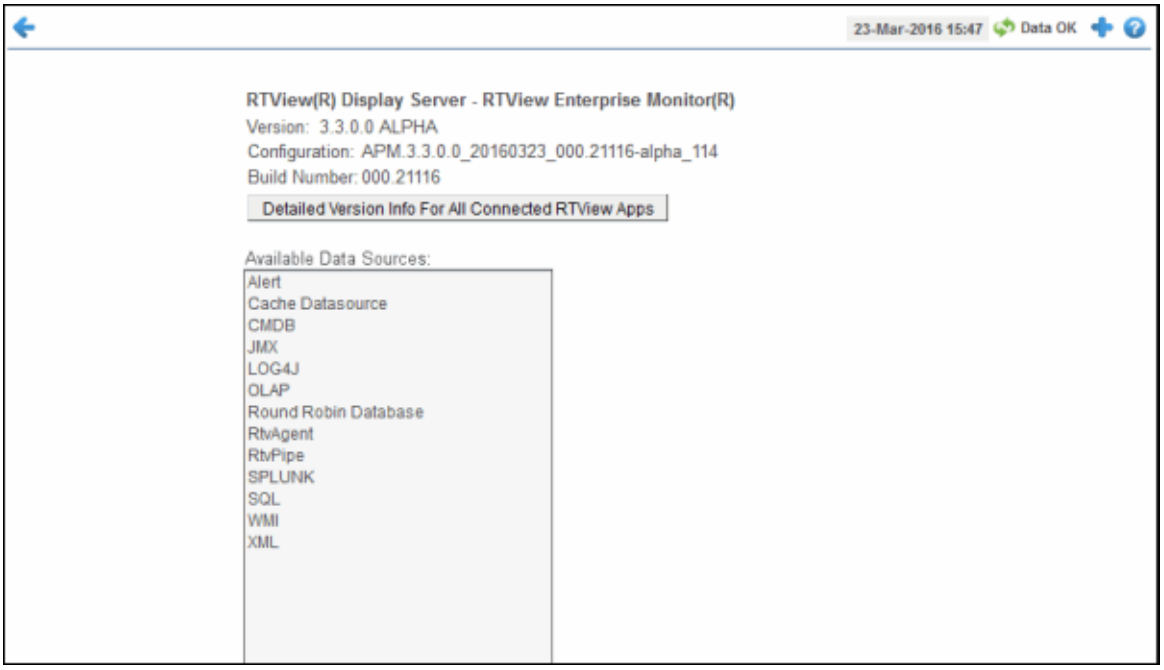
RTView Key Metrics Definitions
This table provides Key Metrics definitions for all CI Types.

CIType	The component type.
CACHENAME	The name of the cache that contains the Key Metric.
SELECTOR	The name used for this Key Metric in the **Metric Name** column of Key Metric displays.
METRICNAME	The name of the **cache** column that contains this Key Metric.
ALERTNAME	The name of the alert associated with this Key Metric. When blank, the Key Metric is not configured for inclusion in Key Metric displays.

CalcMode	The calculation used for the **Threshold %** value. The base value is calculated as the percent of the Key Metric value between **0** and the **ALARMLEVEL** of the associated alert. If the **CalcMode** is blank, this value is used. If the **CalcMode** is: • **exp**, the value is adjusted so that lower values are diminished. Typically, this is used for memory metrics. • **inverse**, the value is calculated in reverse of the standard thresholds. This is used when the associated alert is a low threshold alert. • **invpct**, the value is calculated in reverse of the standard threshold and is assumed to be percent and therefore a value between **0** and **100**. This is used when the associated alert is a low threshold alert against a percent. • **log**, a logarithmic algorithm is applied.
Level	The Key Metric level. Level **0** KMs are always displayed. Level **1** KMs are displayed is **Show More Metrics** is selected.

About

Get RTView Enterprise Monitor version and configuration information including a list of all available data sources. For more detailed version information, click **Version Info For All Connected RTView Apps** to open the "Version Info" display.



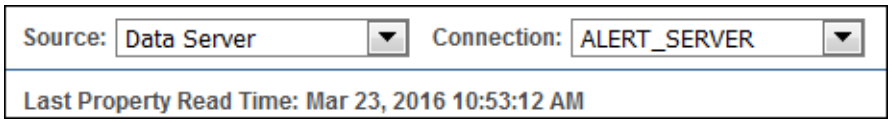
Property Views

These displays show how your Monitor properties are configured and the values for all connected RTView processes. The displays are located under the **ADMIN** tab. Displays in this View are:

- "Properties Configuration" on page 235: Table of properties configuration settings, per connection.
- "System Properties" on page 237: Table of system properties for RTView processes, per connection.
- "Applied Properties" on page 239: Table of all properties that were applied to RTView processes, per connection.
- "All Properties" on page 241: Table of all properties that were read from the properties files and database regardless of whether or not the RTView process uses them.
- "Properties Descriptions" on page 243: Table of all properties that are supported by RTView processes, per connection.

Properties Configuration

This display shows properties configuration information. The **Last Property Read Time** shows the last time that properties were read for the RTView process specified by the selected **Connection**.



Select the **Source** of the connection to the RTView process for which you want to see property information. Options are:

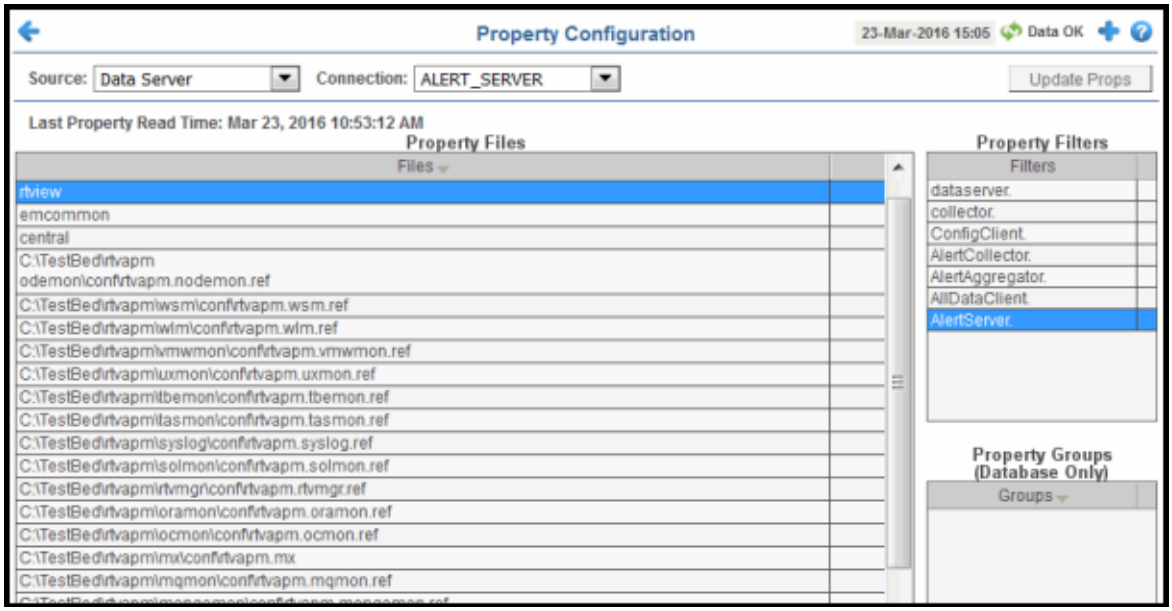
- **Data Server:** If the RTView process is a Data Server and the Thin Client has a defined Data Server connection for it, choose this option and select the name of the Data Server in the Connection field.
- **Local JMX Connection:** Select this option if the Thin Client has a defined JMX Connection to the RTView process.
- **RTVMGR JMX Connection:** Select this option if the RTView Monitor has a defined JMX Connection to the RTView process.

Select the **Connection** to the RTView process for which you want to see property information. Options available depend on your setup. For example, **RTView Monitor** is only visible when the **Source** is **RTView Monitor JMX Connection** and you have multiple RTView Monitors. You can then select an RTView Monitor that has a defined JMX Connection to the RTView process for which you want to see property information.

The **Property Files** table shows all of the properties files that were read by the RTView process specified by the selected **Connection** in the order they were read. The **Property Filters** table shows all filters that are applied to the properties. **Property Groups** shows all property groups that are applied to the properties. **Property Groups** are only used when reading properties from a database.

Click **Update Props** to have the RTView process specified by the selected **Connection** re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. See the "Properties Descriptions" on page 243 display to find out if a specific property supports updates.

Right-click/**Export** to create a PDF image of the display. Click Sort to order column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The "Up" Arrow ( ) opens the most recently viewed display under "Multi Area Service Views". For example, if the last viewed display under **Multi Area Service Views** was **Services CI Type Summary**, then clicking opens the "Services CI Type Summary" display.

Filter By:

Source: Select the **Source** of the connection to the RTView process for which you want to see property information.

Connection: Select the **Connection** to the RTView process for which you want to see property information.

Fields and Data
This display includes:

Update Props Click to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. Use the "Properties Descriptions" display to see if a specific property supports updates.

Last Property Read Time The last time that properties were read for the RTView process specified by the selected **Connection**.

Property Files (table)	List of all properties files that were read by the RTView process specified by the selected **Connection** in the order they were read.
Property Filters (table)	List of all filters that are applied to the properties.
Property Groups	List of all property groups that are applied to the properties. **Property Groups** are only used when reading properties from a database.

System Properties

This display shows the System properties for the RTView process specified by the selected Connection.

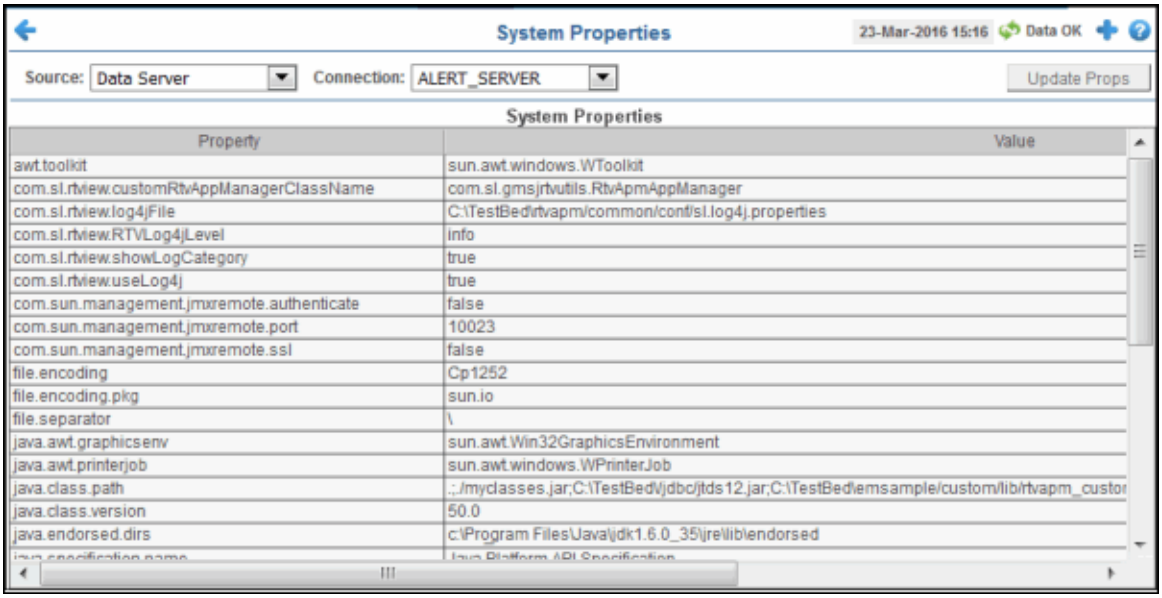
Select the **Source** of the connection to the RTView process for which you want to see property information. Options are:

- **Data Server:** If the RTView process is a Data Server and the Thin Client has a defined Data Server connection for it, choose this option and select the name of the Data Server in the Connection field.
- **Local JMX Connection:** Select this option if the Thin Client has a defined JMX Connection to the RTView process.
- **RTVMGR JMX Connection:** Select this option if the RTView Monitor has a defined JMX Connection to the RTView process.

Select the **Connection** to the RTView process for which you want to see property information. Options available depend on your setup. For example, **RTVMGR** is only visible when the **Source** is **RTVMGR JMX Connection** and you have multiple RTView Monitors. You can then select an RTView Monitor that has a defined JMX Connection to the RTView process for which you want to see property information.

Click **Update Props** to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. See the "Properties Descriptions" display to find out if a specific property supports updates.

Right-click/**Export** to create a PDF image of the display. Click Sort to order column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Source: Select the **Source** of the connection to the RTView process for which you want to see property information.

Connection: Select the **Connection** to the RTView process for which you want to see property information.

Fields and Data
This display includes:

Update Props Click to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. Use the "Properties Descriptions" display to see if a specific property supports updates.

System Properties (table) List of all system properties for the RTView process specified by the selected **Connection**.

Property The name of the property.

Value The property setting.

Applied Properties

This display shows all properties that were applied to the RTView process specified by the selected **Connection**.

There are several reasons a property specified in a properties file might not be applied to an RTView process:

- the filter doesn't match.
- it was overridden in another property file.
- it was specified in a file that is not used by the RTView process.
- it was a property that is not supported in that RTView process (ex, a builder specific property would not be applied to a data server process).

You can filter the **Applied Properties** table using the **Filter Column** and **Field Value** fields. The **Clear Filter** button clears the filter. Double-click on a row in the table to drill down to the "All Properties" display filtered by the **Property Name** for that row.

Note: The double-click feature is not supported on IPad. IPad users can access the "All Properties" display from the navigation tree.

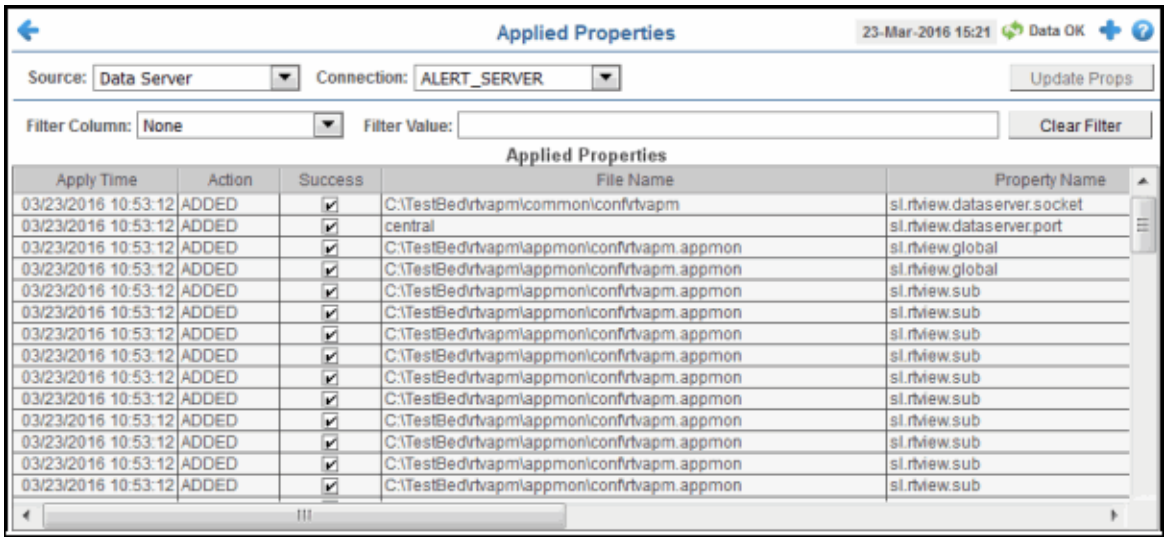
Select the **Source** of the connection to the RTView process for which you want to see property information. Options are:

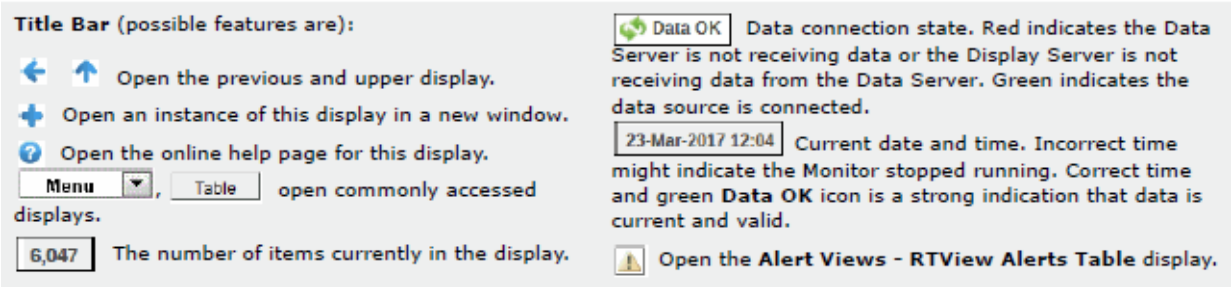
- **Data Server:** If the RTView process is a Data Server and the Thin Client has a defined Data Server connection for it, choose this option and select the name of the Data Server in the Connection field.
- **Local JMX Connection:** Select this option if the Thin Client has a defined JMX Connection to the RTView process.
- **RTVMGR JMX Connection:** Select this option if the RTView Monitor has a defined JMX Connection to the RTView process.

Select the **Connection** to the RTView process for which you want to see property information. Options available depend on your setup. For example, **RTVMGR** is only visible when the **Source** is **RTVMGR JMX Connection** and you have multiple RTView Monitors. You can then select an RTView Monitor that has a defined JMX Connection to the RTView process for which you want to see property information.

Click **Update Props** to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. See the "Properties Descriptions" display to find out if a specific property supports updates.

Right-click/**Export** to create a PDF image of the display. Click Sort to order column data.





Filter By:

Source: Select the **Source** of the connection to the RTView process for which you want to see property information.

Connection: Select the **Connection** to the RTView process for which you want to see property information.

Fields and Data
This display includes:

Update Props Click to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. Use the "Properties Descriptions" display to see if a specific property supports updates.

Filter Column: Select a column to filter the **Applied Properties** table.

Filter Value: Enter a string to filter the **Applied Properties** table.

Clear Filter Clears the filter.

Applied Properties (table)

Apply Time The last time this property was applied.

Action	Describes what occurred at **Apply Time**. • **ADDED**: Property was added. • **REMOVED**: Property was removed. • **CHANGED**: Property was modified.
Success	When the box is checked the **Action** was successful.
File Name	The source of this property. For properties read from a database this value is **database**.
Property Name	The name of the property after the property filter has been applied.
Property Value	The value of the property.
Handler	The RTView Handler that uses this property.

All Properties

This display shows all properties that were read from the properties files and database regardless of whether or not the RTView process uses them. There are several reasons a property specified in a properties file might not be applied to an RTView process:

- the filter doesn't match.
- it was overridden in another property file.
- it was specified in a file that is not used by the RTView process.
- it was a property that is not supported in that RTView process (ex, a builder specific property would not be applied to a data server process).

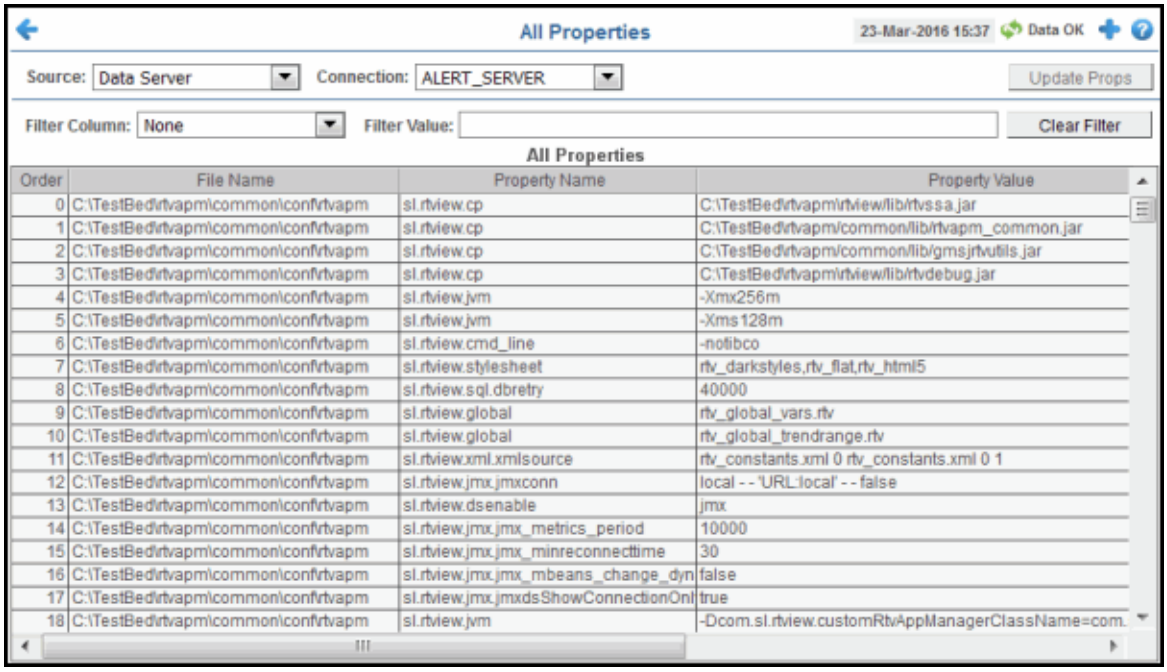
You can filter the **All Properties** table using the **Filter Column** and **Field Value** fields. The **Clear Filter** button clears the filter. Double-click on a row in the table to drill down to the "All Properties" display filtered by the **Property Name** for that row.

Select the **Source** of the connection to the RTView process for which you want to see property information. Options are:

- **Data Server:** If the RTView process is a Data Server and the Thin Client has a defined Data Server connection for it, choose this option and select the name of the Data Server in the Connection field.
- **Local JMX Connection:** Select this option if the Thin Client has a defined JMX Connection to the RTView process.
- **RTVMGR JMX Connection:** Select this option if the RTView Monitor has a defined JMX Connection to the RTView process.

Select the **Connection** to the RTView process for which you want to see property information. Options available depend on your setup. For example, **RTVMGR** is only visible when the **Source** is **RTVMGR JMX Connection** and you have multiple RTView Monitors. You can then select an RTView Monitor that has a defined JMX Connection to the RTView process for which you want to see property information.

Click **Update Props** to have the RTView process specified by the selected **Connection** re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. See the "Properties Descriptions" display to find out if a specific property supports updates.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Order	The order in which this property was read. For properties that support a single value that are specified multiple times, the one with the highest Order value will be applied.
File Name	The source of this property. It will be database for properties read from a database.
Property Name	The name of the property after the property filter has been applied.
Property Value	The value of the property.
Original Property Name	The name of the property before the property filter was applied. This will match the literal property string in your properties file.

Filter By:

	Source:	Select the **Source** of the connection to the RTView process for which you want to see property information.
	Connection:	Select the **Connection** to the RTView process for which you want to see property information.

Fields and Data
This display includes:

	Update Props	Click to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. Use the "Properties Descriptions" display to see if a specific property supports updates.
	Filter Column:	Select a column to filter the **Applied Properties** table.
	Filter Value:	Enter a string to filter the **Applied Properties** table.
	Clear Filter	Clears the filter.
All Properties (table)	**Order**	The order in which this property was read. For properties that support a single value that are specified multiple times, the one with the highest Order value will be applied.
	File Name	The source of this property. It will be database for properties read from a database.
	Property Name	The name of the property after the property filter has been applied.
	Property Value	The value of the property.
	Original Property Name	The name of the property before the property filter was applied. This will match the literal property string in your properties file.

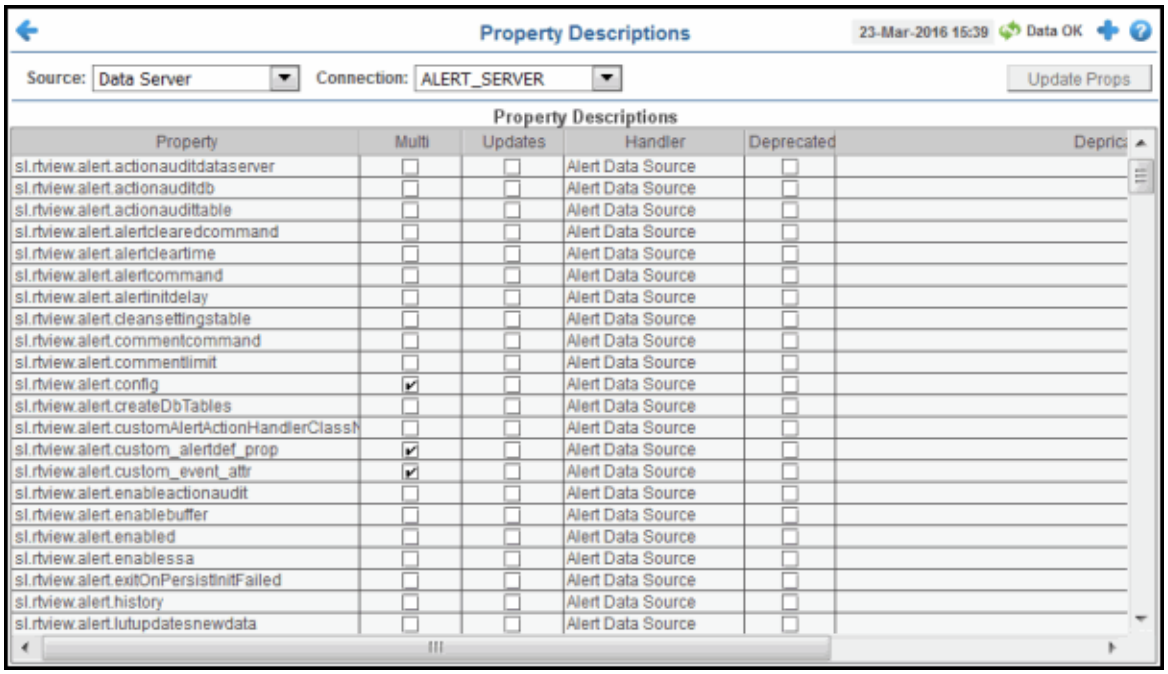
Properties Descriptions

This display shows one row for each property that is supported for the RTView process specified by the selected Connection.

Select the **Source** of the connection to the RTView process for which you want to see property information. Options are:

- **Data Server:** If the RTView process is a Data Server and the Thin Client has a defined Data Server connection for it, choose this option and select the name of the Data Server in the Connection field.
- **Local JMX Connection:** Select this option if the Thin Client has a defined JMX Connection to the RTView process.
- **RTVMGR JMX Connection:** Select this option if the RTView Monitor has a defined JMX Connection to the RTView process.

Select the **Connection** to the RTView process for which you want to see property information. Options available depend on your setup. For example, **RTVMGR** is only visible when the **Source** is **RTVMGR JMX Connection** and you have multiple RTView Monitors. You can then select an RTView Monitor that has a defined JMX Connection to the RTView process for which you want to see property information.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Source: Select the **Source** of the connection to the RTView process for which you want to see property information.

Connection: Select the **Connection** to the RTView process for which you want to see property information.

Fields and Data
This display includes:

Update Props Click to have the RTView process specified by the selected Connection re-read all properties files and database properties. Note that most non-connection properties do NOT support updates. Use the "Properties Descriptions" display to see if a specific property supports updates.

All Properties (table)	**Property**	The name of the property
	Multi	Box is checked if this property supports multiple values.
	Updates	Box is checked if this property supports updates.
	Handler	The name of the RTView Handler that uses this property.
	Deprecated	Box is checked if this property is deprecated.
	Deprecation Info	If the property is deprecated, this lists the currently supported property to use instead.

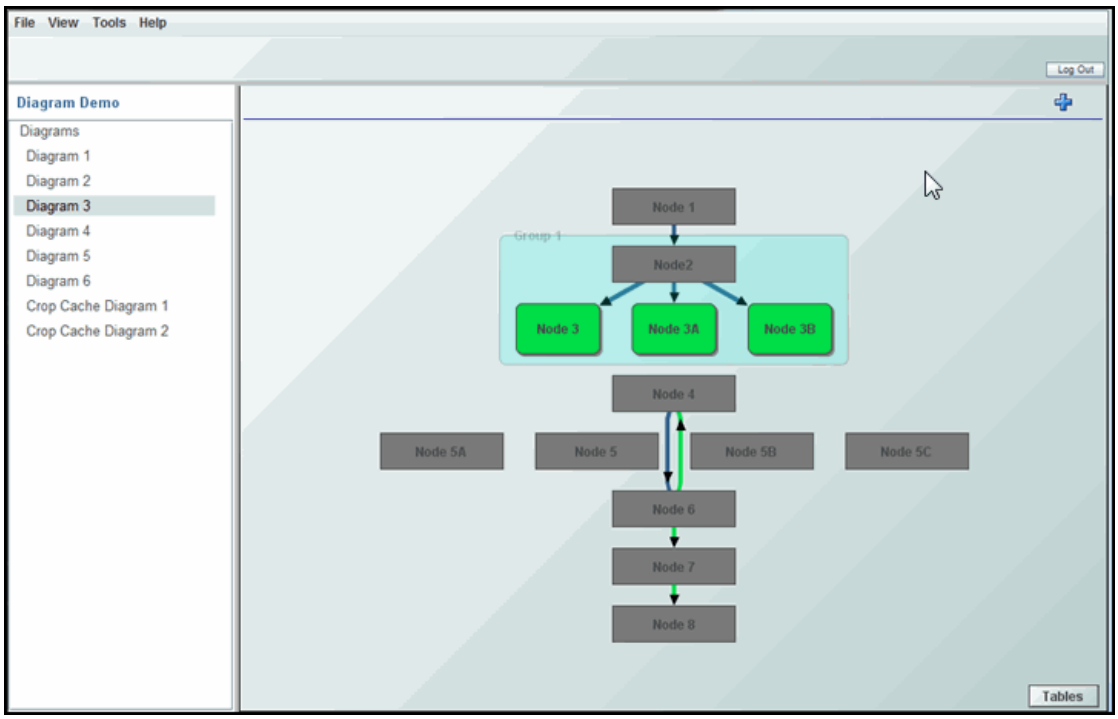
Diagram Views

The RTView Enterprise Monitor comes with the Diagram Generator, a feature that auto-creates diagram displays which mirror your system components and hierarchy.

When you monitor applications with complex architectures, it is often very beneficial to visualize the health of individual components within the context of the application hierarchy. This allows you to understand the complete architecture which is supporting the application as well as understand how individual components may affect the behavior of other components. RTView Enterprise Monitor allows you to manually construct such views, but at times this might become too time consuming to maintain if there are many applications to model or the architecture is constantly changing. The Diagram Generator is a feature which allows for the automatic generation of these application diagrams using application meta-data, without having to manually construct them.

The Diagram Generator, located under **CUSTOM Tab/Diagram Views**, is comprised of several displays which you use to create your diagram displays.

This section includes the following Diagram Generator instructions and displays:



The Diagram Generator feature uses a database table of your nodes and database table of your links to create the diagrams. For example, the diagram below was generated from the tables shown next to it. The order of the nodes in the table controls the order of the nodes in the diagram.

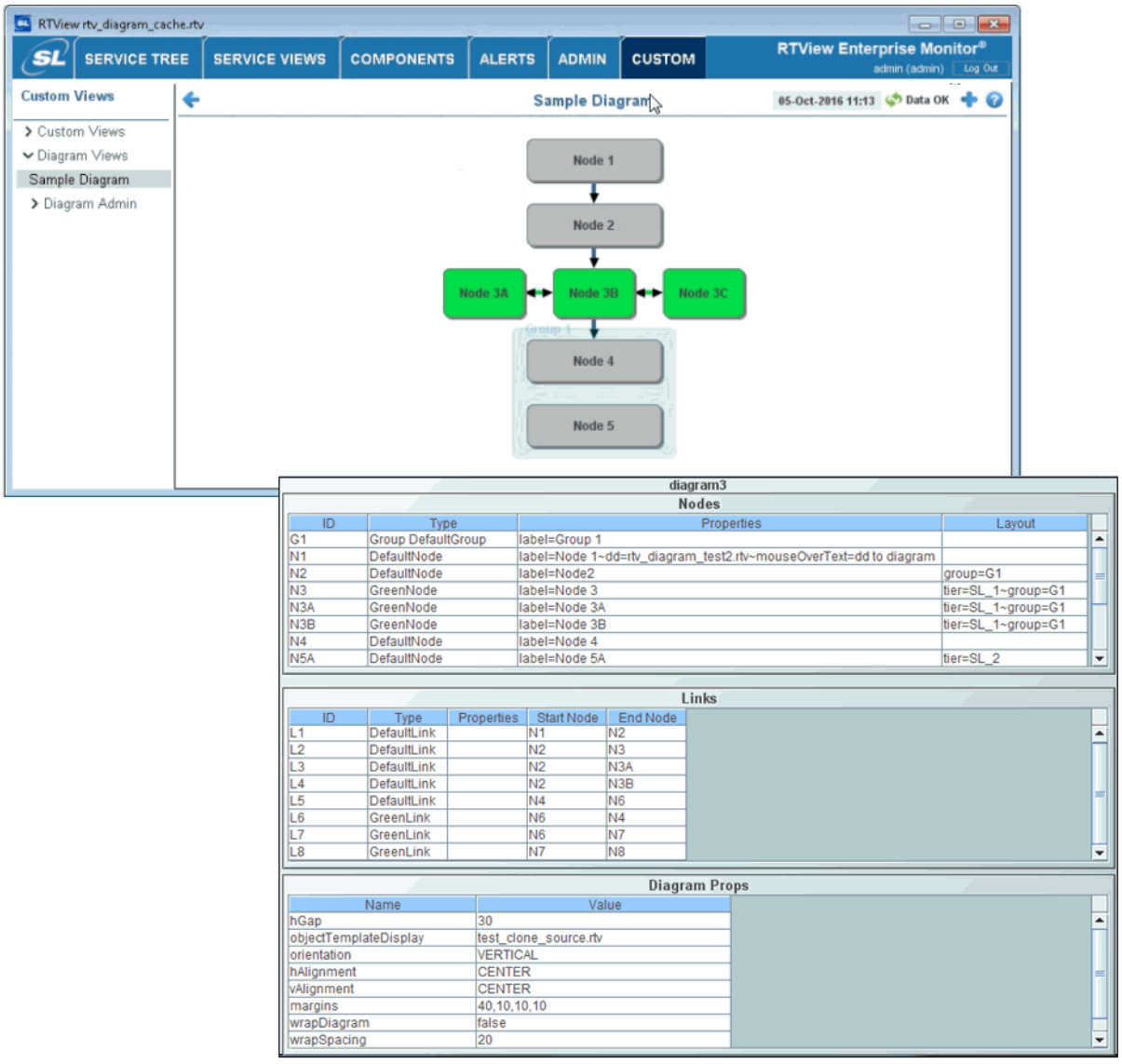


Diagram Generator Demo

You can view a demo of the Diagram Generator, located under **CUSTOM/Sample Diagram**. This demo shows a simple diagram as well as the UI used to construct diagrams. The icons in the sample diagram come from a sample object template display. When creating diagrams for your project, you will create an object template display with icons that are appropriate for the process you are diagraming.

Steps to Create a Diagram Display

To create a custom diagram display using the Diagram Generator:

1. If you are using EM 3.5 or earlier, see **Upgrading the Monitor**. If you are using EM 3.6+, the **emsample** project is already configured to include the Diagram Generator and no setup is required.

2. "Create an Object Template Display" using the Display Builder. This step is optional. The object template display serves as your palette of objects (icons, links, shapes, and so forth) for building your diagrams. A sample object template display is built-in that can be used for simple diagrams and to demo the Diagram Generator. When creating diagrams for your project, you should create an object template display with icons that are appropriate for the process you are diagraming. If you are going to create a custom object template display, you must create it and add it to the Diagram Properties before defining nodes and links for your diagrams.

3. In the RTView Enterprise Monitor, open the "Node Administration Display" display, located under **CUSTOM Tab/Diagram Views/Diagram Admin** and add nodes to your diagram.

4. Open the "Link Admin Display" display and add links to your diagram.

5. Open the "Diagram Properties Admin Display" display and format the layout of your diagram display.

6. "Add Diagrams to your Project" to publish the diagram display.

7. "View Diagram Displays" to confirm settings.

8. "Optional Diagram Display Customizations": These customizations are not required.

Create an Object Template Display

This section describes how to create an object template display using the Display Builder. The object template display serves as your palette of objects (icons, links, shapes, and so forth) that you use to build your diagrams.

Assumptions:

- You have familiarized yourself with the "Diagram Generator Demo".
- You are familiar with using the Display Builder.

1. Create a display in the Display Builder that contains all the icons you want to use for the nodes, links and icons in your diagram displays.

2. For each object, specify a user friendly name in the **objName** field (it must be alpha-numeric but can contain under-bar). The **objName** field will be referenced in the **Type** field when you add nodes and links to your diagram. You will be able to override any of the properties by specifying them in the **Properties** field.

3. Save this file to the **RTViewEnterpriseMonitor/emsample/servers/central** directory.

4. Use the "Diagram Properties Admin Display" to set the **objectTemplateDisplay** property to the name of this file.

For assistance, contact Technical Support.

Proceed to "Node Administration Display".

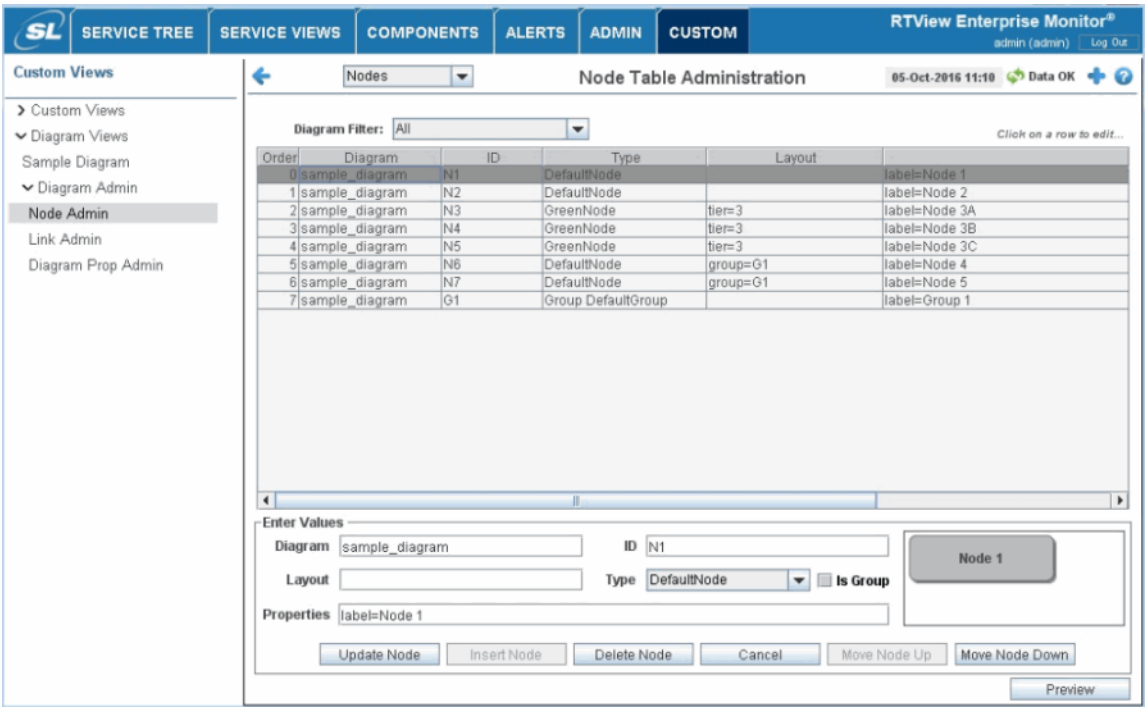
Node Administration Display

Use this Diagram Generator display to create new diagrams and add or edit nodes in existing diagrams. Diagram definitions are stored in the DIAGRAMS database.

To define a new diagram, enter a new diagram name in the **Diagram** field, then fill in the fields in the **Enter Values** section to define the first node in the diagram.

To add a new node to a diagram, enter the name of the diagram to which you want to add the node, then fill in the fields in the **Enter Values** section, described below, and click **Add Node**.

To edit an existing node, select it in the table to populate the **Enter Values** fields at the bottom of the display, make your changes and click **Update Node**.



For each node in your diagram display, fill in the following fields:

Diagram	Required. The name of the diagram. **Note:** The diagram name GLOBAL is reserved for global properties in Diagram Props. The value in this column will be used to identify this diagram when you add this diagram to the navigation tree.
ID	Required. Must be unique within the diagram across nodes and links. Use this value in the Link Node1 and Node2 fields to refer to this node. The value must be alpha-numeric but may contain underbars (_).
Layout	Optional. One or more layout options for the icon. All icons with the same tier=value will be positioned in a single tier (row if the diagram property orientation=VERTICAL, column if orientation=HORIZONTAL). Each tier is centered along the diagram's centerline unless only one node in a tier has a link to another tier. In that case the node with the link is centered on the diagram's centerline. All icons with the same group=value will have a group object drawn behind them. The group value must be the ID of a node whose type is defined as a Group. To specify both a tier and a group, separate them with a ~. For example: **tier=T1~group=G1**

Type	Required. The name of the object in the objectTemplateDisplay file to use as the icon for this node. When you select a type from the list, you will see a preview of it to the right of the Type field.
Is Group	Optional. Check to specify that this node is a Group. Groups are only drawn if at least one node references them in their Layout field. They are drawn behind the nodes that reference them and their extent is set to the combined extent of all nodes that reference them. In wrapped diagrams, if the nodes in the group break across multiple tiers, the group object will be broken across the tiers as well.
Properties	Optional. One or more properties to set on the node icon delimited by ~. Syntax is **propName=propVal~propName2=otherPropVa**l. Note that property values must be specified as they are saved in **.rtv** files, which is not necessarily the same as they are shown in the **Object Properties** dialog in the Display Builder. In addition to properties on the RTView object, you can also specify hGap or vGap to override the diagram property hGap or vGap for this object. The hGap is applied to the left of an object and the vGap is applied above an object. For example, you must specify the font index instead of the font name for font properties, and the color index instead of the color for color properties.

Use the following buttons to save changes to the database and to preview the diagram display (after the changes have been saved to the database):

Update Node	Save changes to the selected node to the database. This is only enabled if the selected node is already in the database.
Insert Node	Insert a new node to the database. This is only enabled if the selected node is not in the database.
Delete Node	Delete the selected node from the database. This is only enabled if the selected node is already in the database.
Cancel	Clear the Enter Values fields.
Move Node Up	Move the selected node up in the diagram. Nodes are laid out in the diagram according to their order.
Move Node Down	Move the selected node down in the diagram. Nodes are laid out in the diagram according to their order.
Preview	Open a window showing the selected diagram as it is saved in the database. Changes to the diagram will not update an open preview window. To update the diagram in the preview window, close and reopen the window.

Link Admin Display

Use this display to add or edit links in your diagrams. To add a link, enter the name of the diagram containing the nodes you want to link, then fill in the fields below for each link you want to add. To edit an existing link, select it in the table.

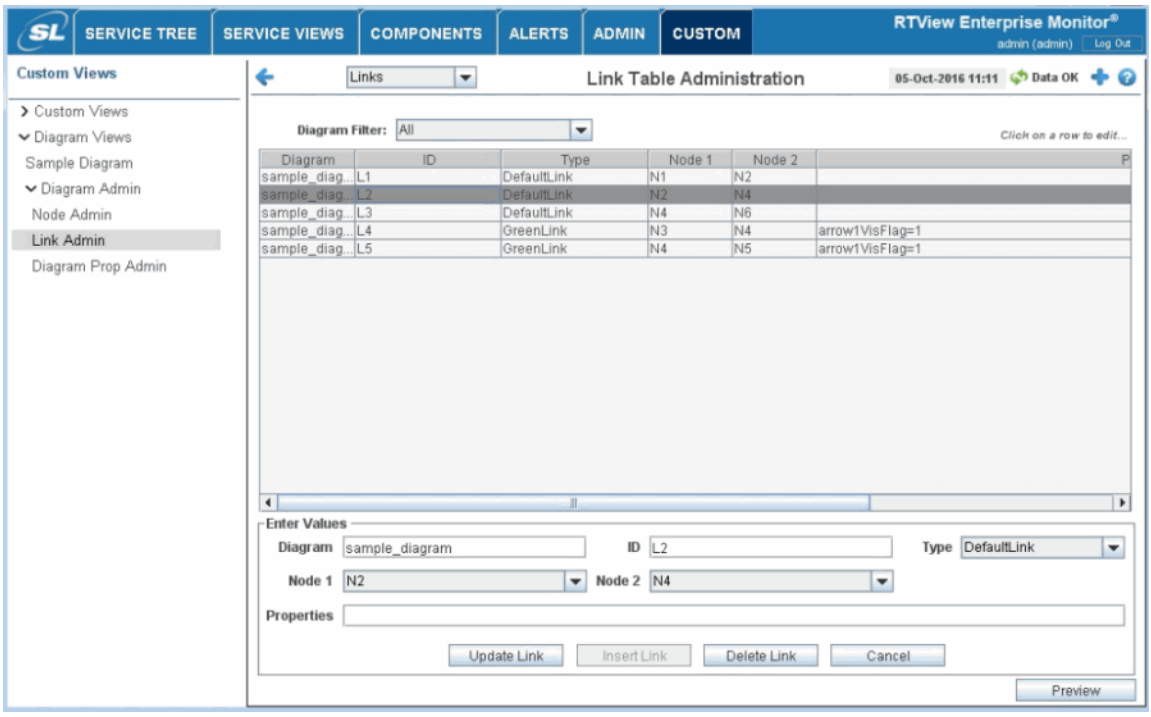


Diagram	Required. The name of the diagram. **Note:** The diagram name GLOBAL is reserved for global properties in Diagram Props.
ID	Required. Must be unique within the diagram across the node and link tables. Value must be alpha-numeric but may contain under-bars (_).
Type	Required. The name of the link object in the objectTemplateDisplay to use for this link.
Node 1	Required. The ID of the start node for the link.
Node 2	Required. The ID of the end node for the link.
Properties	Optional. One or more properties to set on the icon delimited by ~. Syntax is propName=propVal~propName2=otherPropVal

Use the following buttons to save link changes to the database and to preview the diagram display (after the changes have been applied to the database):

Update Link	Save changes to the selected link to the database. This is only enabled if the selected link is already in the database.
Insert Link	Insert a new link to the database. This is only enabled if the selected link is not in the database.
Delete Link	Delete the selected link from the database. This is only enabled if the selected link is already in the database.

Cancel	Clear the **Enter Values** fields.
Preview	Opens a window showing the selected diagram as it is saved in the database. Changes to the diagram will not update the preview window. To update the preview, close and reopen it.

Diagram Properties Admin Display

Use this Diagram Generator display to configure "Diagram Properties" for your diagrams. Diagram properties are settings that are applied to the diagrams as a whole, such as orientation, alignment and spacing. Properties that use GLOBAL for the diagram name are applied to all diagrams. You can override a diagram property for a single diagram by using the name of that diagram in the **Diagram** field.

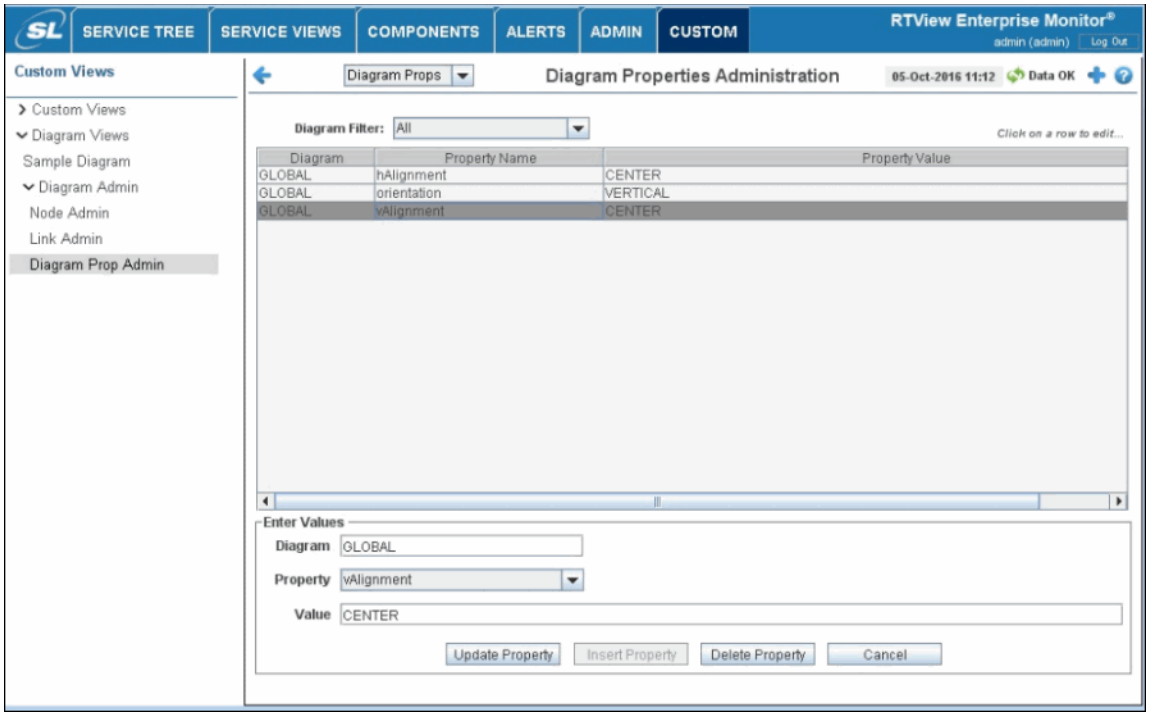


Diagram	Required. The name of the diagram or GLOBAL if it should be applied to all diagrams.
Property	Required. The name of the property.
Value	Required. The value of the property.

Use the following buttons to save diagram property changes to the database:

Update Property	Save changes to the selected property to the database. This is only enabled if the selected property is already in the database.
Insert Property	Insert a new property to the database. This is only enabled if the selected property is not in the database.
Delete Property	Delete the selected property from the database. This is only enabled if the selected link is already in the database.
Cancel	Clear the Enter Values fields.

Diagram Properties

Use the following properties in the **Property/Value** fields in the "Diagram Properties Admin Display" display to configure diagram display.

Property Name	Description
hGap	Horizontal space between nodes in pixels. This can be overridden per-node in the node properties. Default is 28.
vGap	Vertical space between nodes in pixels. This can be overridden per-node in the node properties. Default is 22.
objectTemplateDisplay	The name of the file containing the nodes and links to use for the diagrams. The name of each node and link in this file corresponds to the name in the Type field of the node and link tables.
orientation	The orientation of the diagram. Default is VERTICAL which lays the nodes out in the order specified from the top of the display to the bottom with nodes in the same tier laid out left to right. HORIZONTAL lays out the nodes in the order specified from left to right with nodes in the same tier laid out top to bottom.
hAlignment	Controls the horizontal alignment of the diagram in the available space. Default is CENTER which centers the diagram in the available space. Options are: LEFT – Position the diagram at the left of the available space. CENTER – Position the diagram in the center of the available space. CENTERLINE – Position the centerline of the diagram in the center of the available space. This option is only valid if orientation=VERTICAL and wrapDiagram=false. If orientation=HORIZONTAL or wrapDiagram=true, CENTER will be used instead. RIGHT – Position the diagram at the right of the available space.
vAlignment	Controls the vertical alignment of the diagram in the available space. Default is CENTER which centers the diagram in the available space. Options are: TOP – Position the diagram at the top of the available space. CENTER – Position the diagram in the center of the available space. CENTERLINE – Position the centerline of the diagram in the center of the available space. This option is only valid if orientation=HORIZONTAL and wrapDiagram=false. If orientation=VERTICAL or wrapDiagram=true, CENTER will be used instead. Bottom – Position the diagram at the bottom of the available space.
wrapDiagram	If true, the diagram wraps into columns if orientation=VERTICAL or rows if orientation=HORIZONTAL. Default is false.
wrapSpacing	The number of pixels between columns/rows if wrapDiagram = true. Default is 20.
margins	Sets the minimum amount of space between the edge of the display and the diagram in pixels. You can either specify one value that will be used for all 4 margins or a comma separated list of 4 values in this order: top, left, bottom, right. Default is 40,10,10,10 which sets the top margin to 40 pixels and the left, bottom and right margins to 10 pixels.
deleteSavedDiagramNodes	This option applies to diagrams that were manually editED as described in "Edit Diagrams in the Display Builder". If true, delete any diagram nodes that were saved to the display in the Display Builder. Default is false.

Proceed to "Add Diagrams to your Project" to publish your displays.

Add Diagrams to your Project

This section describes how to add diagrams to your EM project. After you define one or more diagrams as described in "Node Administration Display", you can add a display for each diagram to the EM navigation tree. The navigation tree entry for each diagram should look like this:

<node label="Diagram 1" display="rtv_diagram_cache" **subs**="$diagramName:diagram1 $diagramTitle:'Diagram 1'"/>

The value for **label** is the label to use in the navigation tree. The value for **display** is **rtv_diagram_cache** unless you have a custom diagram background as described in "Customize the Diagram Background Display", in which case you should use the name of that display instead.

The **subs** values are as follows:

- **$diagramName** – Set this to the name of your diagram. This corresponds to the value in the DIAGRAM column in the database.
- **$diagramTitle** – Set this to the value to use for the title label in the diagram display.

Note: You must use single quotes around any substitution values that contain spaces.

Proceed to "View Diagram Displays".

View Diagram Displays

After you add one or more diagram displays to your EM project as described in the "Add Diagrams to your Project", open them in the navigation tree. Note that:

- Diagram definitions are only read when the display is opened. If you edit the diagram definition for an open diagram display, you must re-open the diagram display to see the changes.
- When you resize the window, the diagram display auto-resizes to fill the available space, and also positions the diagram in the available space according to the **margin** and **alignment** Diagram Properties. If you resize the window smaller than 800x576 or the area required to display the diagram (whichever is larger) scrollbars auto-appear.
- Diagrams with the **wrapDiagram** Diagram Property set to true reposition nodes to use the available space when the window is resized.

Optional Diagram Display Customizations

This section includes:

- "Edit Diagrams in the Display Builder":
- "Customize the Diagram Background Display":
- "Customize the Diagram Database":

Edit Diagrams in the Display Builder

To manually edit your generated diagram, use the Display Builder to open the diagram in the **RTViewEnterpriseMonitor/emsample/servers/central** directory.

Note: If you created a custom diagram background display as described in "Customize the Diagram Background Display", use the name of that file instead of **rtv_diagram_cache** in the instructions below. Run the Display Builder in the **RTViewEnterpriseMonitor/emsample/servers/central** directory as follows (where **diagramName** is the name of the diagram you want to modify):

---

runb_appmon –sub:$diagramName:**diagramName** rtv_diagram_cache

Edit the diagram and save the display as **rtv_diagram_cache_diagramName**, replacing the **diagramName** with the name of your diagram. Update the corresponding navigation tree entry to use the new display name.

Important: Do NOT to save these changes to **rtv_diagram_cache.rtv** or these nodes will show up in all of your diagrams.

When you view this diagram, any saved diagram nodes and links that are no longer in the diagram definition will be removed and any new nodes in the diagram definition will be added to the bottom left corner. You need to position those new nodes by hand in the Display Builder. The Properties from the database will be applied to diagram nodes that were saved in the Display Builder. The diagram will still be positioned in the Display Viewer according to the **alignment** and **margin** Diagram Properties when the window is resized. However, for diagrams where **wrapDiagram** is set to true, the diagram will not be re-wrapped to fit the available space.

Customize the Diagram Background Display

To create a custom version of the diagram background display, open **rtv_diagram_cache.rtv** in the Display Builder from the **central** directory of your EM project as follows:

runb_appmon rtv_diagram_cache

Modify the display and save it under a new name in the **central** directory. The name must start with **rtv_diagram**. When adding diagram displays to the navigation tree as described in "Add Diagrams to your Project", use the name of this file instead of **rtv_diagram_cache**.

When modifying the display, use the following guidelines:

- Do not change the **Resize Mode**. It must be set to **Crop**.
- When you resize this display in the viewer or thin client, objects will be positioned according to their anchor properties.
- Do not remove the **dg_include_cache.rtv** entry from the list of included files. This file reads the diagram data and creates the data structures required to generate the diagrams.

Customize the Diagram Database

Diagram definitions are stored in the DIAGRAM database. By default, an HSQLDB database is used. Schemas for all supported databases are provided in **RTVAPM_HOME\dg\dbconfig**. To change to another supported database, use the schema for your database to create the diagram tables and add this property to the central properties file for your project (**central.properties** in **emsample**) replacing the user name, password, URL and driver with the appropriate information for your database:

ConfigCollector.sl.rtview.sql.sqldb=DIAGRAMS sa - jdbc:hsqldb:hsql://localhost:9099/rtvdiagram org.hsqldb.jdbcDriver - false true

CHAPTER 6 Connector for Oracle Enterprise Manager

RTView Enterprise Monitor® uses Solution Packages to gather and process performance metrics from a wide variety of different technologies, including Oracle Enterprise Manager (OEM).

The Connector for Oracle Enterprise Manager (OEM) allows RTView Enterprise Monitor® to connect to existing deployments of OEM and collect performance data for databases and hosts (physical servers) that have been designated as OEM targets.

When paired with our Oracle Database and Host Monitor Solution Packages, these performance metrics are then stored in the RTView Enterprise Monitor caches and available for summary views detailing the health of your OEM managed hosts and databases, including drill down views, correlation with services and other technologies, historical analysis, capacity planning and alert management.

Extend OEM Value to Operations and Application Support Teams

While OEM is most often used by Database and Oracle support teams for managing database deployments and monitoring, RTView Enterprise Monitor is used for Operations and Application Support teams, providing an end-to-end view of heterogeneous environments and how the health of multiple resources and supporting technologies affect the performance and availability of services and applications.

View Aggregated Host Information from OEM Managed Hosts

RTView Enterprise Monitor can incorporate and normalize the host data, such as CPU and memory consumption, coming from disparate host monitoring solutions, including OEM for Oracle deployments, so that the physical resources of your entire organization can be viewed together and show how the health of these resources are affecting the performance of services or supporting technologies.

Display Database Alerts Most Useful to Operations and Application Support Teams

RTView Enterprise Monitor allows Operations and Application Support staff to eliminate much of the "noise" found in most OEM environments by choosing only the alert events that indicate a situation that would directly affect the availability or performance of their services. For example, read or write rates that are too high, connection failures, deadlocks, or high space usage, which might immediately affect or endanger the performance of their services.

Once a situation has been identified within RTView Enterprise Monitor, users can then immediately see the associated services that soon may be affected and drill down to correlation and historical analysis screens which can identify the trends and potential failure points for the database.

This section includes:

Configuration Parameters You Need

To configure the Connector for Oracle Enterprise Manager make a note of the following values, then follow instructions in "Properties File Configuration," next. You will replace all references to **PackageName**, **ServerDirectory**, and **AlertPrefix** with the following values:

- **PackageName=oemcon**
- **ServerDirectory**=**miscmon**

Properties File Configuration

This solution package is not included in the RTView Configuration Application and must be configured using properties files as described below. For more information about properties files, see "Properties".

1. Locate **RTVAPM_HOME/<PackageName>/conf/sample.properties**, copy it to **RTViewEnterpriseMonitor/emsample/servers/<ServerDirectory>** and give it a name that is meaningful to you. For example, you might name the file **myPackageName.properties**.

2. To add properties to the **myPackageName.properties** file you just created, follow the instructions in the "Configure Data Collection" section below, then return here.

3. Navigate to the **RTViewEntepriseMonitor/emsample/servers** directory and open the **rtvservers.dat** file in a text editor. Locate the section for your ServerDirectory. For example, the WebLogic Data Server entry, by default, is the following:

WLM

wlm ./wlm dataserver rundata

#wlm ./wlm historian runhist -ds

4. Make the following entry to point RTView Enterprise Monitor to the **.properties** file you just created: **-properties:myPackageName** For example, for the WebLogic Data Server we enter:

WLM # wlm ./wlm dataserver rundata -properties:myPackageName

#wlm ./wlm historian runhist -ds

5. **Save** the file.

6. Return to "Add Connections".

Configure Data Collection

See the comments and sample properties in the **RTVAPM_HOME\oemcon\sample.properties** file, for instructions on configuring your connection properties.

Troubleshoot

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

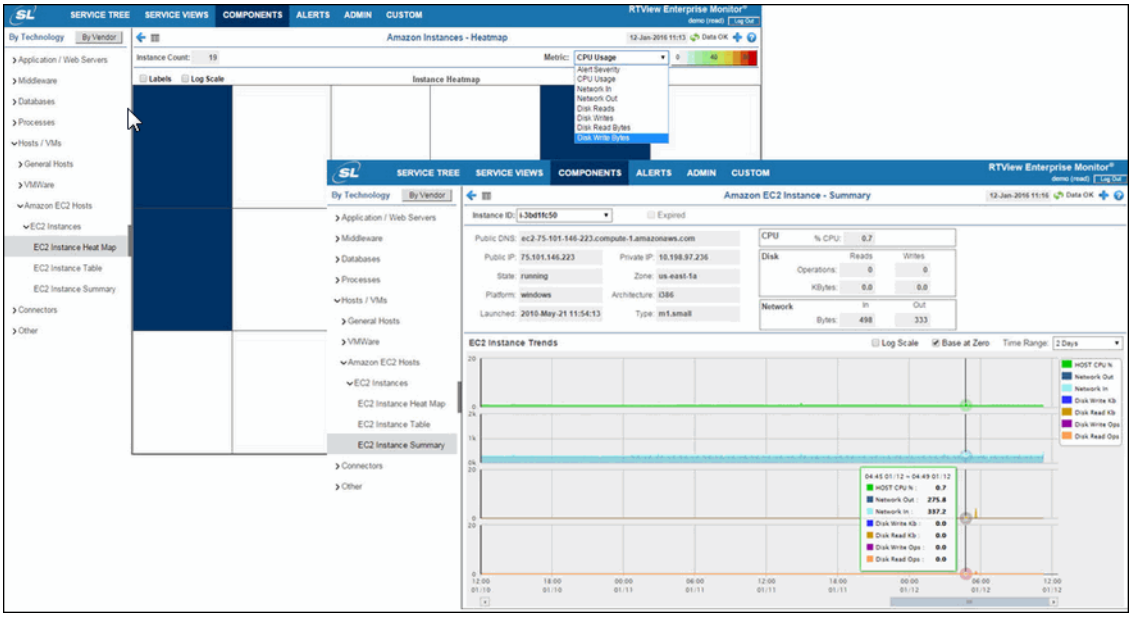
which are located in the **RTViewEntepriseMonitor/emsample/servers/miscmon/logs** directory.

CHAPTER 7 Solution Package for Amazon Web Services

RTView Enterprise Monitor is an end-to-end monitoring platform that uses Solution Packages to gather and process performance metrics from a wide variety of different technologies, including Amazon Web Services (AWS), to provide you with a holistic view of your application health state.

If you depend on applications and services that have components running on AWS, you are now able to monitor those AWS resources in real-time, automatically providing metrics such as CPU utilization, latency, and request counts. SL's RTView Enterprise Monitor is able to incorporate these metrics along with application performance data obtained from other sources, such as an application server or a message bus, into holistic, single-pane-of-glass views via a highly scalable and customizable platform.

The Solution Package for Amazon Web Services provides a high level Amazon Instance Heatmap for a complete view of your AWS infrastruction with drill down views to individual AWS instances.



Using the RTView Historian, Amazon AWS metrics are persisted to a database for trend analysis. Historical trends are then used to help define alert thresholds against Amazon AWS data which, when correlated with alerts from other application components through RTView Enterprise Monitor's alert management system, can help users identify the source of performance problems more quickly.

With the Solution Package for Amazon Web Services, you are able to drill down from a high level alert on a business service or application into the supporting Amazon AWS infrastructure to determine what is causing the alert and take corrective action. This service-centric approach makes it easy for application support teams to prioritize incidents based on the impact to the business.

Solution Packages include a data adapter, real-time memory cache, alert rule engine, pre-configured displays, and a data historian for persisting of real-time performance metrics.

See the **README.txt** file, located in the root directory of each Solution Package, for instructions about configuring and working with the Solution Package.

See **README_sysreq.txt** for the full system requirements for RTView®.

This section includes:

Configuration Parameters You Need

To configure the Solution Package for Amazon Web Services make a note of the following values, then follow instructions in "Configure Data Collection". You will replace all references to **PackageName**, **ServerDirectory**, and **AlertPrefix** with the following values:

- **PackageName=acwmon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Acw**

Configure Data Collection

To configure data collection, use the RTView Configuration Application to do the following in the order provided:

- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Set the poll rate interval for data updates and enable/disable autodiscover. This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

  Tip: Gray servers are either not running or not yet configured for RTView EM.

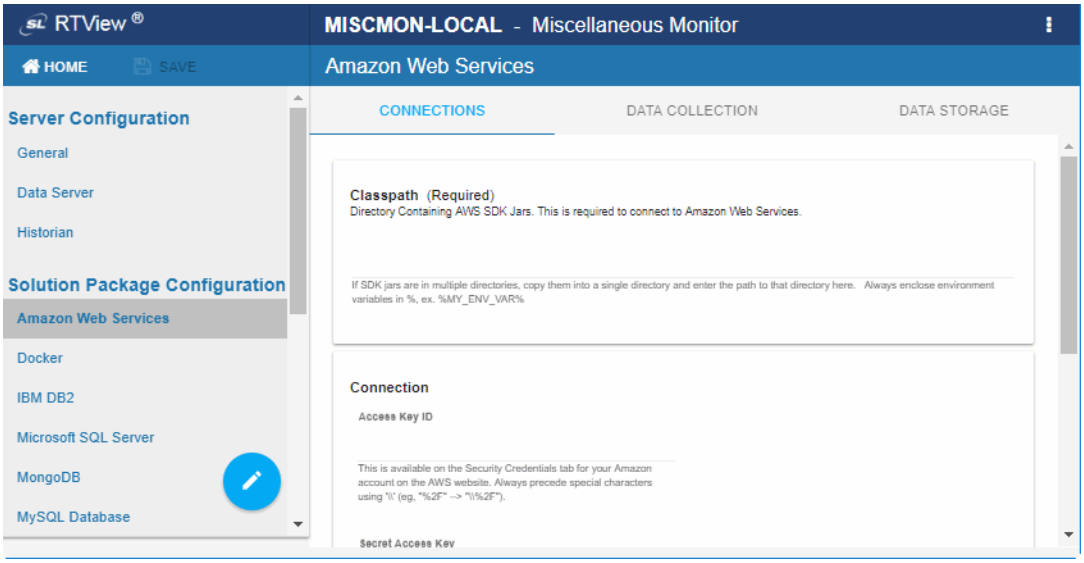
Configure CONNECTIONS

This step is required.

To configure data connections for the Solution Package for Amazon Web Services

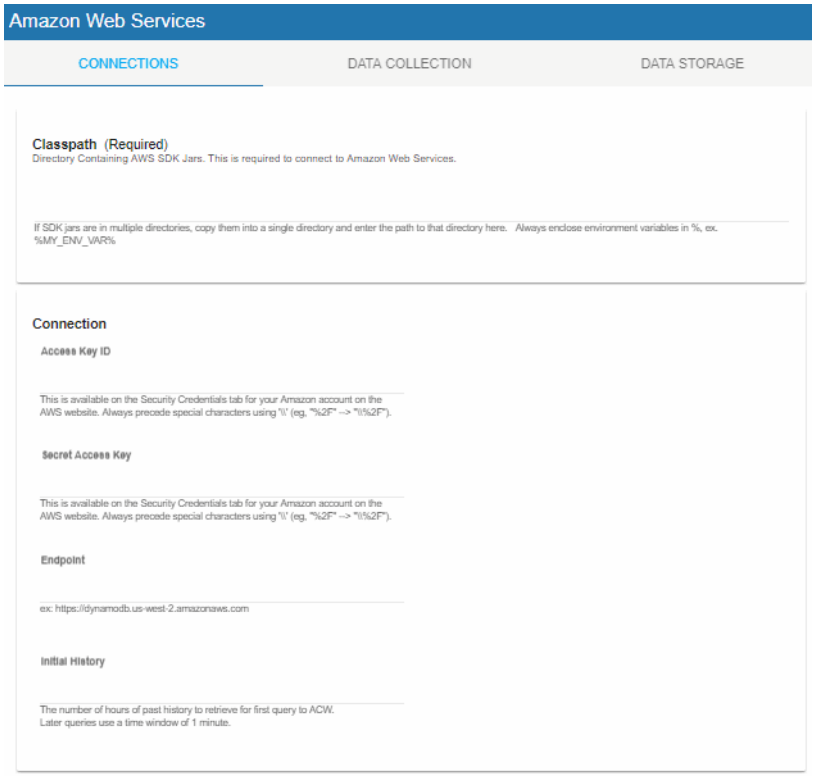
1. Copy the following jars from your AWS SDK to a single directory. The jars are:
   aws-java-sdk-*.jar
   commons-codec-*.jar
   httpclient-*.jar
   httpcore-*.jar
   commons-logging-*.jar
   jackson-annotations-*.jar
   jackson-core-*.jar
   jackson-databind-*.jar
   joda-time-*.jar

2. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Amazon Web Services** from the navigation tree (left panel).



3. On the **CONNECTIONS** tab, enter the following:

- **Classpath** - The correct full path to the directory you copied your AWS SDK jar files to. Use forward slashes in path name. For env vars, always use **%%** (including on UNIX).
- **Access Key ID**- Obtain this value by browsing to your Amazon account on the Amazon Web Services website > Security Credentials tab.
- **Secret Access Key**- Obtain this value by browsing to your Amazon account on the Amazon Web Services website > Security Credentials tab. "Quote" special characters using **\\ (eg, %2F --> \\%2F)**.
- **Endpoint** - The fully-qualified DNS name for an Amazon service (CloudWatch) that provides monitoring data. For a list of endpoints for Amazon CloudWatch refer to **https://docs.aws.amazon.com/general/latest/gr/rande.html**.
- **Initial History**- The number of hours of past history to retrieve for first query to ACW. The default is 2 hours. Subsequent queries use a time window of 1 minute.



4. **Save** your settings.

Proceed to "Setup DATA COLLECTION," next (you can optionally do this later).

Or, return to "Add Connections".

Setup DATA COLLECTION

This step is optional.

Use the RTView Configuration Application to set the **Poll Rates** (query interval, in seconds) that will be used to collect the metric data.

To configure data collection for the Solution Package for Amazon Web Services:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Amazon Web Services** from the navigation tree (left panel).
2. On the **DATA COLLECTION** tab enter in the **Poll Rate** field, enter the time interval, in seconds, to check for data updates. The default is 30 seconds. The AwsEc2InstanceStats andAwsEc2Instances caches are impacted by this field.
3. **Save** your settings.

Proceed to "Configure DATA STORAGE," next (you can optionally do this later).

Or, return to "Add Connections".

Configure DATA STORAGE

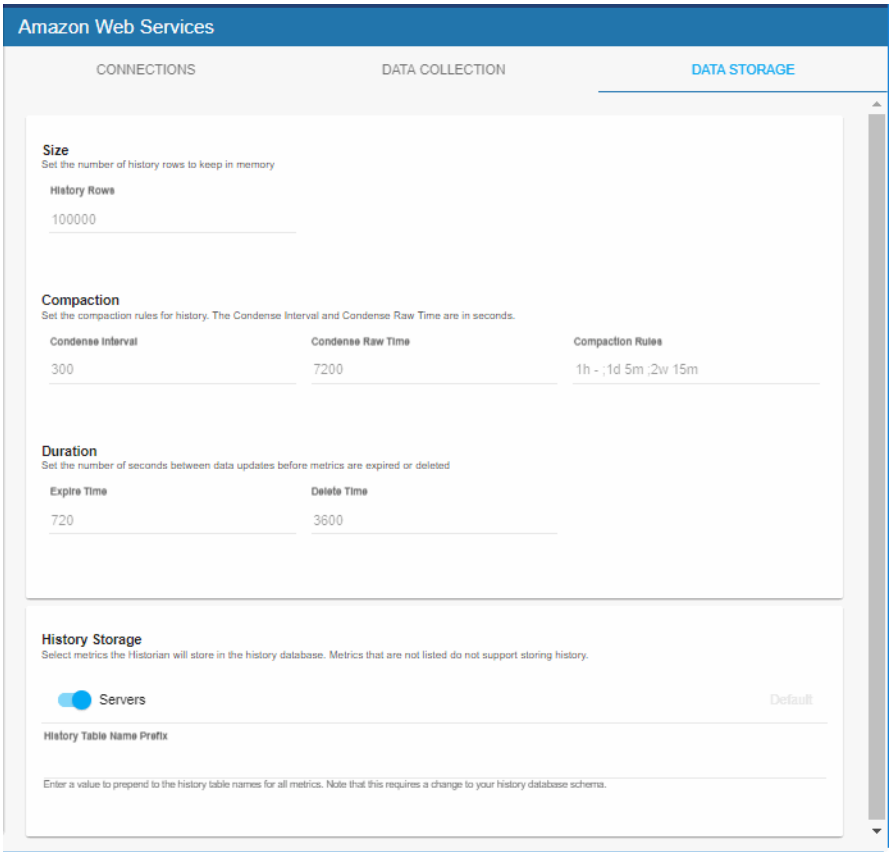
This step is optional.

Use the RTView Configuration Application to configure data storage for the Solution Package for Amazon Web Services. These instructions show how to configure how your Amazon Web Services data is stored. This includes both in-memory History data and on-disk History data. You can set size limits, storage duration (when to expire or remove data) and data compaction intervals (rules for reducing/increasing the amount of data stored).

To configure data storage for the Solution Package for Amazon Web Services:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Amazon Web Services** from the navigation tree (left panel).

2. Select the **DATA STORAGE** tab.



3. Under **Size**, make the following entries:

   History Rows Large: The maximum number of table rows to keep in he History table. If set to **0**, no History table is created. The AwsEc2InstanceStats cache is impacted by this field.

4. Under **Compaction**, make the following entries:

   Condense Interval: The number of seconds to wait to condense cached history data. The default is 300 seconds. The AwsEc2InstanceStats cache is impacted by this field.

   Condense Raw Time: The number of seconds to wait to condense data in the cache history table. The default is 7200 seconds. The AwsEc2InstanceStats cache is impacted by this field.

   Compaction Rules: Specifies the frequency for condensing data. The AwsEc2InstanceStats cache is impacted by this field.

5. Under **Duration**, make the following entry:

   Expire Time: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The default is 720 seconds. The caches impacted by this field are AwsEc2InstanceStats and AwsEc2Instances.

   Delete Time: The number of seconds to wait for a data update before cached history data is removed from displays. The default is 3600 seconds. The caches impacted by this field are AwsEc2InstanceStats and AwsEc2Instances.

6. Under **History Storage**, toggle **Servers** to enable/disable the Historian to store this data for the Solution Package. The AwsEc2InstanceStats cache is impacted by this selection.

7. For **History Table Name Prefix**: Enter a prefix that you will recognize to prepend to the history data table names for these metrics.

   The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under RTVAPM_HOME/aws/dbconfig and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

8. **Save** your settings (choose  if **SAVE** is not visible, or expand your browser width).

9. Repeat this step for each Amazon Web Service instance you wish to monitor.

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Amazon EC2 Hosts Displays/Views

The following Solution Package for Amazon Web Services Views (and associated displays) can be found under **Components tab > Hosts/VMs > Amazon EC2 Hosts** after the Solution Package for Amazon Web Services is installed. For additional details, see vendor documentation.

This section contains the following:

EC2 Instances

Displays in this View are:

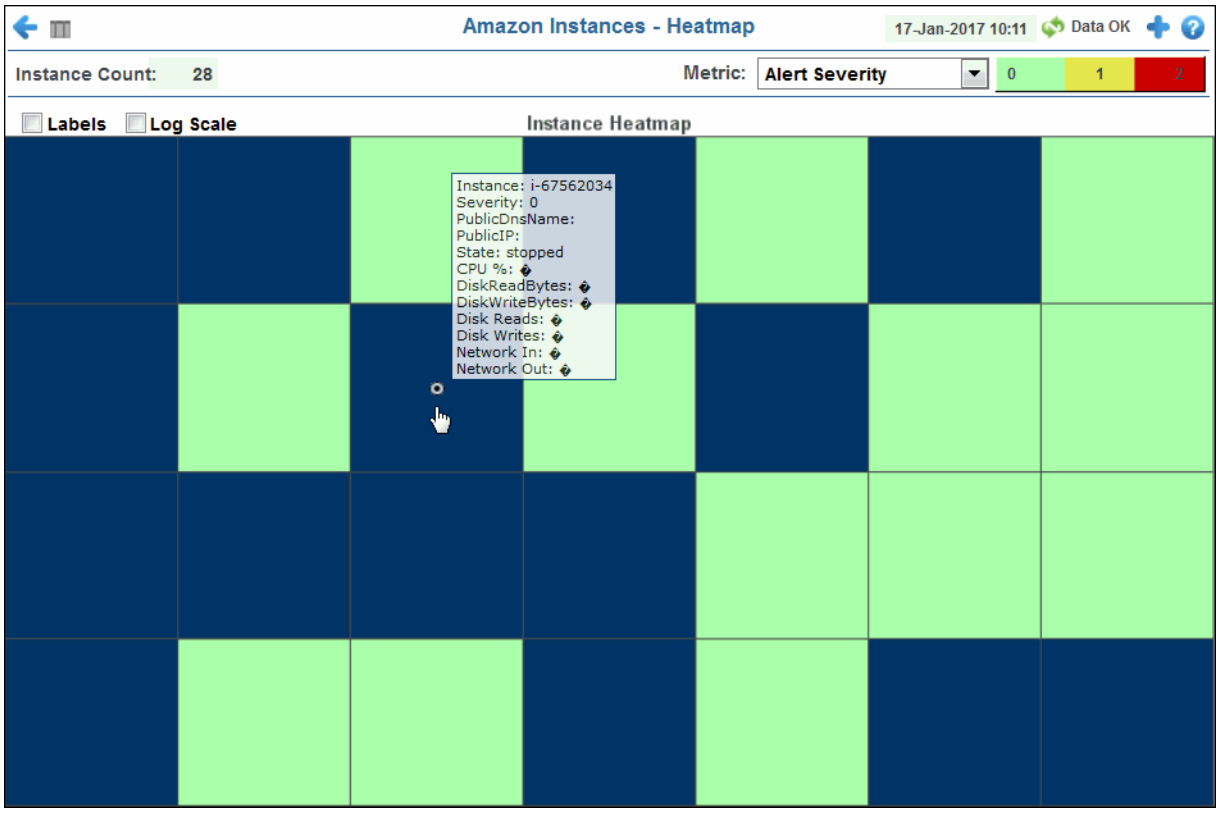
Amazon EC2 Instance Heatmap

View the most critical alert states associated with your Amazon EC2 instances. Use this display to quickly identify instances with critical alerts. Compare heap usage, disk reads and writes and network throughput rates across all monitored instances.

Each rectangle in the heatmap represents an Amazon EC2 instance. The rectangle color indicates the most critical alert state associated with the instance for the selected **Metric**.

Choose a different metric to display from the **Metric** drop-down menu. Mouse over a rectangle to see additional metrics, including disk reads and writes, CPU utilization and network in/out rates. By default, this display shows **Alert Severity**.

Use the **Labels** check-box ☑ to include or exclude labels in the heatmap. Click a rectangle to drill-down and view instance details in the "Amazon EC2 Instance Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

Instance Count:	The total number of instances currently shown in the display.
Labels:	Select to show labels in the display.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

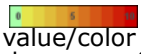
Metric Choose a metric to view in the display.

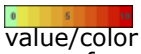
Alert Severity The maximum level of alerts in the rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

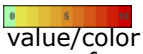
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

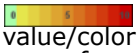
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

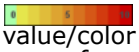
Green indicates that no metrics have exceeded their alert thresholds.

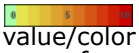
CPU Usage The percent (%) CPU used. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

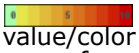
Network In The number of incoming bytes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

Network Out The number of outgoing bytes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

Disk Reads The number of completed disk reads. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

Disk Writes The number of completed disk writes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

Disk Read Bytes The amount of disk reads, in bytes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

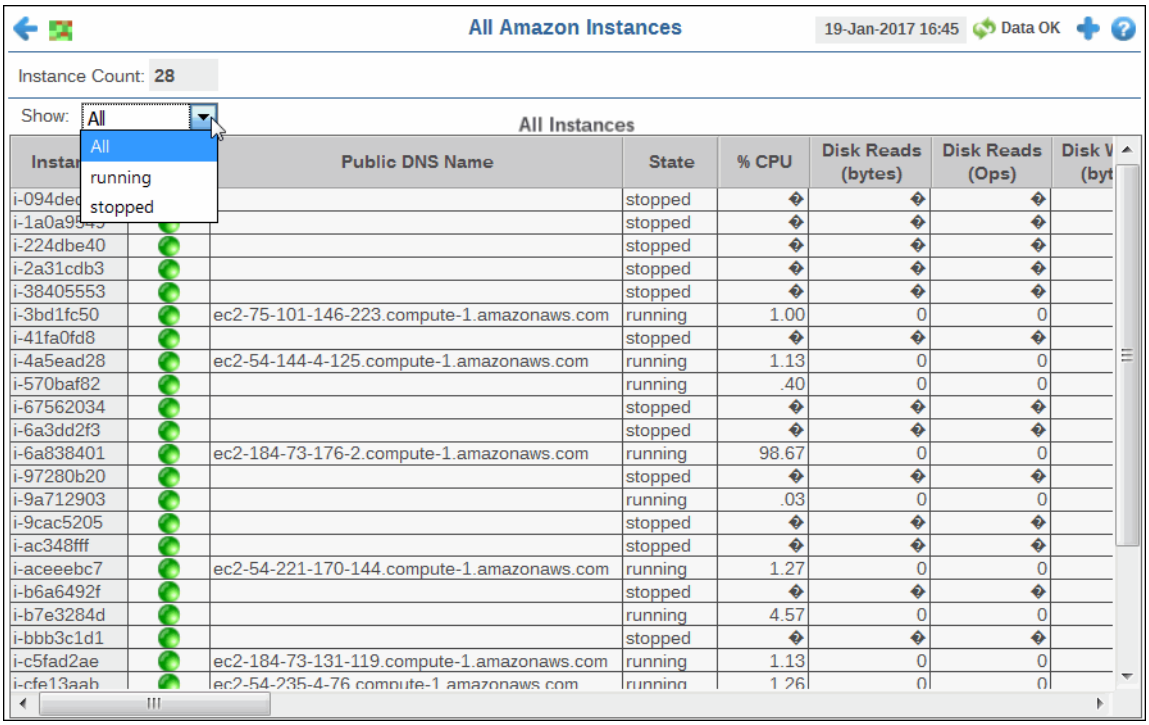
Disk Write Bytes The amount of disk writes, in bytes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average amount.

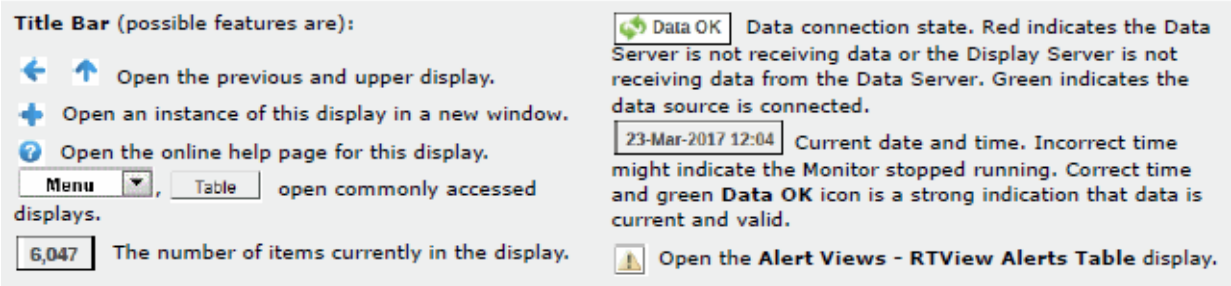
Amazon EC2 Instance Table

View detailed utilization data for all your Amazon EC2 instances in a tabular format. Use this display to see all available data for this View.

Each row in the table is a different Amazon EC2 instance. Use the **Show:** drop-down menu to only show instances that are **running** or **stopped**.

Click a column header to sort column data in numerical or alphabetical order. Drill-down and investigate by clicking a row to view details for the selected application in the "Amazon EC2 Instance Summary" display.





.

Instance Count: The number of instances in the table.

Filter By:
The display might include these filtering options:

Show: Choose to show **All** instances, **running** or **stopped** instances.

All Instances Table:
Each row in the table is a different instance.

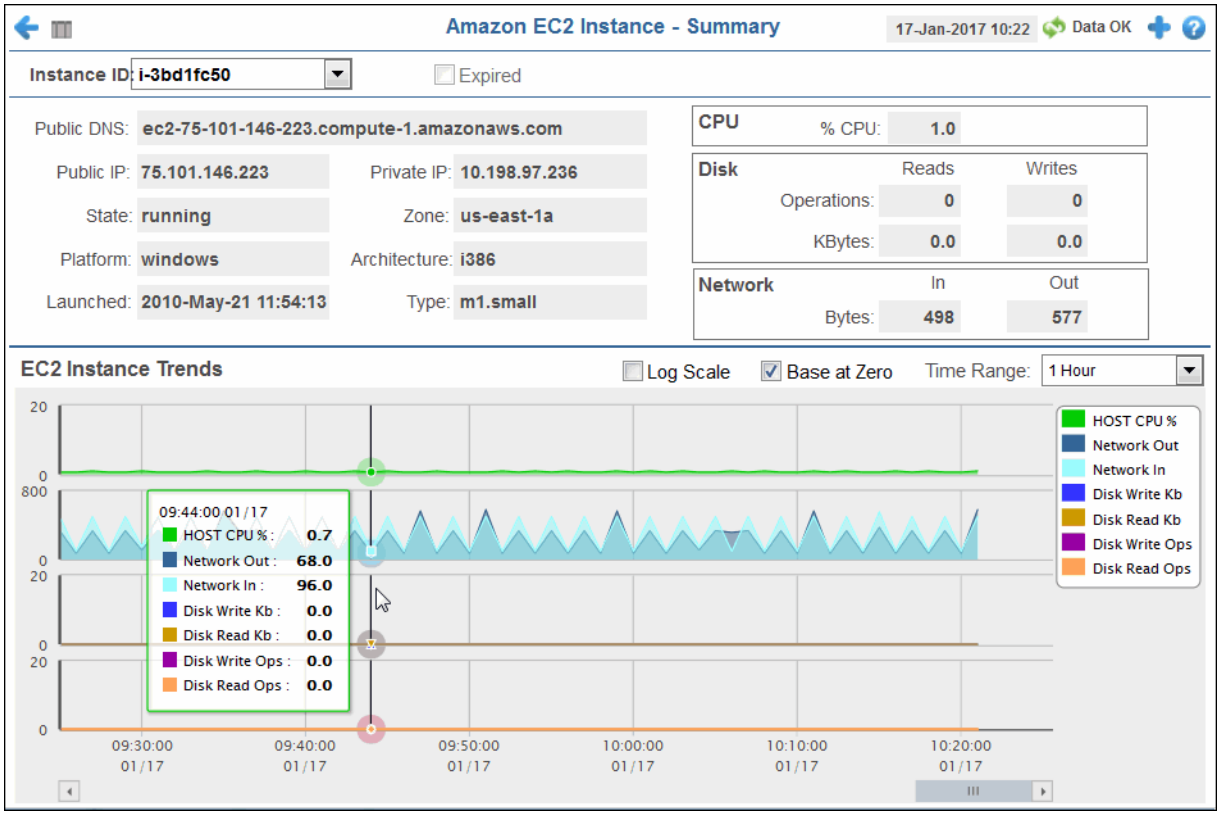
Instance The name of the instance.

Alert Severity	The maximum level of alerts in the row. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics exceeded their alert thresholds.
Public DNS Name	The public domain name of the instance.
State	The instance state (**running** or **stopped**).
%CPU	The percent CPU used.
Disk Reads (bytes)	The amount of disk reads, in bytes.
Disk Reads (Ops)	The number of disk reads (count).
Disk Writes (bytes)	The amount of disk writes, in bytes.
Disk Writes (Ops)	The number of disk writes (count).
Network In	The number of incoming bytes.
Network Out	The number of outgoing bytes.
Instance Type	The instance type (e.g. m1.small).
Private IP	The instance private IP address.
Public IP	The instance public IP address.
Platform	The instance operating system (e.g. windows).
Architecture	The instance architecture (e.g. i386).
Image ID	The unique identifier for the image. For details about Amazon EC2 data, refer to vendor documentation.
Root Device Name	The name of the root device. For details about Amazon EC2 data, refer to vendor documentation.
Root Device Type	The type of root device. For details about Amazon EC2 data, refer to vendor documentation.
Availability Zone	The id for the availability zone (e.g. us-east-1a). For details about Amazon EC2 data, refer to vendor documentation.
Group	For details, see vendor documentation.
Tenancy	For details about Amazon EC2 data, refer to vendor documentation.
Monitoring	Indicates whether monitoring is **enabled** or **disabled** for the instance.
Tags	For details, see vendor documentation.
State Transition Reason	For details, see vendor documentation.

LaunchTime	The date and time the instance was started.
Timestamp	The date and time the data was last updated.
Expired	When checked, data has not been received from this instance in the specified amount of time. The instance will be removed from the Monitor in the specified amount of time. The default setting is 60 seconds.

Amazon EC2 Instance Summary

This display provides detailed utilization metrics for a single Amazon EC2 instance. Use this display to investigate performance details and trends for an instance.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Instance ID:	Choose an instance to show data for in the display.

Fields and Data:
Data describes the selected host except where noted.

	Expired	When checked, data has not been received from this instance in the specified amount of time. The instance will be removed from the Monitor in the specified amount of time. The default setting is 60 seconds.	
	Public IP	The instance public IP address.	
	State	The instance state (**running** or **stopped**).	
	Platform	The instance operating system (e.g. windows).	
	Launched	The date and time the instance was started.	
	Private IP	The instance private IP address.	
	Zone	The date and time the instance was started.	
	Architecture	The instance architecture (e.g. i386).	
	Type	The instance type (e.g. m1.small).	
CPU	**%CPU**	The percent CPU used.	
Disk	**Operations**	**Reads**	The number of disk reads (count).
		Writes	The number of disk writes (count).
	KBytes	**Reads**	The amount of disk reads, in kilobytes.
		Writes	The amount of disk writes, in kilobytes.
Network	**Bytes In**	The number of incoming bytes.	
	Bytes Out	The number of outgoing bytes.	

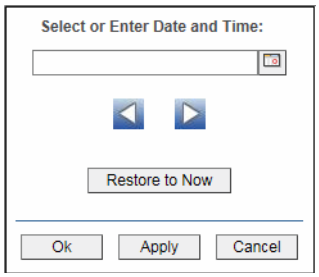
EC2 Instance Trends
Traces metrics for the selected instance.

- **Host CPU%**: The amount of CPU used, in percent.
- **Network Out:** The number of outgoing bytes.
- **Network In**: The number of incoming bytes.
- **Disk Write Kb**: The amount of disk writes, in kilobytes.
- **Disk Read Kb**: The amount of disk reads, in kilobytes.
- **Disk Write Ops:** The number of disk writes (count).
- **Disk Read Ops:** The number of disk reads (count).

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 8 Solution Package for Apache Kafka

The Solution Package for Apache Kafka is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your clusters, brokers, topics, zookeepers, producers, consumers, and the applications that rely on them.

The Monitor enables Apache Kafka users to continually assess and analyze the health and performance of their infrastructure and gain early warning of issues with historical context. It does so by aggregating and analyzing key performance metrics across all engines and containers and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

This section includes:

Configuration Parameters You Need

To configure the Solution Package for Apache Kafka, make a note of the following values:

- **PackageName=kafkamon**
- **ServerDirectory**=**kafkamon**
- **AlertPrefix**=**Kafka**

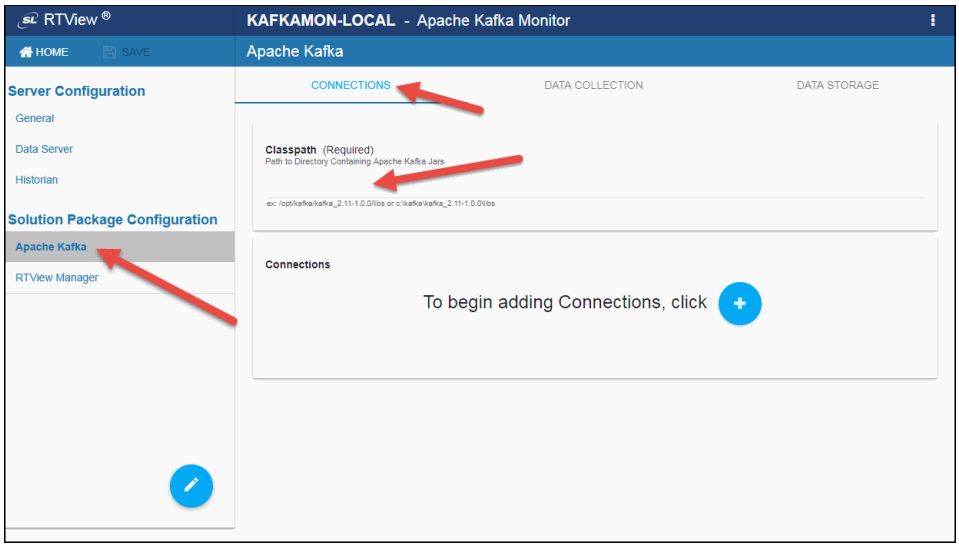
Configure Data Collection

You can set up the data collector properties for the Solution Package for Apache Kafka using the RTView Configuration Application. For each Kafka cluster, you must define at least one zookeeper connection and one broker connection. You can optionally enable topic partition monitoring for the cluster via the broker connections, and you can restrict monitoring to particular topics (all topics are monitored by default). You can also optionally configure consumer and producer connections.

To configure data collection:

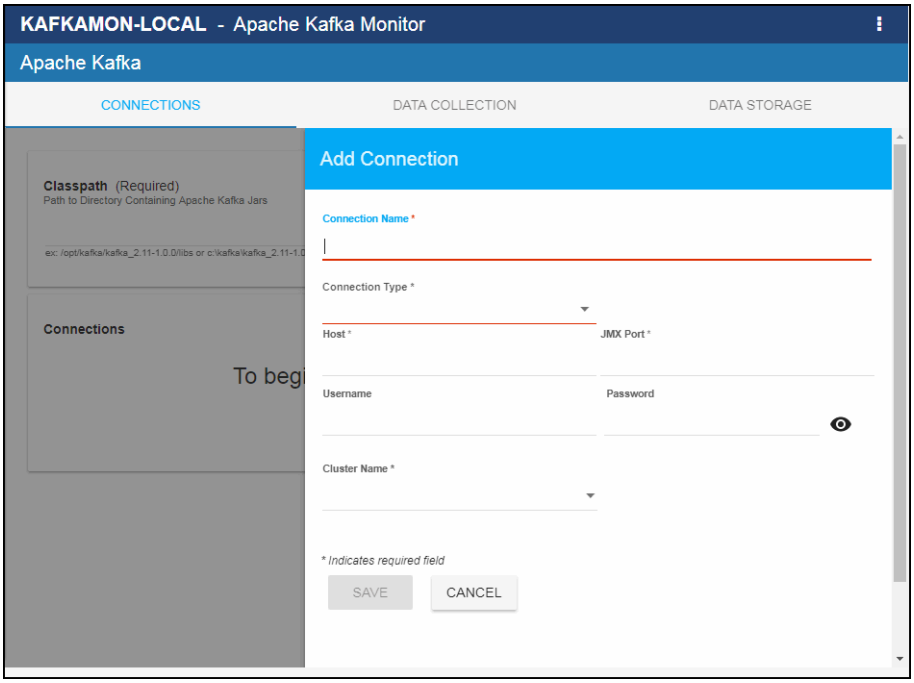
1. Navigate to the RTView Configuration Application > (**KAFKAMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **CONNECTIONS** tab.

2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the Apache Kafka jar files in the **Classpath** field.

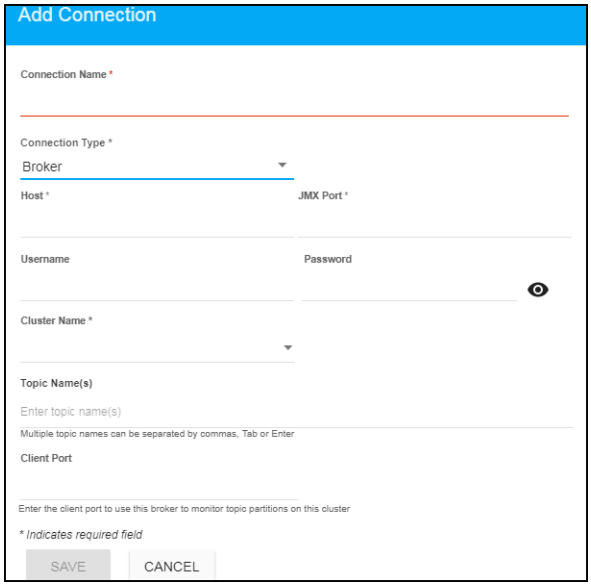


3. Click the + icon.

   The **Add Connection** dialog displays.



4. To add **Broker** connections, specify the connection information and click **Save** where:



Connection Name: The name of the connection/server.

Connection Type: Select **Broker** from this drop down list.

Host: The IP address of the host.

JMX Port: The JMX port used when connecting.

Username: The username is used when creating the connection. This field is optional.

Password: This password is used when creating the connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

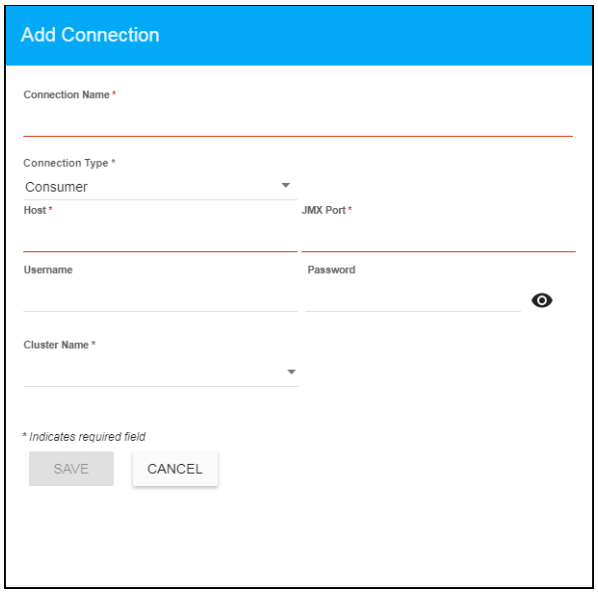
Cluster Name: The name of the cluster.

Topic Names: Optionally enter one or more topics to restrict monitoring to only those topics on the broker (all topics are monitored by default). You can enter multiple topics by adding a comma or clicking the Tab key after each. Once entered, you can click the **X** next to the topic name to remove them.

Client Port: Optionally enter the Client Port to use this broker to monitor topic partitions for this cluster.

5. Repeat steps 3-4 for each broker to be monitored.

6. To add **Consumer** connections, specify the connection information and click **Save** where:



Connection Name: The name of the connection/server.

Connection Type: Select **Consumer** from this drop down list.

Host: The IP address of the host.

JMX Port: The JMX port used when connecting.

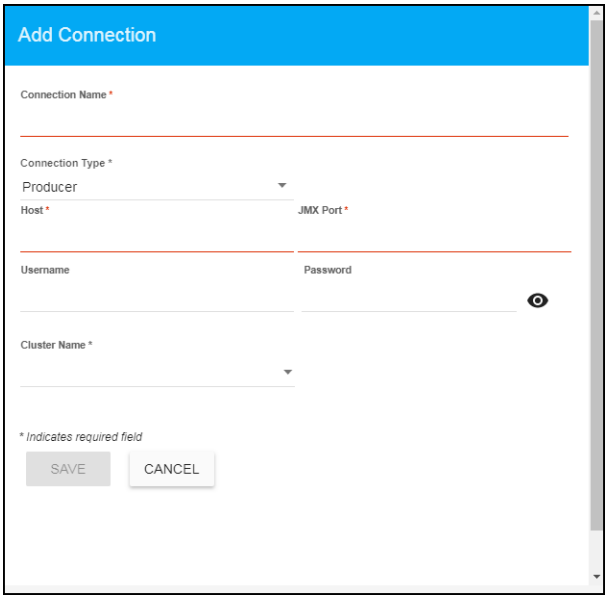
Username: The username is used when creating the connection. This field is optional.

Password: This password is used when creating the connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Cluster Name: The name of the cluster.

7. Repeat step 6 for each consumer to be monitored.

8. To add **Producer** connections, specify the connection information and click **Save** where:



Connection Name: The name of the connection/server.

Connection Type: Select **Producer** from this drop down list.

Host: The IP address of the host.

JMX Port: The JMX port used when connecting.

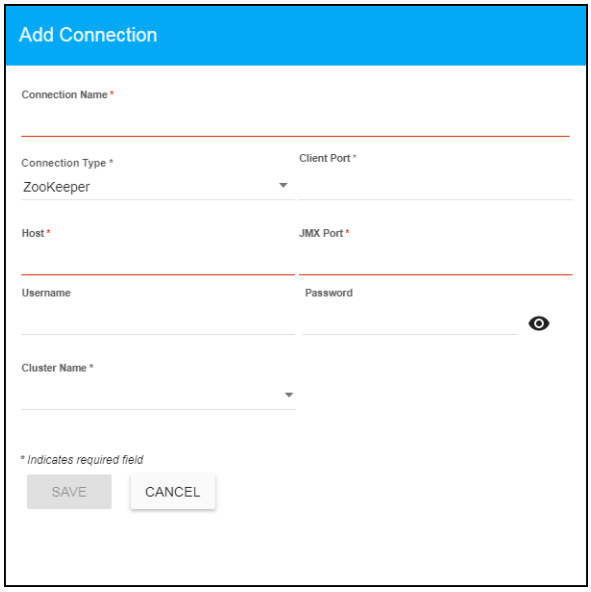
Username: The username is used when creating the connection. This field is optional.

Password: This password is used when creating the connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Cluster Name: The name of the cluster.

9. Repeat step 8 for each producer to be monitored.

10. To add **Zookeeper** connections, specify the connection information and click **Save** where:



Connection Name: The name of the connection/server.

Connection Type: Select **Zookeeper** from this drop down list.

Client Port: Optionally enter the Client Port if you want to monitor topic partitions for this cluster.

Host: The IP address of the host.

JMX Port: The JMX port used when connecting.

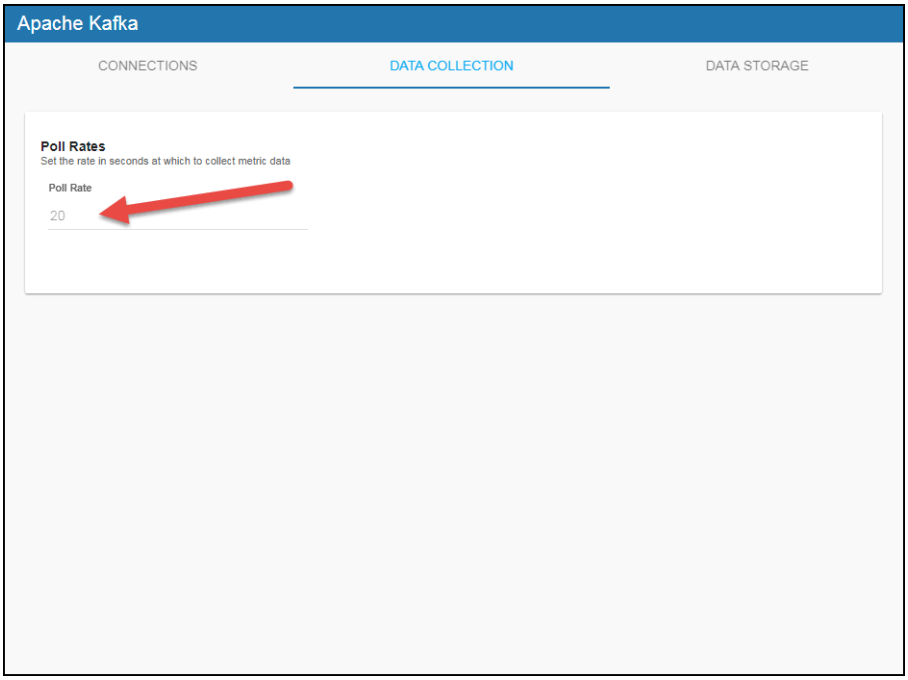
Username: The username is used when creating the connection. This field is optional.

Password: This password is used when creating the connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Cluster Name: The name of the cluster.

11. Repeat step 10 for each zookeeper to be monitored.

12. If you want to modify the default values for the update rates for all caches, you can update the default polling rates in RTView Configuration Application > (**KAFKAMON-LOCAL/ Project Name**) > **Solution Package Configuration** > **Apache Kafka**> **DATA COLLECTION** > **Poll Rates**.



Note: When modifying your update rates, you should take your system architecture and number of elements per cache into account and ensure that you are not changing your update rates to values that might negatively impact system performance.

Additional Configurations

This section describes the following additional optional configurations:

- "Configuring Historical KAFKAMON Data"

Configuring Historical KAFKAMON Data

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application. This section contains the following:

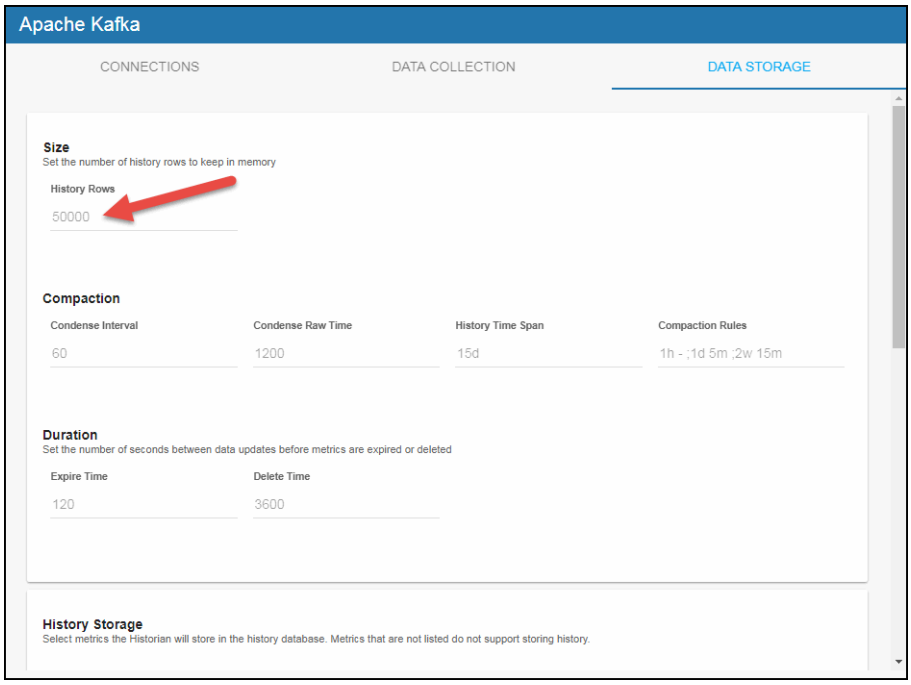
- "Defining the Storage of In Memory KAFKAMON History"
- "Defining Compaction Rules for KAFKAMON"
- "Defining Expiration and Deletion Duration for KAFKAMON Metrics"
- "Enabling/Disabling Storage of KAFKAMON Historical Data"
- "Defining a Prefix for All History Table Names for KAFKAMON Metrics"

Defining the Storage of In Memory KAFKAMON History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the KafkaZookeeper, KafkaServer, KafkaConsumer, KafkaProducer, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaServerTopic, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer caches. The default settings for **History Rows** is 50,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (**KAFKAMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining Compaction Rules for KAFKAMON

Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: KafkaZookeeper, KafkaServer, KafkaConsumer, KafkaProducer, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaServerTopic, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: KafkaZookeeper, KafkaServer, KafkaConsumer, KafkaProducer, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaServerTopic, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer. The default is 1200 seconds.
- **History Time Span** -- The duration of time to retain a row of cached data based on its timestamp.

  The cache trims its History table by removing rows with timestamps that are older than the limit specified here. Specify the duration in seconds or specify a number followed by a single character indicating the desired time interval (for example, 15m for 15 minutes). The format is a number followed by one of the following valid characters:

  y - years (365 days)

  M - months (31 days)

  w - weeks (7 days)

  d - days

  h - hours

  m - minutes

  s - seconds

  Example: 1M

  Note that this setting only determines the duration of rows kept in the History table by the cache data source. It does not affect database storage, if any, associated with the cache.

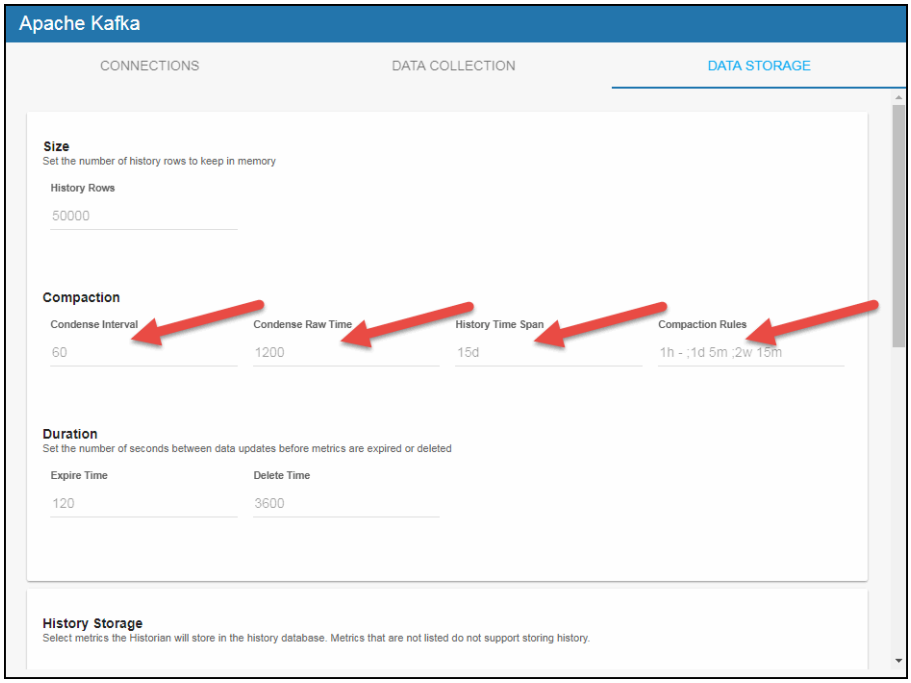
The caches impacted by this field are: KafkaZookeeper, KafkaServer, KafkaRegisteredBrokers, KafkaConsumer, KafkaProducer, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaServerTopic, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer

- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: KafkaZookeeper, KafkaServer, KafkaConsumer, KafkaProducer, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaServerTopic, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (**KAFKAMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, **History Time Span**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



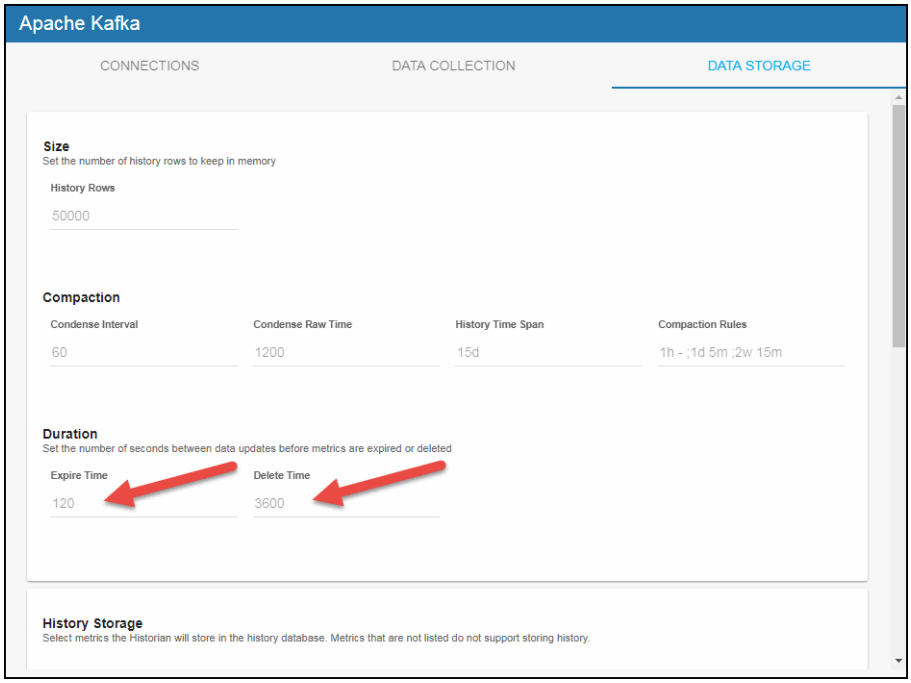
Defining Expiration and Deletion Duration for KAFKAMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The caches impacted by the **Expire Time** and **Delete Time** properties are: KafkaZookeeper, KafkaServer, KafkaRegisteredBrokers, KafkaConsumer, KafkaProducer, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaServerTopic, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**KAFKAMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

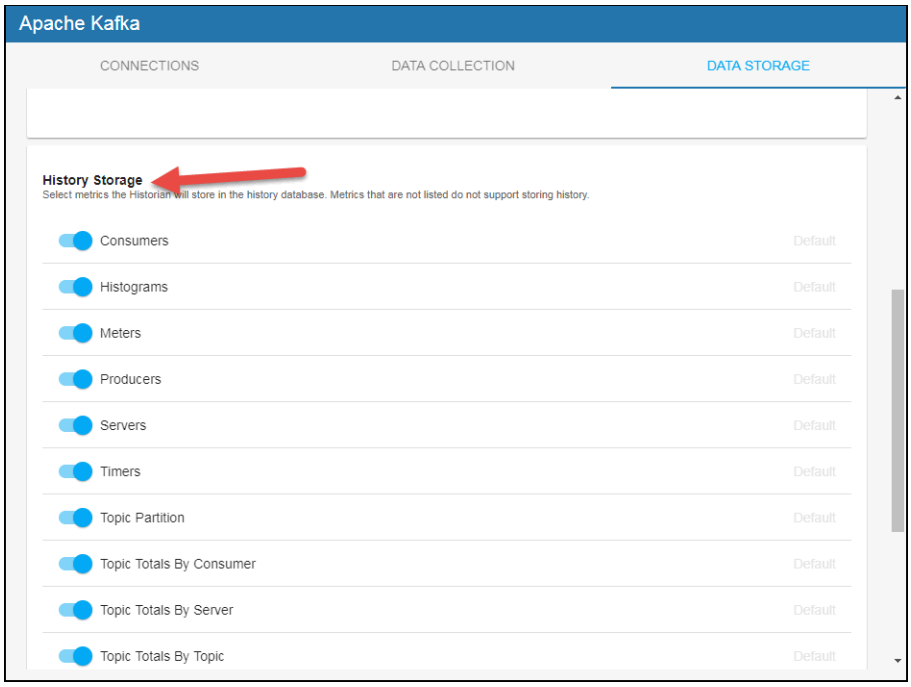


Enabling/Disabling Storage of KAFKAMON Historical Data

The **History Storage** section allows you to select which metrics you want the Historian to store in the history database. By default, all historical data (in the KafkaServer, KafkaServerTopic, KafkaServerMeter, KafkaServerHistogram, KafkaServerTimer, KafkaZookeeper, KafkaConsumer, KafkaProducer, KafkaTopicPartition, KafkaTopicTotalsByTopic, KafkaTopicTotalsByServer, KafkaTopicTotalsByConsumer, KafkaTopicTotalsByTopicAndServer, and KafkaTopicTotalsByTopicAndConsumer caches) is saved to the database. To disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**KAFKAMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** tab.

2. In the **History Storage** region, (de)select the toggles for the various metrics that you (do not) want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for KAFKAMON Metrics

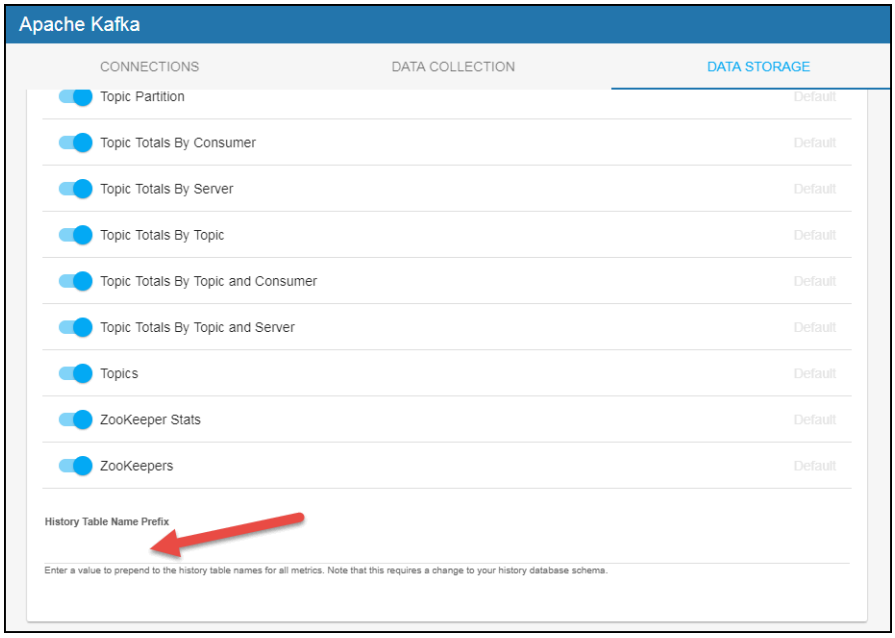
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**kafkamon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to the RTView Configuration Application > (**KAFKAMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

- "Log Files"
- "JAVA_HOME"
- "Permissions"
- "Network/DNS"
- "Verify Data Received from Data Server"
- "Verify Port Assignments"

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/kafkamon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/kafkamon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **KAFKAMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Kafka." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the connections are assigned correctly in your properties files and restart the Data Server.

Apache Kafka Monitor Views/Displays

The following Apache Kafka Monitor Views (and their associated displays) can be found under **Components** tab **> Middleware > Kafka** once the Solution Package for Apache Kafka is installed.

This section contains the following:

- "Kafka Clusters View": The displays in this View allow you to view metrics for all Kafka clusters and view the performance metrics for all servers on a particular cluster.
- "Kafka Topics View": This displays in this View allow you to view metrics for all topics for a particular broker in heatmap/table format, view current and trend data for a single topic, view the metrics for all topics on a particular cluster, and view metrics for a particular topic on a particular cluster.
- "Kafka Brokers View": The displays in this View allow you to view the current and historical metrics for all brokers in heatmap/table formats, view various metrics for a particular broker, and view metrics and trend data for a particular broker.
- "Kafka Zookeepers View": The displays in this View allow you to view the current and historical metrics for all zookeepers in a particular cluster in heatmap/tabular format, or view current and historical metrics and trend data for a single zookeeper.
- "Kafka Producers View": The displays in this View allow you to view the current and historical metrics for all producers in a particular cluster in heatmap/tabular format, or view current and historical metrics and trend data for a single producer.
- "Kafka Consumers View": The displays in this View allow you to view the current and historical metrics for all consumers in a particular cluster in heatmap/tabular format, or view current and historical metrics and trend data for a single consumers.

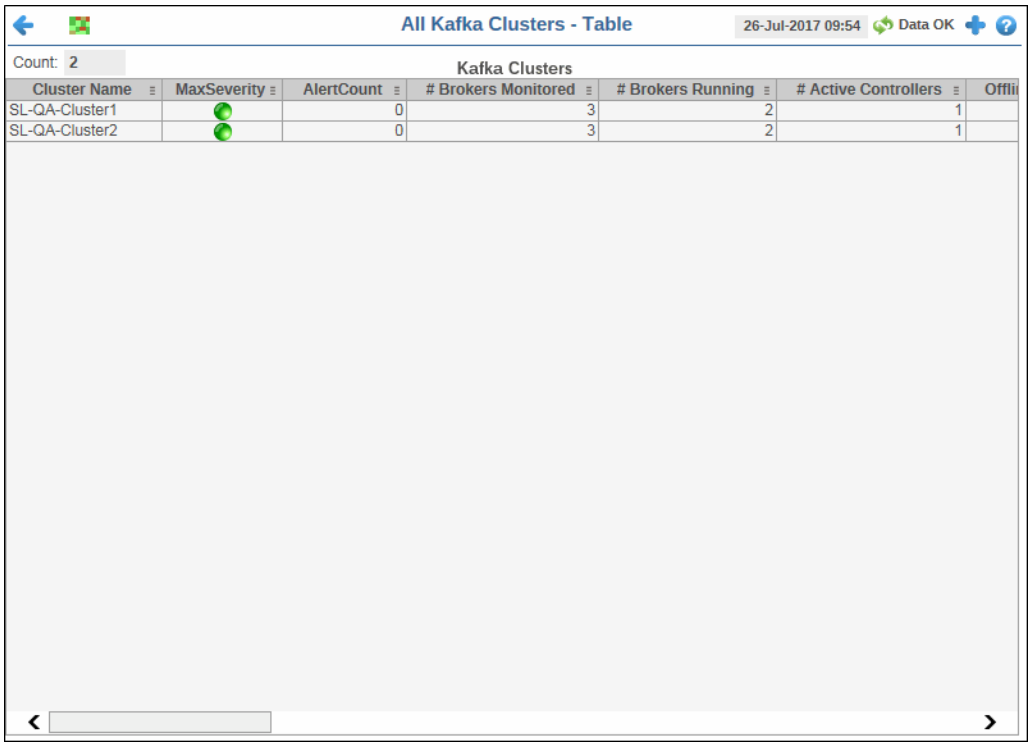
Kafka Clusters View

These displays allow you to view metrics for all Kafka clusters and view the performance metrics for all servers on a particular cluster. Displays in this View are:

- "All Clusters Table": A tabular view of all clusters and their associated metrics.
- "Cluster Performance": This display allows you to view performance metrics for all servers on a particular cluster.

All Clusters Table

The table in this display provides a view of all of your clusters and their associated metric data including maximum alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected cluster in the RT Cluster Performance display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Fields and Data:

Count	Lists the number of brokers found as a result of the cluster that was selected and displayed in the Kafka Brokers table.

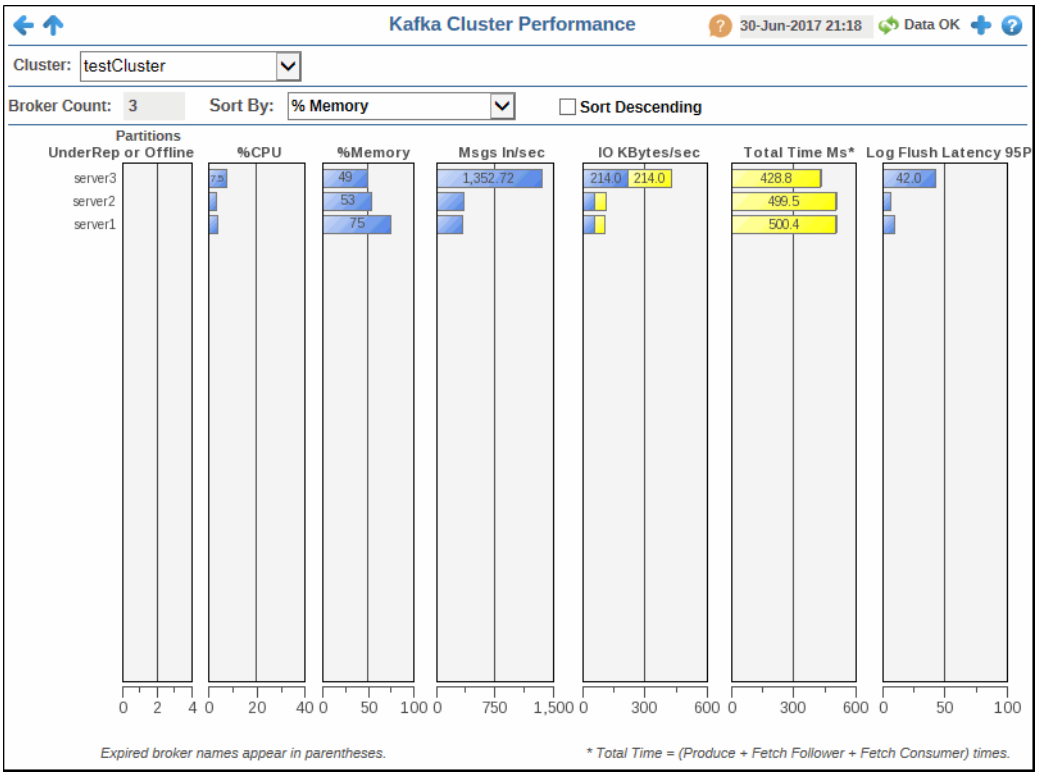
Kafka Clusters Table:

cluster_name	The name of the cluster.*
MaxSeverity	The current highest alert severity for any of clusters. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
# Brokers Monitored	The current number of brokers being monitored for the cluster.*
# Brokers Running	The number of brokers currently running on the cluster.*
# Active Controllers	The number of active controllers on the cluster.*
Offline Partitions	The number of partitions without an active leader on the cluster.*
Under Replicated Partitions	The number of partition replicas that are out of sync (total number of replicas minus the total number of in-sync replicas) on all brokers on the cluster.*
% Max Deviation in Partition Count	The percentage of maximum deviation in partition count.*
% Max Deviation in Leader Count	The percentage of maximum deviation in leader count.*
# Zookeepers	The number of zookeepers on the cluster.*
# Zookeeper Connections	The number of connections on the zookeepers in the cluster.*
# Zookeeper Outstanding Reqs	The number of outstanding requests on the zookeepers in the cluster.
# Zookeeper Pkts Recvd	The number of packets received on the zookeepers in the cluster.*
# Zookeeper Pkts Sent	The number of packets sent by the zookeepers in the cluster.*
# Consumers	The number of consumers on the cluster.*
Bytes Consumed Rate	The rate of bytes being consumed by the consumers.
Records Consumed Rate	The rate of records being consumed by the consumers.
# Producers	The number of producers on the cluster.
Producer In Byte Rate	The rate of incoming bytes for the producers.*

Producer Out Byte Rate	The rate of outgoing bytes for the producers.*
Producer Record Send Rate	The rate of records being sent for the producers.*

Cluster Performance

This display provides a view of the current metrics for the brokers contained in a selected cluster.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster	Select the cluster for which you want to show data in the display.
Sort By	Select the metric by which you want to sort the data in the display. When using this option with the **Sort Descending** toggle, the brokers (servers) will be sorted in ascending or descending order using the option you select from this drop down. For example, if you select **MsgsInPerSec** from this drop down and select the **Sort Descending** toggle, the servers listed in the display will be sorted so that the server with the most **MsgsInPerSec** will be listed at the top followed by the server with the next most **MsgsInPerSec**, and so on.
Sort Descending	When toggled on, the servers listed in the display are sorted in descending order based on the selected metric in the **Sort By** drop down. When toggled off, the servers are listed in ascending order.

Fields and Data:

Broker Count	The number of brokers contained in the selected cluster.
Partitions Under Rep or Offline	Lists the number of partitions that are under-replicated or offline on each broker in the cluster.
% CPU	Lists the percentage of CPU used by the broker.
% Memory	Lists the percentage of memory used by the broker.
Msgs In/sec	Lists the rate of incoming messages (per second) for each broker in the cluster.
IO KBytes/ sec	Lists the rate of incoming kilobytes (per second) for each broker in the cluster.
Total Time Ms	Lists the total time taken to service a request.*
Log Flush Latency 95P	Lists the 95th percentile value for the log flush latency for each broker on the cluster.

Kafka Topics View

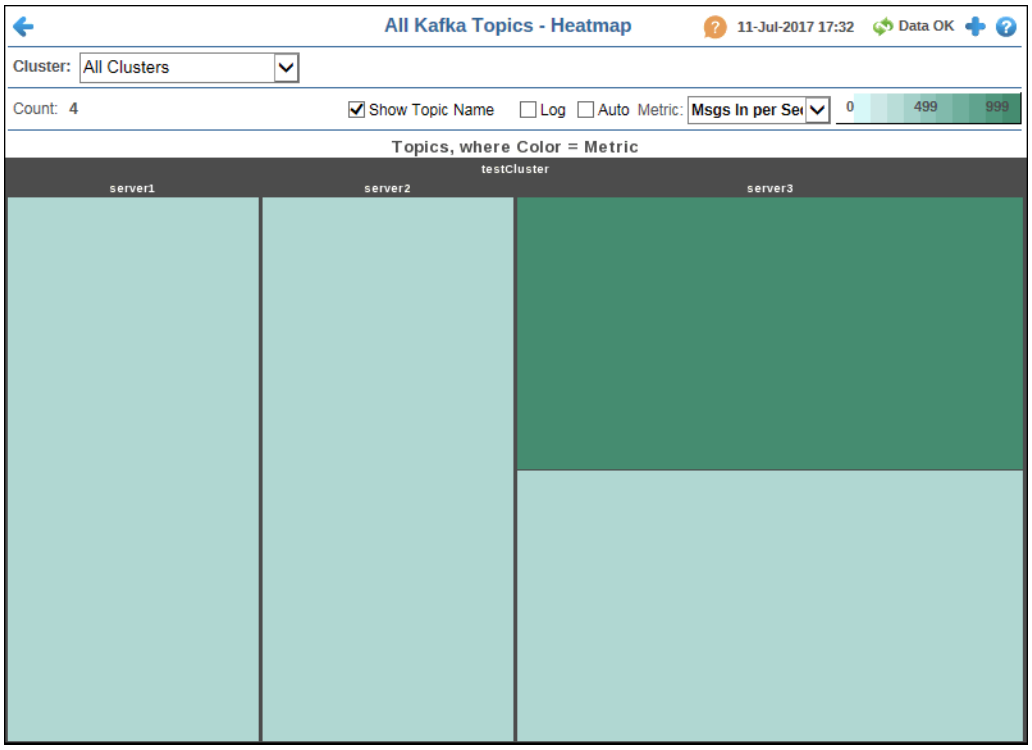
These displays allow you to view metrics for all Kafka topics on a particular topic in heatmap/ table format, view the performance metrics for a single topic on a particular broker, view the metrics for all topics on a particular cluster, and view metrics for a particular topic on a particular cluster. Displays in this View are:

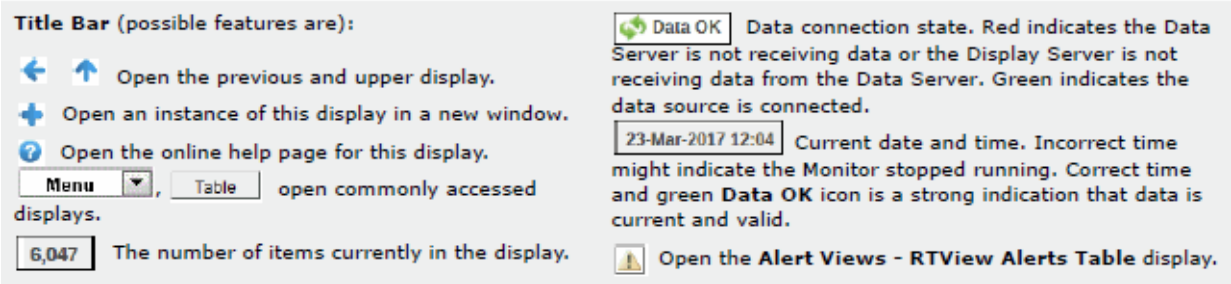
- "All Topics Heatmap": A heatmap view of all topics for a particular cluster.
- "All Topics Table": A tabular view of all topics for a particular cluster.
- "Single Topic Summary": This display allows you to view current metrics and trend data for a single topic.
- "All Topics for Cluster": This display allows you to view performance metrics for all topics on a particular cluster.
- "Single Topic for Cluster": This display allows you to view performance metrics for a particular topic on a particular cluster.

All Topics Heatmap

This heatmap provides an easy-to-view interface that allows you to quickly identify the current status of each of your topics for each available metric. You can view the topics in the heatmap based on the following metrics: the rate of incoming messages, the rate of incoming bytes, the rate of outgoing bytes, the rate of rejected bytes, the rate of total fetch requests, the rate of failed fetch requests, the rate of total produce requests, and the rate of failed produce requests. By default, this display shows the heatmap based on the **Msgs In per Sec** metric.

You can use the **Show Topic Name** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a topic. Clicking one of the rectangles in the heatmap opens the "Single Topic Summary" display, which allows you to see additional details for the topic metrics for the selected topic.





Fields and Data:

Cluster Select the cluster for which you want to view data.

Count Lists the number of topics displayed in the heatmap.

Show Topic Name Select this check box to display the names of the topics at the top of each rectangle in the heatmap.

Log Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display.

Msgs In per Sec The rate of incoming messages (per second). The color gradient 

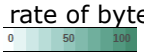
bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of incoming messages per second. The middle value in the gradient bar indicates the middle value of the range.

Bytes In per Sec The rate of incoming bytes (per second). The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of incoming bytes per second. The middle value in the gradient bar indicates the middle value of the range.

Bytes Out per Sec The rate of outgoing bytes (per second). The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of outgoing bytes per second. The middle value in the gradient bar indicates the middle value of the range.

Bytes Rejected per Sec The rate of bytes being rejected (per second). The color gradient bar 

shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of bytes rejected per second. The middle value in the gradient bar indicates the middle value of the range.

Total Fetch Requests per Sec The rate of fetch requests (per second). The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of fetch requests per second. The middle value in the gradient bar indicates the middle value of the range.

Failed Fetch Requests per Sec The rate of failed fetch requests (per second). The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of failed fetch requests per second. The middle value in the gradient bar indicates the middle value of the range.

Total Produce Requests per Sec The rate of total producer requests (per second). The color gradient 

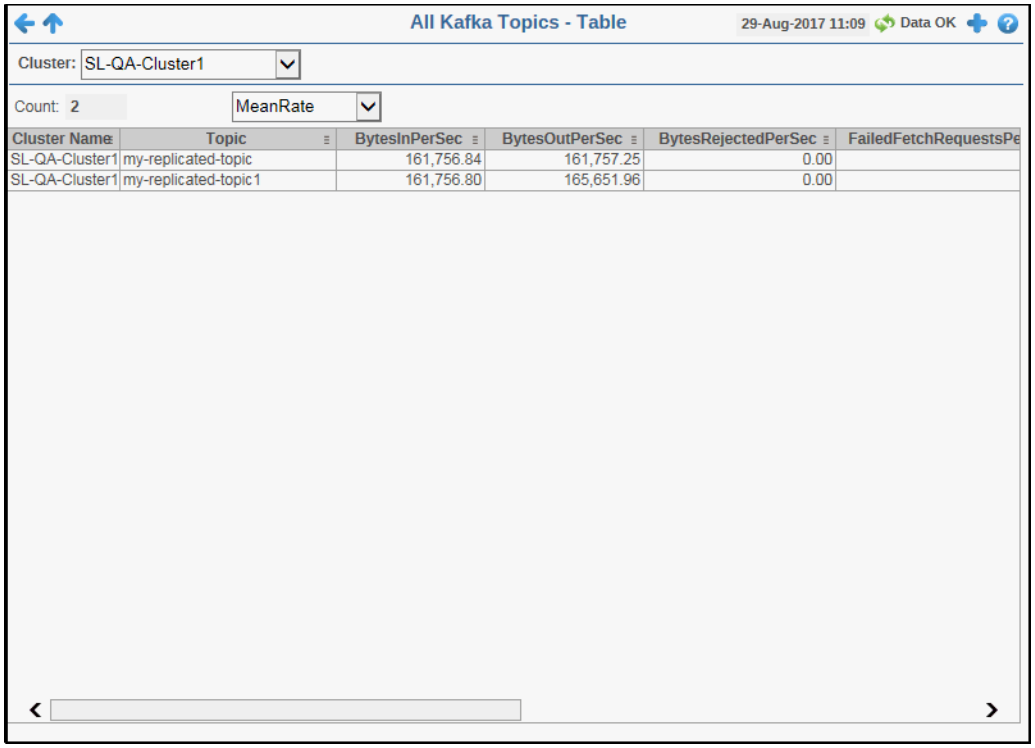
bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of produce requests per second. The middle value in the gradient bar indicates the middle value of the range.

Failed Produce Requests per Sec The rate of failed producer requests (per second). The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of failed produce requests per second. The middle value changes accordingly to indicate the color of the middle value of the range.

All Topics Table

The table in this display provides a view of all of your topics for a particular cluster and their associated metric data. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected topic in the "Single Topic Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By

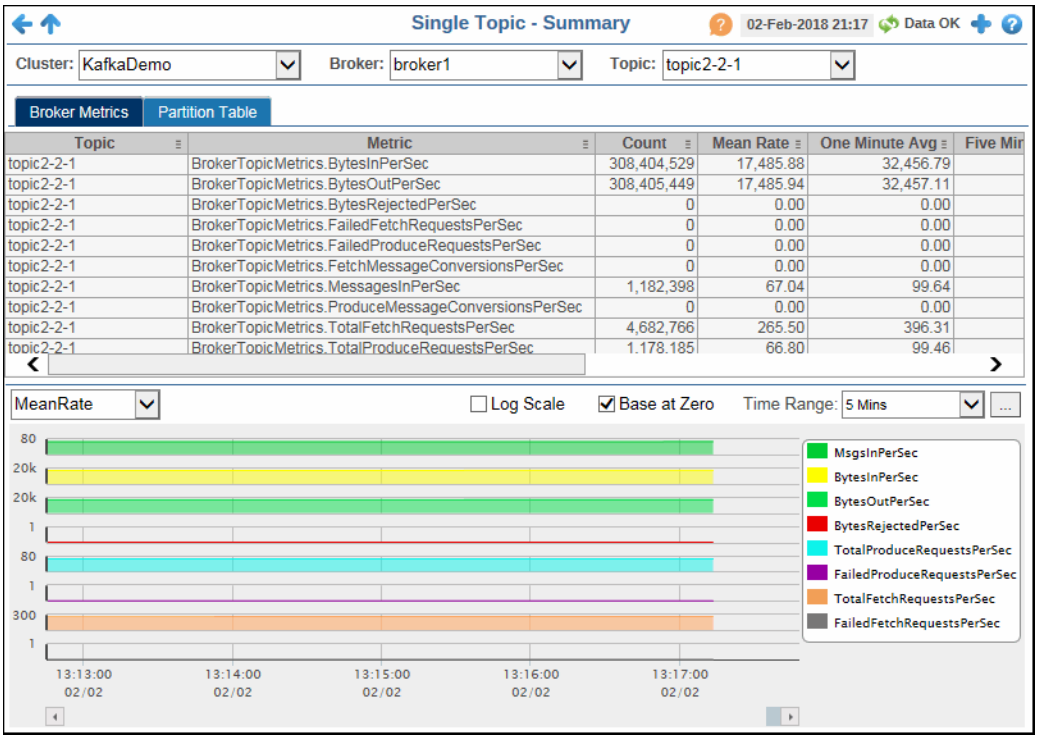
Cluster	Select the cluster for which you want to view data.

Kafka Topics Table:

Count	The total number of topics listed in the table.
<Rate Drop Down List>	Select the option for which you want to view data: **MeanRate** -- Select this option to view the average rate for each metric for the topics in the display. **One Minute**-- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the topics in the display. **Five Minute** -- Select this option to view the rate of incoming messages (per second) averaged over a five minute period for each metric for the topics in the display. **Fifteen Minute** -- Select this option to view the rate of incoming messages (per second) averaged over a fifteen minute period for each metric for the topics in the display.
Cluster Name	Lists the name of the cluster.
Topic	Lists the name of the topic.
Bytes In Per Sec	The rate of incoming bytes.
Bytes Out Per Sec	The rate of outgoing bytes.
Bytes Rejected Per Sec	The rate of rejected bytes.
Failed Fetch Requests Per Sec	The rate of failed fetch requests.
Failed Produce Requests Per Sec	The rate of failed produce requests.
Messages In Per Sec	The rate of incoming messages.
Total Fetch Requests Per Sec	The rate of total fetch requests.
Total Produce Requests Per Sec	The rate of total produce requests.

Single Topic Summary

This display provides a view of the current metrics and trend data for a single topic. Selecting the **Cluster**/**Broker** combination populates the **Topic** drop down list, from which you can select the topic for which you want to view metric and trend data.



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Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

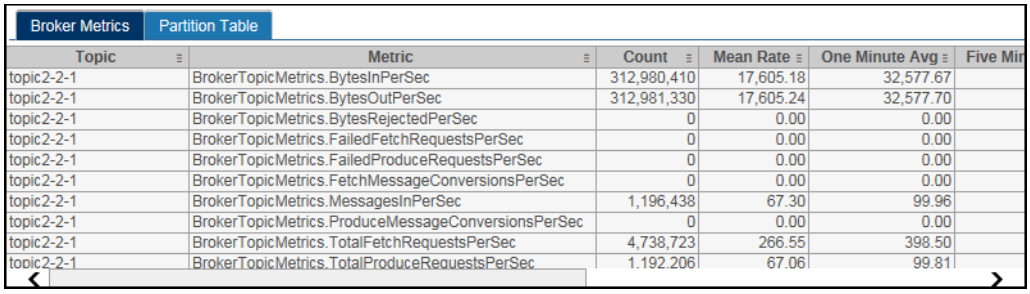
The display might include these filtering options:

Cluster Select the cluster for which you want to see data.

Broker Select the broker for which you want to see data.

Topic Select the topic for which you want to see data.

Broker Metrics Tab



Topic	Metric	Count	Mean Rate	One Minute Avg	Five Mir
topic2-2-1	BrokerTopicMetrics.BytesInPerSec	312,980,410	17,605.18	32,577.67	
topic2-2-1	BrokerTopicMetrics.BytesOutPerSec	312,981,330	17,605.24	32,577.70	
topic2-2-1	BrokerTopicMetrics.BytesRejectedPerSec	0	0.00	0.00	
topic2-2-1	BrokerTopicMetrics.FailedFetchRequestsPerSec	0	0.00	0.00	
topic2-2-1	BrokerTopicMetrics.FailedProduceRequestsPerSec	0	0.00	0.00	
topic2-2-1	BrokerTopicMetrics.FetchMessageConversionsPerSec	0	0.00	0.00	
topic2-2-1	BrokerTopicMetrics.MessagesInPerSec	1,196,438	67.30	99.96	
topic2-2-1	BrokerTopicMetrics.ProduceMessageConversionsPerSec	0	0.00	0.00	
topic2-2-1	BrokerTopicMetrics.TotalFetchRequestsPerSec	4,738,723	266.55	398.50	
topic2-2-1	BrokerTopicMetrics.TotalProduceRequestsPerSec	1,192,206	67.06	99.81	

Topic The name of the topic.

Metric The name of the metric.

Count The total number of the particular metric.

Mean Rate The mean rate of the metric.

One Minute Avg The rate of incoming messages (per second) averaged over a one minute period for the metric, based on the **Rate Units**.

Five Minute Avg The rate of incoming messages (per second) averaged over a five minute period for the metric, based on the **Rate Units**.

Fifteen Minute Avg The rate of incoming messages (per second) averaged over a fifteen minute period for the metric, based on the **Rate Units.**

Event Type The event type for the topic metric.

Rate Units The unit of measure used to calculate the **Mean Rate**, the **One Minute Avg**, the **Five Minute Avg**, and the **Fifteen Minute Avg**.

Expired When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.

time_stamp The date and time the row data was last updated.

Rate Trends Select the option for which you want to view data:

MeanRate -- Select this option to view the average rate for each metric in the trend graph.

One Minute-- Select this option to view the rate averaged over a one minute period for each metric in the trend graph.

Five Minute -- Select this option to view the rate averaged over a five minute period for each metric in the trend graph.

Fifteen Minute -- Select this option to view the rate averaged over a fifteen minute period for each metric in the trend graph.

Traces the following:

MsgsInPerSec -- traces the selected rate of incoming messages.

BytesInPerSec -- traces the selected rate of incoming bytes.

BytesOutPerSec -- traces the selected rate of outgoing bytes.

BytesRejectedPerSec -- traces the selected rate of rejected bytes.

TotalProduceRequestsPerSec -- traces the selected rate of total produce requests.

FailedProduceRequestsPerSec -- traces the selected rate of failed produce requests.

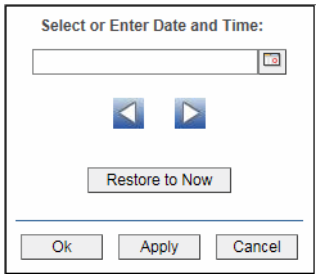
TotalFetchRequestsPerSec -- traces the selected rate of total fetch requests.

FailedFetchRequestsPerSec -- traces the selected rate of failed fetch requests.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

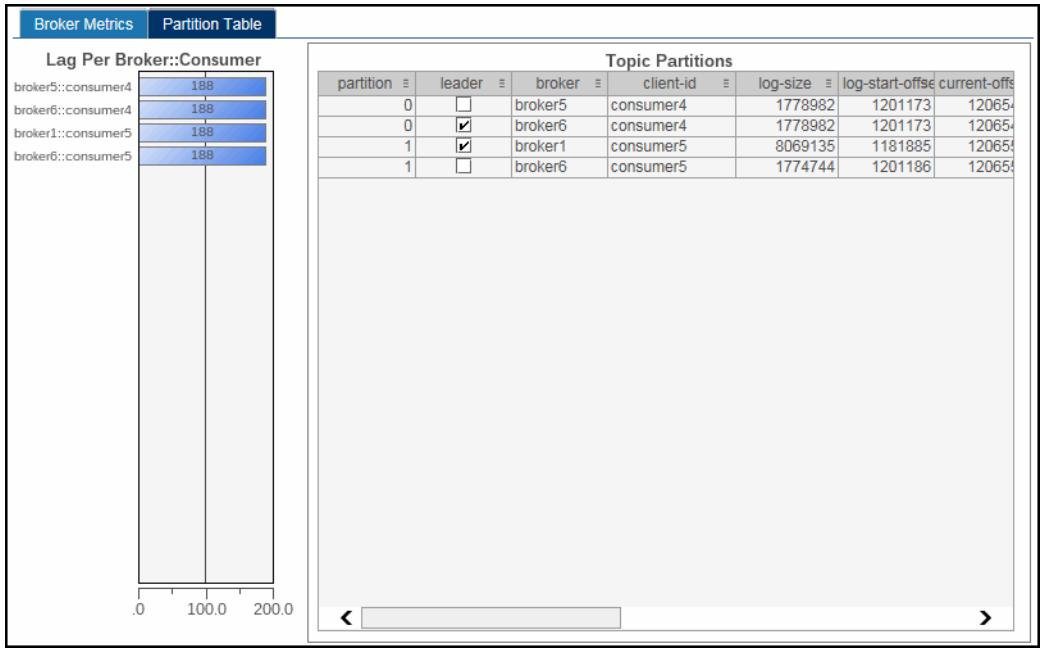


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Partition Table Tab



Lag Per Broker:: Consumer Lag per partition, where the partitions are identified by the broker hosting the partition and the consumer reading the partition.

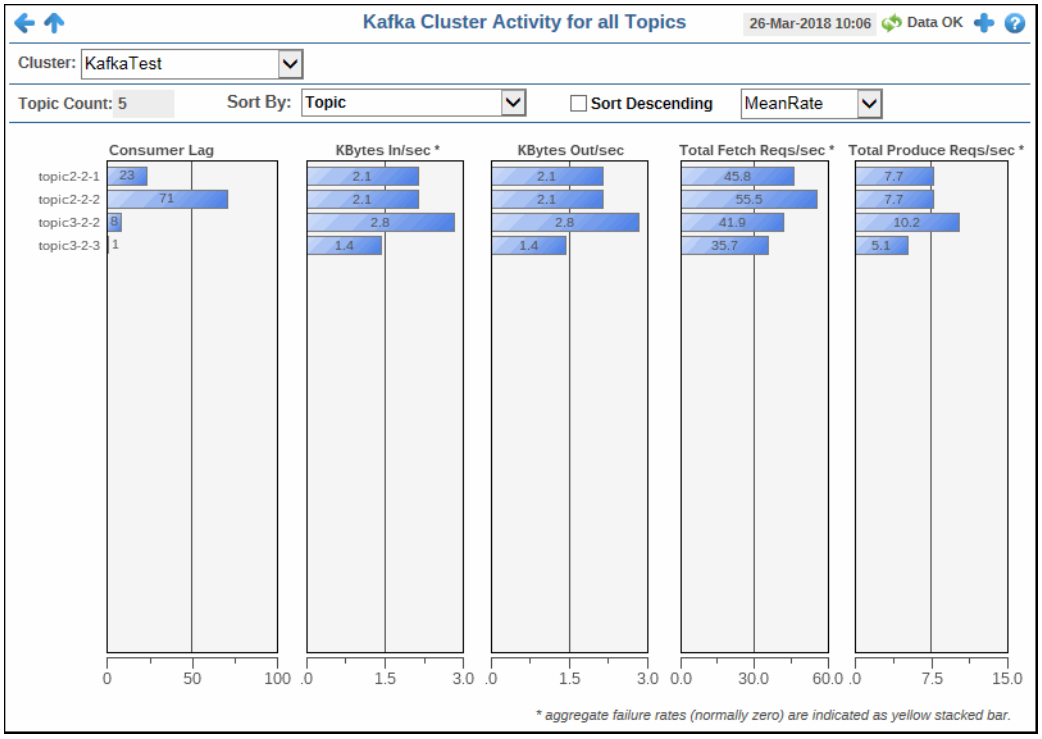
Topic Partitions Table

partition	The name of the partition.
leader	When checked, signifies that the broker is a leader on the partition.
broker	The name of the broker.
client-id	The ID of the consumer reading the topic.*
log-size	The current number of messages in the log.*
log-start-offset	The offset of the first message written to a log.*
current-offset	The offset of the message currently being consumed.*
log-end-offset	The offset of the last message written to a log.*
lag	The difference between the current consumer position in the partition and the end of the log.*
lag-delta	The difference in the amount of lag from the previous polling period to the current polling period.*
lag-rate	The rate of change in the amount of lag.*
current-delta	The difference between the current consumer position in the partition from the previous polling period to the current polling period.*
current-rate	The rate of change of the current consumer position.*
log-end-delta	The difference between the offset of the last message in the partition from the previous polling period to the current polling period.*

log-end-rate	The rate of change of the last message offset.*
time_stamp	The date and time the row data was last updated.

All Topics for Cluster

This display provides a view of the activity metrics on all topics for a particular cluster. You can view the metrics based on the mean rate, a 1 minute average rate, a 5 minute average rate, or a 15 minute average rate.



Title Bar (possible features are):

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

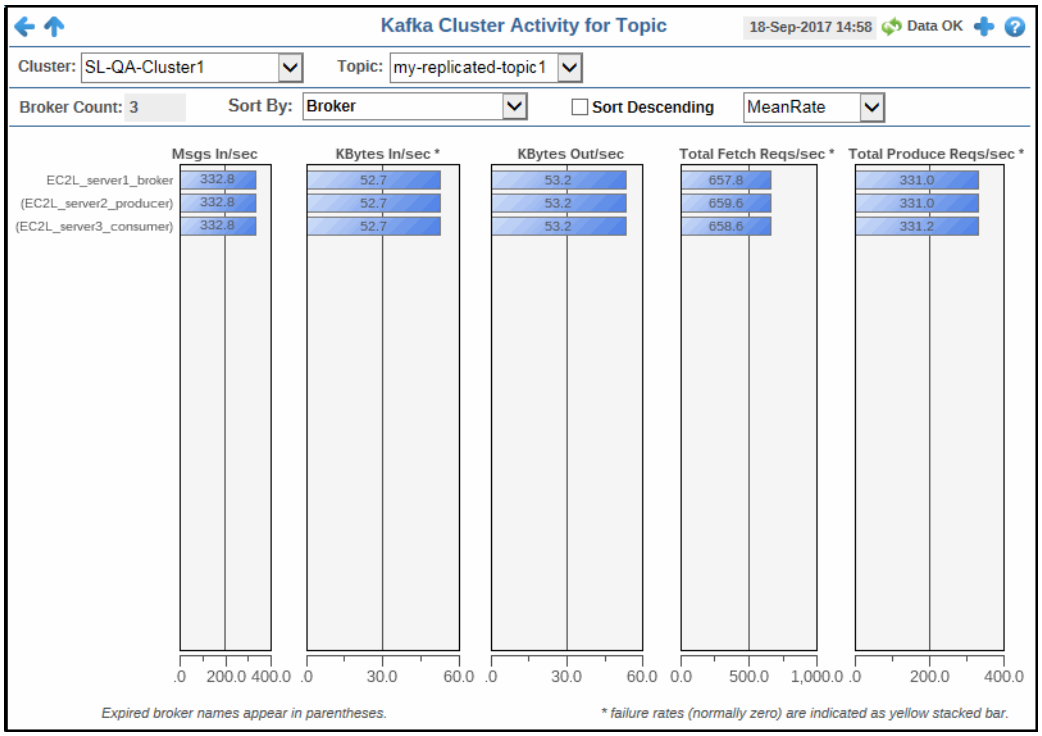
Cluster	Select the cluster for which you want to see data.
<Rate Drop Down List>	Select the option for which you want to view data: **Mean Rate** -- Select this option to view the average rate for each metric for the topics in the display. **1 Minute Avg** -- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the topics in the display. **5 Minute Avg** -- Select this option to view the rate of incoming messages (per second) averaged over a five minute period for each metric for the topics in the display. **15 Minute Avg** -- Select this option to view the rate of incoming messages (per second) averaged over a fifteen minute period for each metric for the topics in the display.
Topic Count	The number of topics found in the cluster.
Sort By	Select the metric by which you want to sort the data in the display. When using this option with the **Sort Descending** toggle, the topics will be sorted in ascending or descending order using the option you select from this drop down. For example, if you select **Msgs In/sec** from this drop down and select the **Sort Descending** toggle, the topics listed in the display will be sorted so that the topic with the most **Msgs In/sec** will be listed at the top followed by the topic with the next most **Msgs In/sec**, and so on.
Sort Descending	When toggled on, the topics listed in the display are sorted in descending order based on the selected metric in the **Sort By** drop down. When toggled off, the topics are listed in ascending order.

Cluster Activity for Each Topic:

Consumer Lag	The difference between the current consumer position in the partition and the end of the log.*
KBytes In/sec	The number of incoming kilobytes per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of incoming kilobytes per second for 1 minute.
KBytes Out/sec	The number of outgoing kilobytes per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of outgoing kilobytes per second for 1 minute.
Total Fetch Reqs/sec	The total number of fetch requests per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of fetch requests per second for 1 minute.
Total Produce Reqs/sec	The total number of produce requests per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of producer requests per second for 1 minute.

Single Topic for Cluster

This display provides a view of the activity metrics on all brokers for a particular topic. You can view the metrics based on the mean rate, a 1 minute average rate, a 5 minute average rate, or a 15 minute average rate.



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- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster	Select the cluster for which you want to see data.
Topic	Select the topic for which you want to see data.

<Rate Drop Down List>	Select the option for which you want to view data: **Mean Rate** -- Select this option to view the average rate for each metric for the brokers in the display. **1 Minute Avg** -- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the brokers in the display. **5 Minute Avg** -- Select this option to view the rate of incoming messages (per second) averaged over a five minute period for each metric for the brokers in the display. **15 Minute Avg** -- Select this option to view the rate of incoming messages (per second) averaged over a fifteen minute period for each metric for the brokers in the display.
Broker Count	The number of brokers found in the cluster with the associated topic.
Sort By	Select the metric by which you want to sort the data in the display. When using this option with the **Sort Descending** toggle, the brokers will be sorted in ascending or descending order using the option you select from this drop down. For example, if you select **Msgs In/sec** from this drop down and select the **Sort Descending** toggle, the brokers listed in the display will be sorted so that the broker with the most **Msgs In/sec** will be listed at the top followed by the broker with the next most **Msgs In/sec**, and so on.
Sort Descending	When toggled on, the brokers listed in the display are sorted in descending order based on the selected metric in the **Sort By** drop down. When toggled off, the brokers are listed in ascending order.

Cluster Activity for Each Broker:

Msgs In/sec	The number of incoming messages per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of incoming messages per second for 1 minute.
KBytes In/sec	The number of incoming kilobytes per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of incoming kilobytes per second for 1 minute.
KBytes Out/sec	The number of outgoing kilobytes per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of outgoing kilobytes per second for 1 minute.
Total Fetch Reqs/sec	The total number of fetch requests per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of fetch requests per second for 1 minute.
Total Produce Reqs/sec	The total number of produce requests per second. For example, if you select **1 Minute Avg** from the drop down list, the average rate of producer requests per second for 1 minute.

Kafka Brokers View

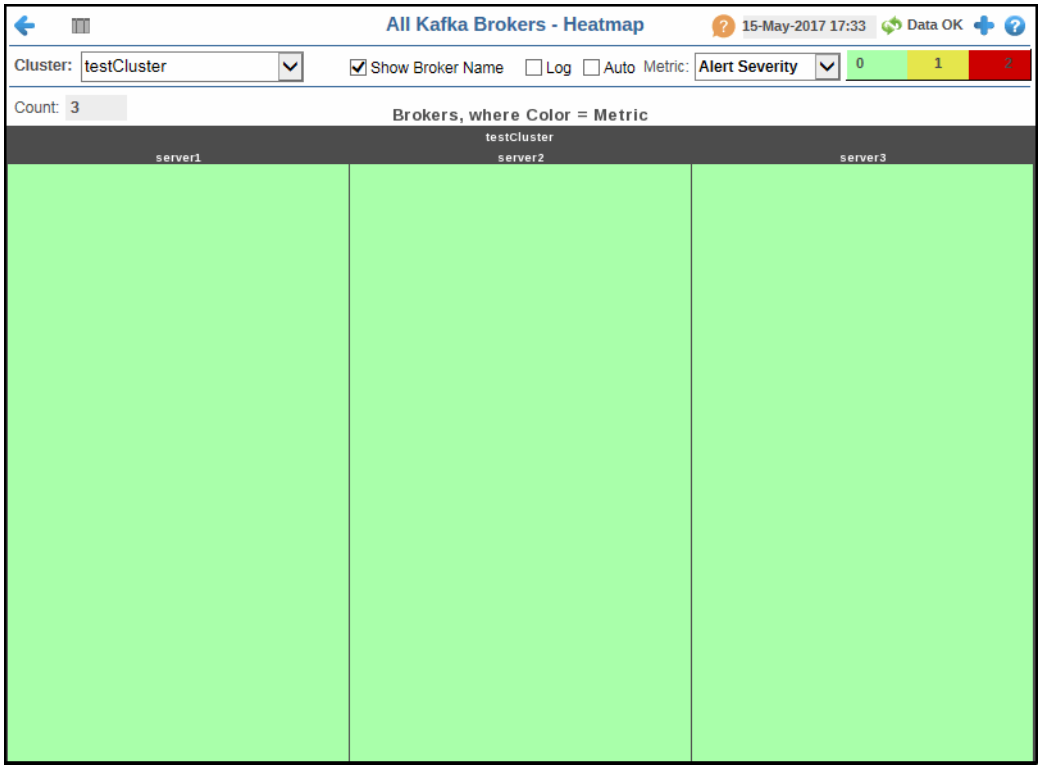
These displays provide detailed data for all brokers in heatmap and tabular form, provide details for all metrics for a particular broker in tabular form, and provide JVM runtime and broker status details for a particular broker. Displays in this View are:

- "All Brokers Heatmap": A heatmap view of all brokers in a heatmap format and their associated metrics.
- "All Brokers Table": A tabular view of your brokers and their associated metrics.
- "All Broker Metrics Table": A tabular and trend graph view of meter metrics, histogram metrics, and timer metrics for a particular broker.
- "Single Broker Summary": Contains JVM runtime data, broker status, topic, and topic trend details for a particular broker.

All Brokers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your brokers for each available metric. You can view the brokers in the heatmap based on the following metrics: the current alert severity, the current alert count, the under replicated partitions count, the offline partitions count, the rate of incoming messages, the rate of incoming bytes, the rate of outgoing bytes, and the log flush latency value. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Show Broker Name** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a broker. Clicking one of the rectangles in the heatmap opens the "Single Broker Summary" display, which allows you to see additional details for the selected broker.



Title Bar (possible features are):

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Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

Cluster Select the cluster for which you want to view data.

Show Broker Name Select this check box to display the names of the brokers at the top of each rectangle in the heatmap.

Log Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

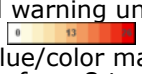
Metric Choose a metric to view in the display.

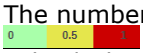
Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

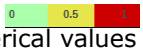
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts in the brokers. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Under Replicated Partitions The number of under-replicated partitions. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaBrokerUnderReplicatedPartns**. The middle value in the gradient bar indicates the middle value of the range.

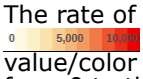
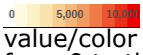
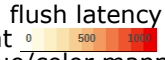
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Offline Partitions The number of offline partitions. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaBrokerOfflinePartitionCnt**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

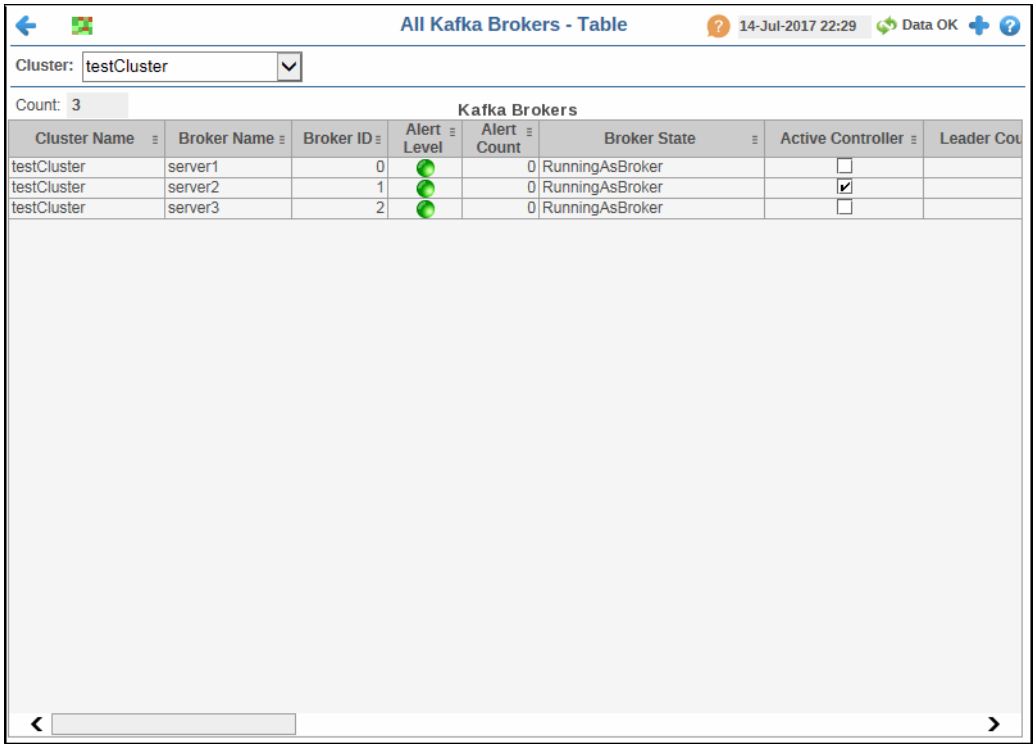
Msgs In Per Sec The rate of incoming messages (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaBrokerMsgsInPerSec**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Bytes In Per Sec	The rate of incoming bytes (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaBrokerBytesInPerSec**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.
Bytes Out Per Sec	The rate of outgoing bytes (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaBrokerBytesOutPerSec**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.
Log Flush Latency 95 Pctile	The log flush latency for the top five percent of values. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaBrokerLogFlushLatency95P**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Brokers Table

The table in this display provides a view of all of your brokers and their associated metric data including cluster name, broker name, broker ID, alert level, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected broker in the "Single Broker Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By

Cluster	Select the cluster for which you want to view data.
Count	Lists the number of brokers found as a result of the cluster that was selected and displayed in the Kafka Brokers table.

Kafka Brokers Table:

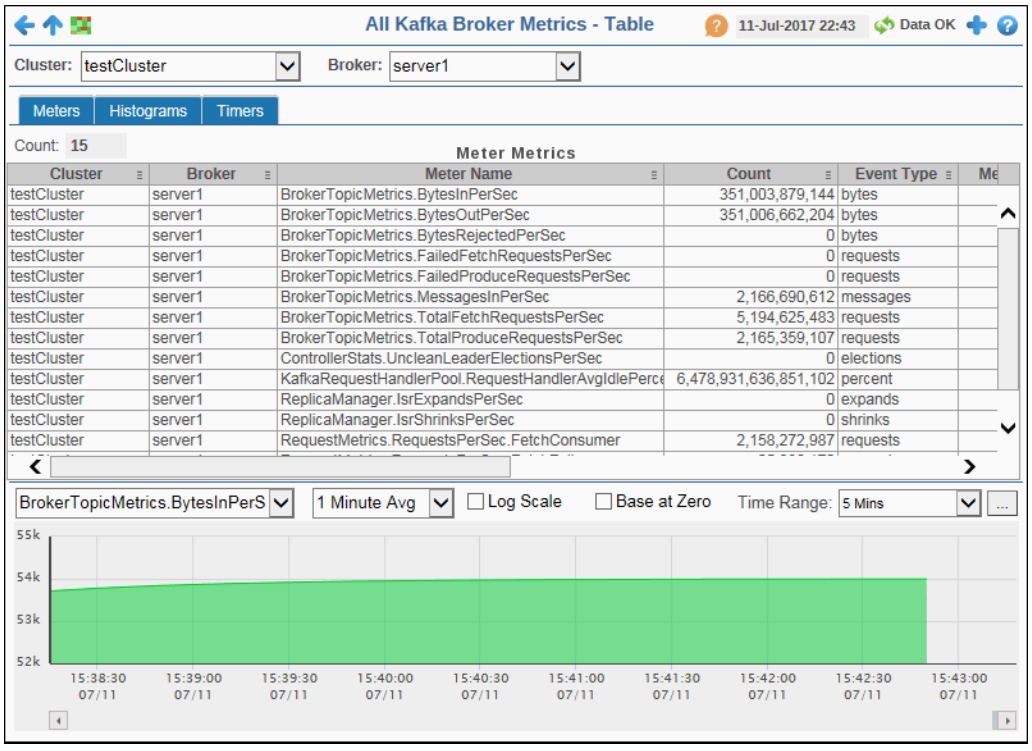
Cluster Name	The name of the cluster.
Broker Name	The name of the broker.
Broker ID	The broker ID for the server.

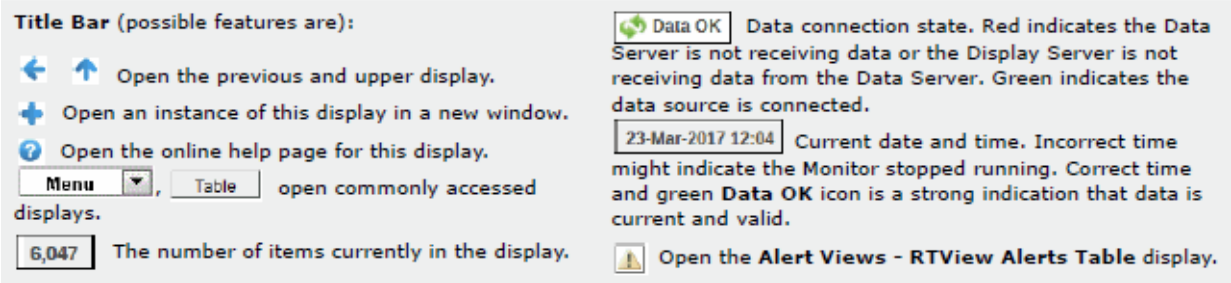
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Broker State	The current state of the kafka broker.*
Active Controller	Denotes whether the broker is an active controller.*
Leader Count	The number of leaders on the broker.*
# Partitions	The number of partitions on the broker.*
# Offline Partitions	The number of partitions without an active leader on the broker.*
Under Replicated Partitions	The number of partition replicas that are out of sync (total number of replicas minus the total number of in-sync replicas) on the broker.*
Preferred Replica Imbalance Count	The number of topics whose replicas are not balanced on the broker.*
ZK Disconnect Rate	The mean rate of zookeeper disconnects per broker, in seconds.
# Purgatory Fetch	The number of fetch requests currently in purgatory (and waiting to be satisfied).*
# Purgatory Heartbeat	The number of requests in purgatory due to failed heartbeat tests.*
# Purgatory Produce	The number of produce requests currently in purgatory (and waiting to be satisfied).*
# Purgatory Rebalance	The number of changes that need to be propagated to the replicas so that the partitions are no longer in purgatory.*
# Purgatory Topic	The number of requests (based on topics) currently in purgatory.*
Network Processor Avg % Idle	The average fraction of time the network processors are idle.*
Version	The current version of Kafka.*
JMX Connection String	The JMX connection string used.*
Connected?	Denotes whether or not the broker is connected.*

Expired	When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response. For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.
Timestamp	The date and time the row data was last updated.

All Broker Metrics Table

This display contains broker metrics broken down into three tabs: **Meters**, **Histograms**, and **Timers**. The table in the **Meters** tab provides a view of all of your metered metrics by broker and their associated metric data including count, event type, and rate data. The table in the **Histograms** tab provides a view of the histogram metrics for the selected broker. The table in the **Timers** tab provides a view of all the timers for the selected broker and their associated metrics. Each of the tabs also contains a trend graph, which provides a trend chart for each of the metrics listed in the associated table.



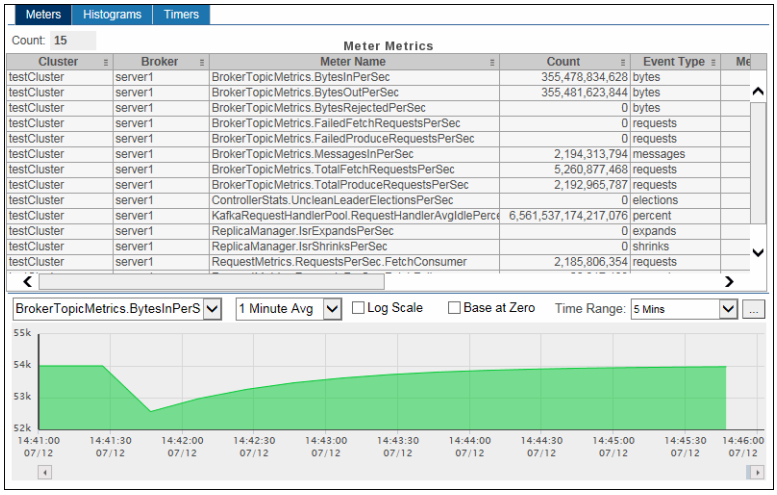


Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster	Select the cluster containing the broker for which you want to see data.
Broker	Select the broker for which you want to see data.
Count	The number of meters/histograms/timers found using the filter.

Meters Tab:



Cluster	The name of the cluster.
Broker	The name of the broker.
Meter Name	The name of the metered metric.
Count	The total count for the metered metric.
Event Type	The type (unit) of metered metric.*
Mean Rate	The average rate for the meter, based on the **Rate Unit**.*
1 Minute Avg	The rate of incoming messages (per second) averaged over a one minute period for the meter, based on the **Rate Unit**.*

5 Minute Avg The rate of incoming messages (per second) averaged over a five minute period for the meter, based on the **Rate Unit**.*

15 Minute Avg The rate of incoming messages (per second) averaged over a fifteen minute period for the meter, based on the **Rate Unit**.*

Rate Unit The unit of measure used to calculate **1 Minute Avg**, **5 Minute Avg**, **15 Minute Avg**, and **Mean Rate**.*

Expired When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.

Timestamp The date and time the row data was last updated.

Metric Performance Trends The trend chart provides a moving chart over the selected time range for each of the **Meter Names** listed in the **Meters Metrics** table.

<Meter Names Drop Down List> Select the meter name for which you want to view data.

<Rate Drop Down List> Select the option for which you want to view data:

Mean Rate -- Select this option to view the average rate for each metric for the metrics in the display.

1 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the metrics in the display.

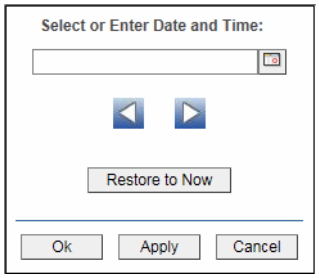
5 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a five minute period for each metric for the metrics in the display.

15 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the metrics in the display.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

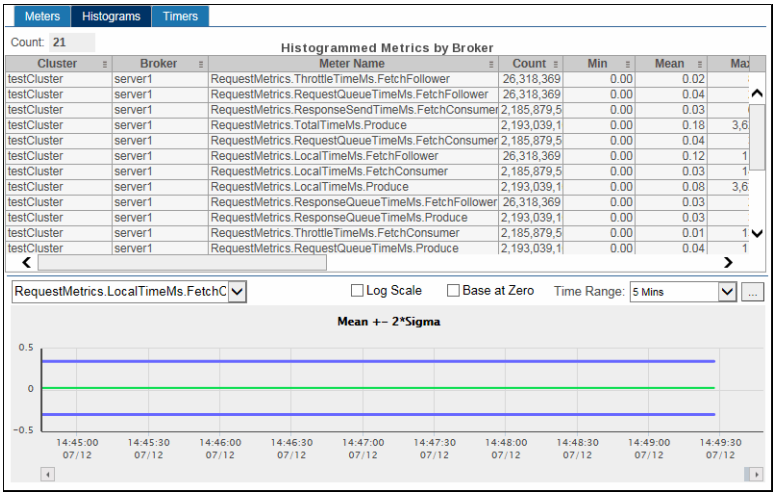


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Histograms Tab



Cluster The name of the cluster.

Broker The name of the broker.

Meter Name The name of the metered metric.

Count The total count for the metered metric.*

Min The minimum number of occurrences for the meter during the current polling period.*

Mean The average number of occurrences for the meter during the current polling period.*

Max The maximum number of occurrences for the meter during the current polling period.*

Std Dev The standard deviation for the number of occurrences for the meter during the current polling period.*

50th Percentile The 50th percentile value for the number of occurrences for the meter during the current polling period.*

75th Percentile The 75th percentile value for the number of occurrences for the meter during the current polling period.*

95th Percentile The 95th percentile value for the number of occurrences for the meter during the current polling period.*

98th Percentile The 98th percentile value for the number of occurrences for the meter during the current polling period.*

99th Percentile The 99th percentile value for the number of occurrences for the meter during the current polling period.*

999th Percentile The 999th percentile value for the number of occurrences for the meter during the current polling period.*

Expired When checked, performance data has not been received within the time specified (in seconds) in the **$kafkaRowExpirationTime** field in the **conf\rtvapm_kafkamon.properties** file. The **$kafkaRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response. To view/edit the current values, modify the following lines in the **.properties** file:

```
#########################
# CACHE / HISTORIAN SETTINGS
#
# Cache history settings
#
sl.rtview.sub=$kafkaRowExpirationTime:120
sl.rtview.sub=$kafkaRowExpirationTimeForDelete:0
```

In the example above, the **Expired** check box would be checked after 120 seconds, and the row would never be deleted. If **$kafkaRowExpirationTimeForDelete** was set to 3600, then the row would be removed from the table after 3600 seconds.

Timestamp The date and time the row data was last updated.

Metric Performance Trends The trend chart provides a moving chart over the selected time range for each of the **Meter Names** listed in the **Histogrammed Metrics by Broker** table.

<Meter Names Drop Down List> Select the meter name for which you want to view data.

<Rate Drop Down List> Select the option for which you want to view data:

Mean Rate -- Select this option to view the average rate for each metric for the metrics in the display.

1 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the metrics in the display.

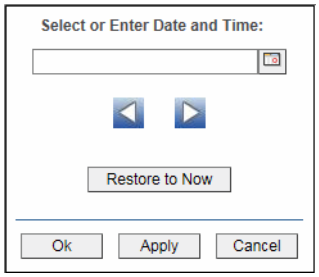
5 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a five minute period for each metric for the metrics in the display.

15 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a fifteen minute period for each metric for the metrics in the display.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

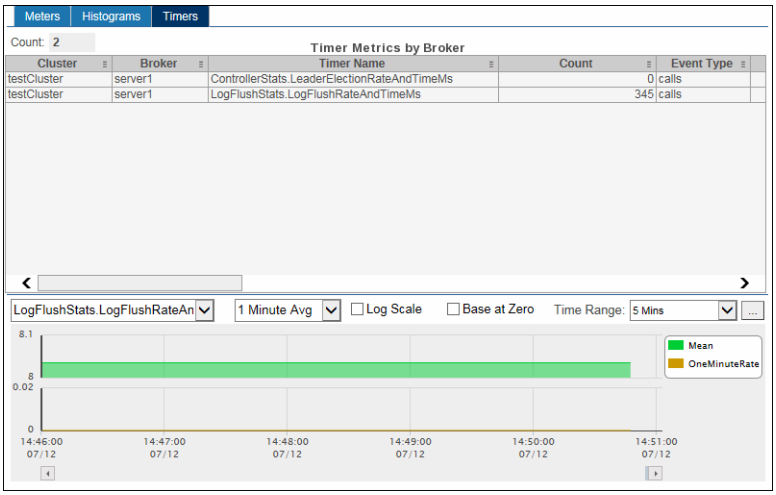


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Timers Tab:



Cluster The name of the cluster.

Broker The name of the broker.

Timer Name The name of the timer.

Count The total count for the timer.

Event Type The event type for the timer.

Mean The average number of events for the timer during the current polling period.*

Mean Rate The average rate (based on **Rate Unit**) of events for the timer during the current polling period.*

Min The minimum number of events for the timer during the current polling period.*

Max The maximum number of events for the timer during the current polling period.*

Std Dev	The standard deviation for the number of events for the timer during the current polling period.*
1 Minute Avg	The rate of incoming messages (per second) averaged over a one minute period for the timer, based on the **Rate Unit**.*
5 Minute Avg	The rate of incoming messages (per second) averaged over a five minute period for the timer, based on the **Rate Unit**.*
15 Minute Avg	The rate of incoming messages (per second) averaged over a fifteen minute period for the timer, based on the **Rate Unit**.*
50th Percentile	The 50th percentile value for the number of events for the timer during the current polling period.*
75th Percentile	The 75th percentile value for the number of events for the timer during the current polling period.*
95th Percentile	The 95th percentile value for the number of events for the timer during the current polling period.*
98th Percentile	The 98th percentile value for the number of events for the timer during the current polling period.*
999th Percentile	The 999th percentile value for the number of events for the timer during the current polling period.*
99th Percentile	The 99th percentile value for the number of events for the timer during the current polling period.*
Latency Unit	The unit of measure used to calculate the latency.*
Rate Unit	The unit of measure used to calculate **1 Minute Rate**, **5 Minute Rate**, **15 Minute Rate**, and **Mean Rate**.*

Expired	When checked, performance data has not been received within the time specified (in seconds) in the **$kafkaRowExpirationTime** field in the **conf\rtvapm_kafkamon.properties** file. The **$kafkaRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response. To view/edit the current values, modify the following lines in the **.properties** file:
	`##########################`
	`# CACHE / HISTORIAN SETTINGS`
	`#`
	`# Cache history settings`
	`#`
	`sl.rtview.sub=$kafkaRowExpirationTime:120`
	`sl.rtview.sub=$kafkaRowExpirationTimeForDelete:0`
	
	In the example above, the **Expired** check box would be checked after 120 seconds, and the row would never be deleted. If **$kafkaRowExpirationTimeForDelete** was set to 3600, then the row would be removed from the table after 3600 seconds.

Timestamp	The date and time the row data was last updated.
Timers Performance Trends	The trend chart provides a moving chart over the selected time range for each of the **Timer Names** listed in the **Timer Metrics by Broker** table.
	<Timer Names Drop Down List> Select the timer name for which you want to view data.

<Rate Drop Down List>

Select the option for which you want to view data:

Mean Rate -- Select this option to view the average rate for each metric for the metrics in the display.

1 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a one minute period for each metric for the metrics in the display.

5 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a five minute period for each metric for the metrics in the display.

15 Minute Avg -- Select this option to view the rate of incoming messages (per second) averaged over a fifteen minute period for each metric for the metrics in the display.

Log Scale

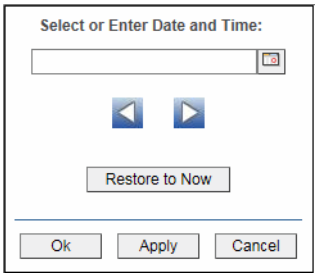
Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



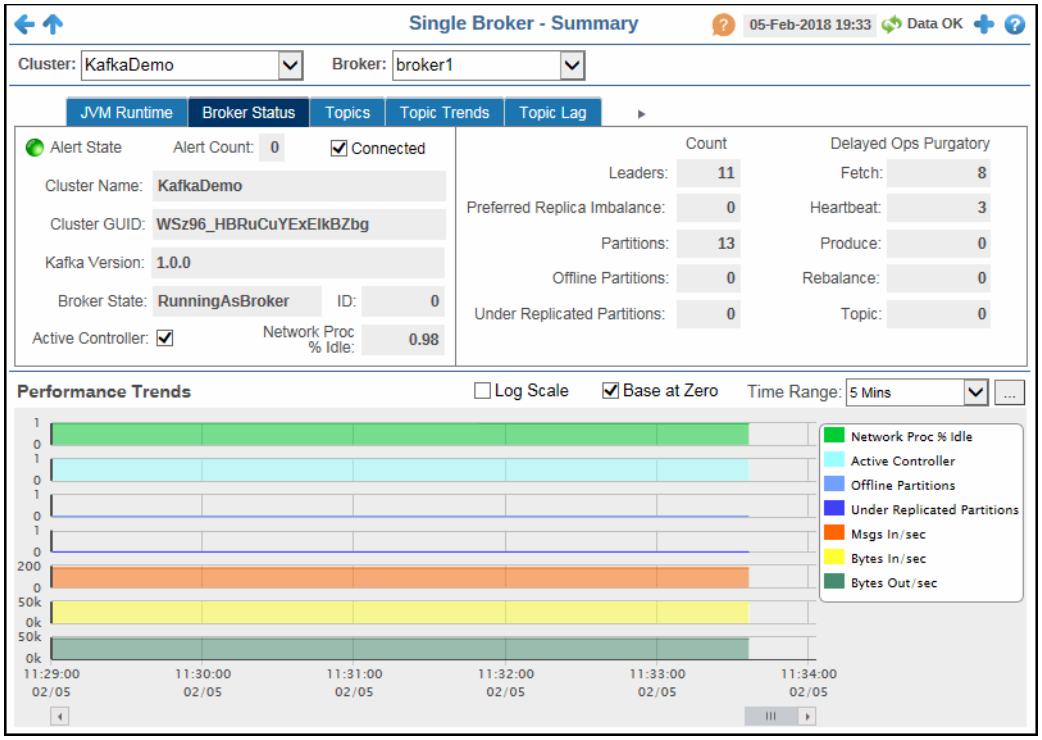
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single Broker Summary

This display provides a view of the current and historical metrics for a single broker, including JVM runtime data, broker status, topic data, and topic trend data.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

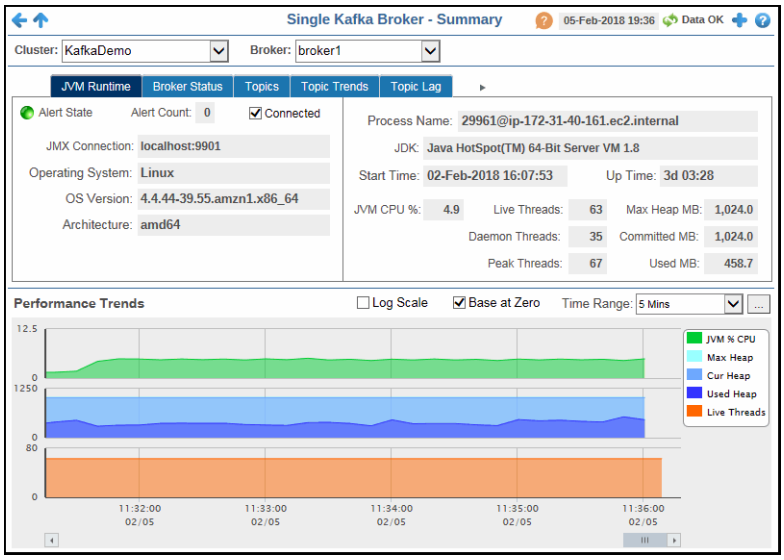
Filter By:

The display might include these filtering options:

Cluster	Select the cluster for which you want to show data in the display.
Broker	Select the broker for which you want to show data in the display.

Topic Only displays when the **Topic Trends** tab is selected. Select the topic for which you want to show data in the display.

JVM Runtime Tab



Alert State The current alert severity.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Connected When checked, denotes that the broker is connected.

JMX Connection The name of the JMX connection.*

Operating System The operating system installed on the broker.*

OS Version The version number of the operating system.*

Architecture The type of processor being used.*

Process Name The name of the process.*

JDK The JDK version number.*

Start Time The date and time when the broker was started.*

Up Time The amount of time the broker has been up and running.*

JVM CPU % The percentage of CPU used by the JVM.*

Live Threads The number of live threads on the broker.*

Max Heap MB The maximum amount of available heap, in megabytes.*

Daemon Threads The number of daemon threads running on the broker.*

Committed MB The total number of megabytes committed on the broker.*

Peak Threads The highest number of threads running at one time during the current polling period.*

Used MB The number of used megabytes on the broker.*

Performance Trends Traces the following:

JVM % CPU -- traces the percentage of CPU used by the JVM.

Max Heap -- traces the maximum amount of available heap.

Cur Heap -- traces the current amount of heap being used.

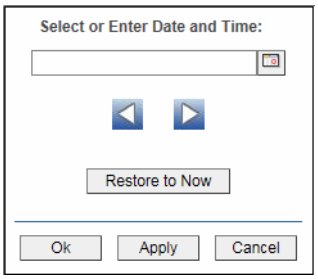
Used Heap -- traces the highest amount of heap used.

Live Threads -- traces the number of live threads.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

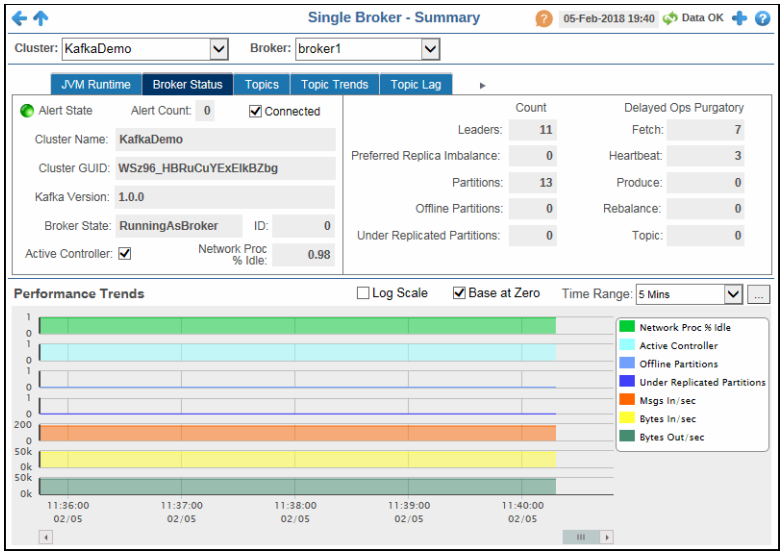


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Broker Status Tab



Alert State The current alert severity.
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Connected When checked, denotes that the broker is connected.

Cluster Name The name of the cluster in which the broker is contained.

Cluster GUID Lists the cluster's globally unique identifier.

Note: This field will not be populated for brokers running on Kafka Version 0.9.*, and the **KafkaClusterSplitBrain** alert will not work properly for those brokers.

Kafka Version The current version of Kafka installed on the broker.

Broker State The current state of the Kafka broker.

ID The broker ID for the server.

Active Controller Denotes whether or not the broker is an active controller.

Network Proc % Idle The average fraction of time the network processors are idle.*

Count

Leaders The number of leaders on the broker.*

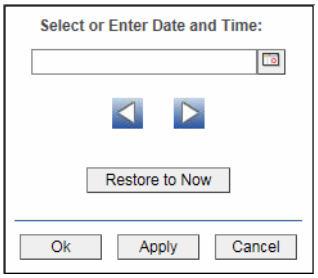
Preferred Replica Imbalance The number of topics whose replicas are not balanced on the broker.*

Partitions The number of partitions on the broker.*

Offline Partitions The number of partitions on the broker that are currently offline.*

	Under Replicated Partitions	The number of partition replicas that are not in sync on the broker.*
Delayed Ops Purgatory		
	Fetch	The number of fetch requests currently in purgatory (and waiting to be satisfied).*
	Heartbeat	The number of requests in purgatory due to failed heartbeat tests.*
	Produce	The number of produce requests currently in purgatory (and waiting to be satisfied).*
	Rebalance	The frequency with which the partition rebalance check is triggered by the controller.*
	Topic	The number of requests (based on topics) currently in purgatory.*
Performance Trends	Traces the following: **Network Proc % Idle** -- traces the average fraction of time the network processors are idle. **Active Controller** -- traces whether or not the broker is/was an active controller. **Offline Partitions** -- traces the number of offline partitions. **Under Replicated Partitions** -- traces the number of partition replicas out of sync on the broker. **Msgs In/sec** -- traces the number of incoming messages per second. **Bytes In/sec** -- traces the number of incoming bytes per second. **Bytes Out/sec** -- traces the number of outgoing bytes per second.	
	Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
	Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

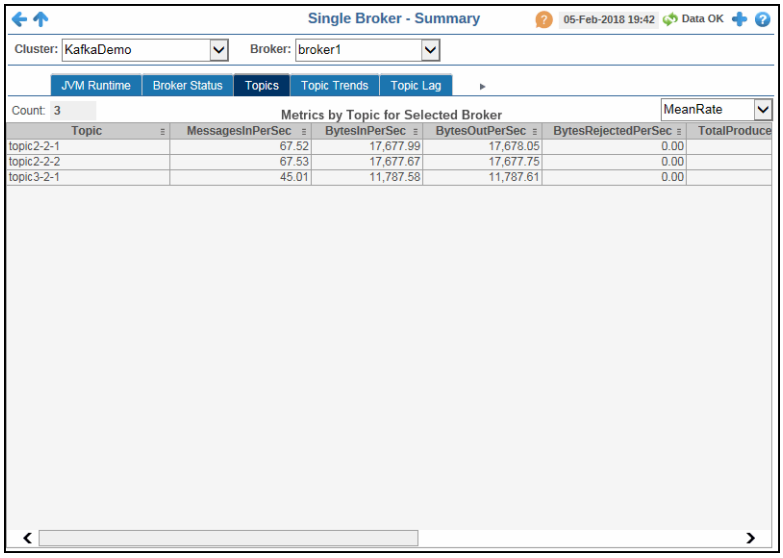


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Topics Tab



Count The total number of topics listed in the table.

<Rate Drop Down List> Select the option for which you want to view data.

Mean Rate Select this option to view the average rate for each metric for the topics in the display.

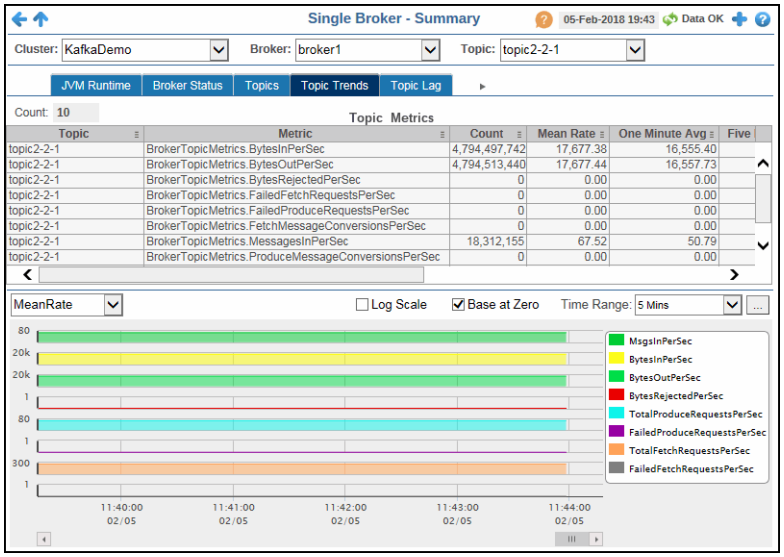
One Minute Select this option to view the 1 minute rate for each metric for the topics in the display.

Five Minute Select this option to view the 5 minute rate for each metric for the topics in the display.

Fifteen Minute Select this option to view the 15 minute rate for each metric for the topics in the display.

Topic	Lists the name of the topic.
Messages In Per Sec	The rate of incoming messages
Bytes In Per Sec	The rate of incoming bytes
Bytes Out Per Sec	The rate of outgoing bytes.
Bytes Rejected Per Sec	The rate of rejected bytes.
Total Produce Requests Per Sec	The rate of total produce requests.
Failed Produce Requests Per Sec	The rate of failed produce requests.
Total Fetch Requests Per Sec	The rate of total fetch requests.
Failed Fetch Requests Per Sec	The rate of failed fetch requests.

Topic Trends Tab



Count	The total number of topic metrics listed in the table.
Topic	The name of the topic
Metric	The name of the metric.
Count	The total number of the particular metric.
Mean Rate	The mean rate of the metric.
One Minute Avg	The (one minute) rate for the metric, based on the Rate Units.
Five Minute Avg	The (five minute) rate for the metric, based on the Rate Units.

Fifteen Minute Avg The (fifteen minute) rate for the metric, based on the Rate Units.

Event Type The event type for the topic metric.

Rate Units The unit of measure used to calculate the **Mean Rate,** the **One Minute Avg**, the **Five Minute Avg**, and the **Fifteen Minute Avg**.

Expired When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.

time_stamp The date and time the row data was last updated.

Rate Trends Select the option for which you want to view data:

MeanRate -- Select this option to view the average rate for each metric in the trend graph.

One Minute-- Select this option to view the rate averaged over a one minute period for each metric in the trend graph.

Five Minute -- Select this option to view the rate averaged over a five minute period for each metric in the trend graph.

Fifteen Minute -- Select this option to view the rate averaged over a fifteen minute period for each metric in the trend graph.

Traces the following:

MsgsInPerSec -- traces the selected rate of incoming messages.

BytesInPerSec -- traces the selected rate of incoming bytes.

BytesOutPerSec -- traces the selected rate of outgoing bytes.

BytesRejectedPerSec -- traces the selected rate of rejected bytes.

TotalProduceRequestsPerSec -- traces the selected rate of total produce requests.

FailedProduceRequestsPerSec -- traces the selected rate of failed produce requests.

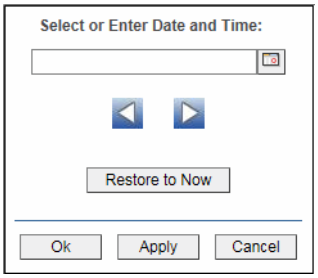
TotalFetchRequestsPerSec -- traces the selected rate of total fetch requests.

FailedFetchRequestsPerSec -- traces the selected rate of failed fetch requests.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

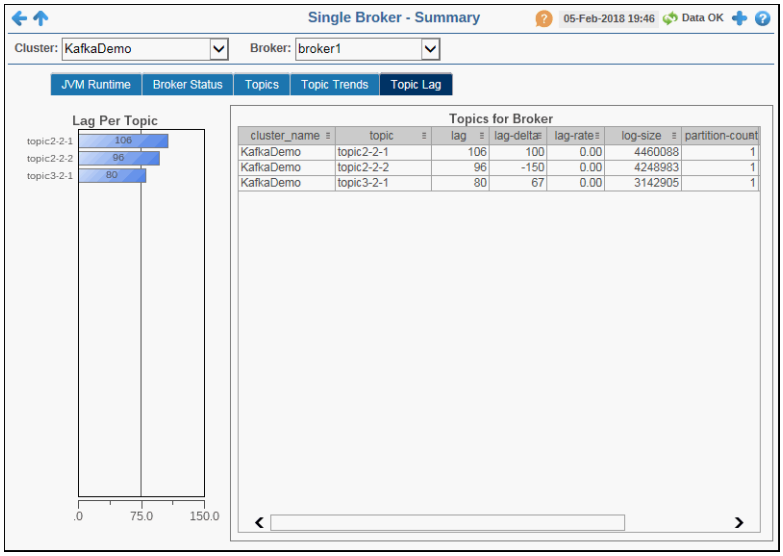


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Topic Lag Tab



Lag Per Topic Bar Graph Displays the lag per topic in a bar graph format.

Topics for Broker Table

cluster_name The name of the cluster in which the topic resides.

topic The name of the topic.

lag The difference between the current consumer position in the partition and the end of the log.*

lag-delta The difference in the amount of lag from the previous polling period to the current polling period.*

lag-rate The rate of change in the amount of lag.*

log-size	The current number of messages in the log.*
partition-count	The number of partitions containing the topic.
time_stamp	The date and time the row data was last updated.

Kafka Zookeepers View

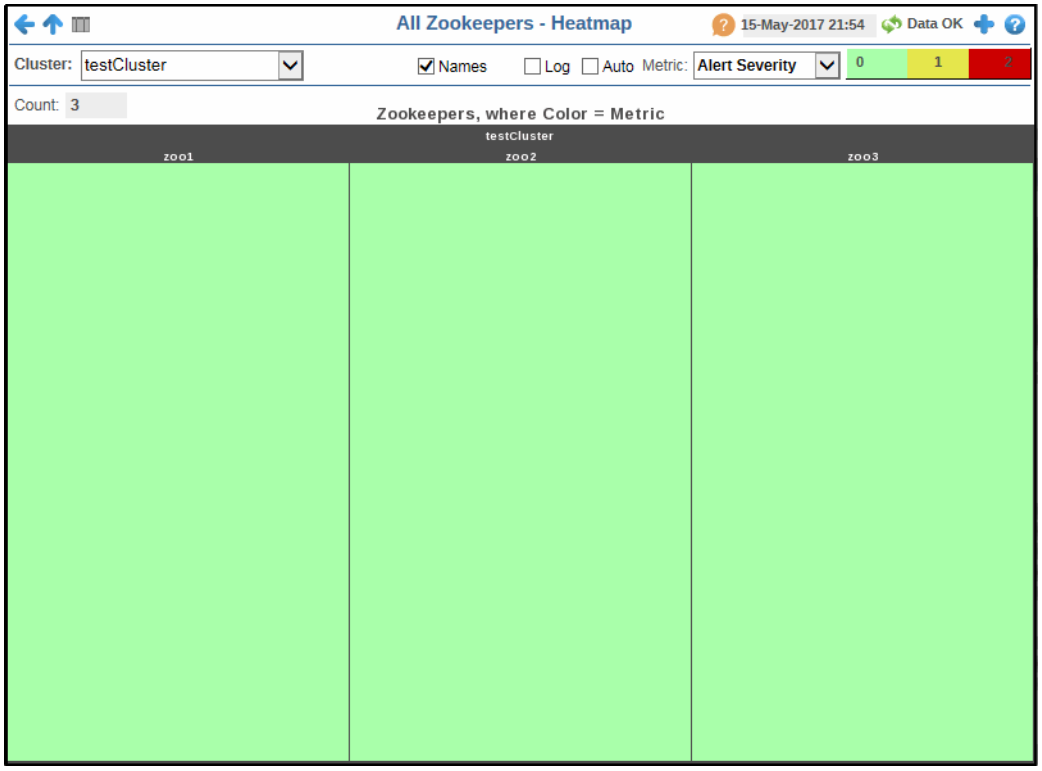
These displays provide detailed data for all zookeepers or for a particular zookeeper. The available displays in this View are:

- "All Zookeepers Heatmap": Heatmap view of all zookeepers and their associated metrics in a particular cluster.
- "All Zookeepers Table": Tabular view of all zookeepers and their associated metrics in a particular cluster.
- "Zookeepers Summary": Contains current and historical metrics, as well as trend data, for a single zookeeper.

All Zookeepers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your zookeepers for each available metric. You can view the zookeepers in the heatmap based on the following metrics: the current alert severity, the current alert count, the number of clients connections, the number of queued requests, the number of incoming packets per second, and the number of outgoing packets per second. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a zookeeper. Clicking one of the rectangles in the heatmap opens the "Zookeepers Summary" display, which allows you to see additional details for the selected zookeeper.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

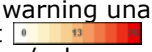
Cluster	Select the cluster for which you want to view data.
Names	Select this check box to display the names of the zookeepers at the top of each rectangle in the heatmap.
Log	Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. **Note:** Some metrics auto-scale automatically, even when **Auto** is not selected.
Metric	Choose a metric to view in the display.

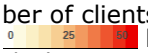
Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

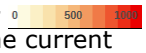
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

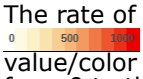
Alert Count The total number of critical and warning unacknowledged alerts in the adapters. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

 # Alive Connections The number of clients connected to the zookeeper. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaZookeeperNumAliveConns**. The middle value in the gradient bar indicates the middle value of the range.

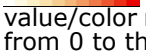
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Outstanding Reqs The number of queued requests. The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaZookeeperOutstandingReqs**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Packets In Per Sec The rate of incoming packets (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaZookeeperRatePktsRcvd**. The middle value in the gradient bar indicates the middle value of the range.

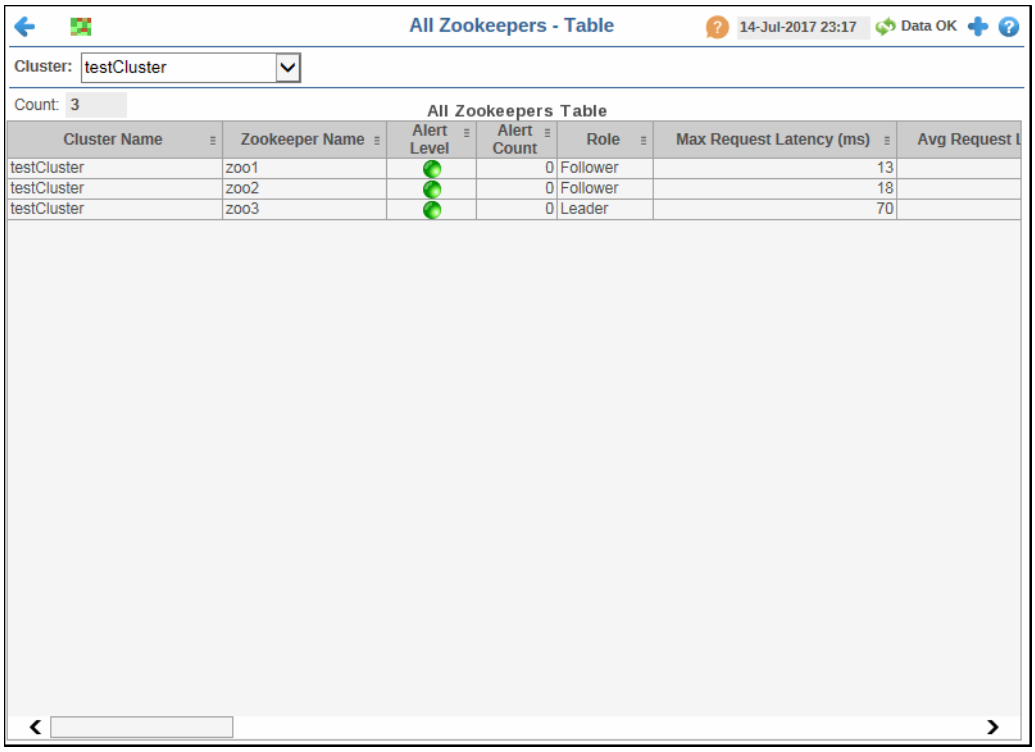
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

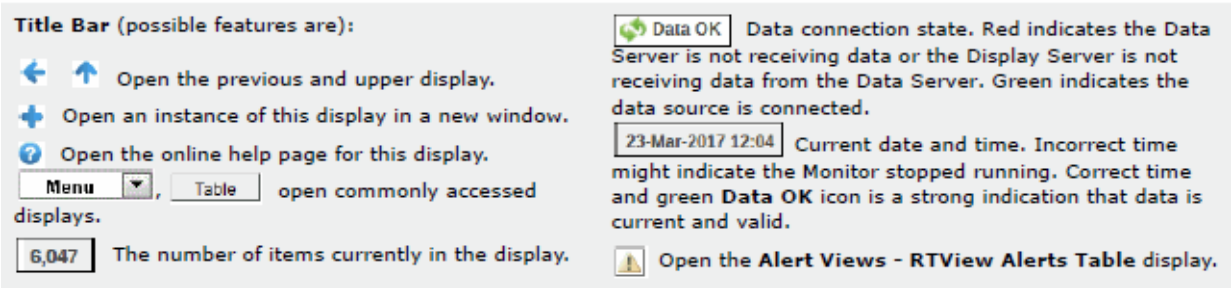
Packets Out Per Sec The rate of outgoing packets (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaZookeeperRatePktsSent**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Zookeepers Table

The table in this display provides a view of all of the zookeepers for a specific cluster and their associated metric data including connection, cluster name, alert level, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected adapter in the "Zookeepers Summary" display.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster Select the cluster for which you want to see data.

Count	The number of zookeepers that were found in the selected cluster.

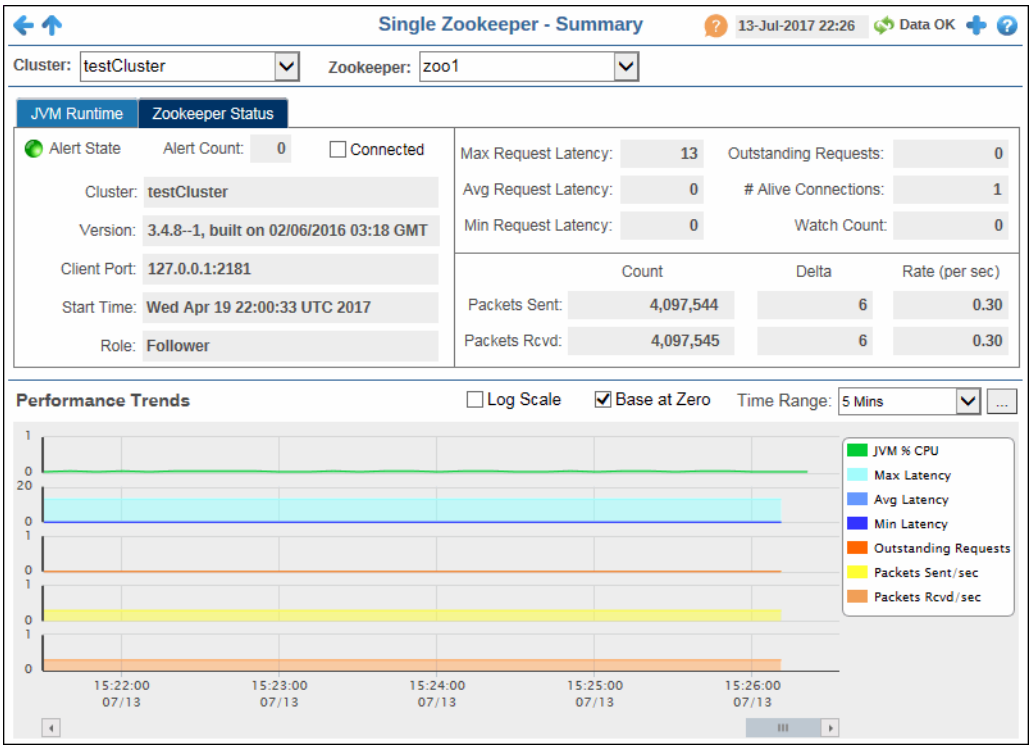
All Zookeepers Table:

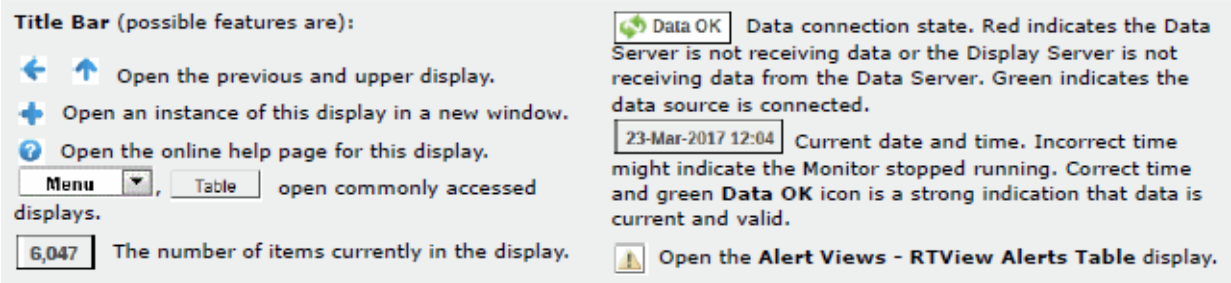
Cluster Name	The name of the cluster.
Zookeeper Name	The name of the zookeeper.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Role	The role of the zookeeper (**Leader** or **Follower**).*
Max Request Latency (ms)	The longest amount of time taken to respond to a client request (in milliseconds) on the zookeeper since the last polling update.*
Avg Request Latency	The average amount of time taken to respond to a client request (in milliseconds) on the zookeeper since the last polling update.*
Min Request Latency	The least amount of time taken to respond to a client request (in milliseconds) on the zookeeper since the last polling update.*
Num Alive Connections	The number of clients connected to the zookeeper.*
Outstanding Requests	The number of queued requests.*
Node Count	The total number of nodes.*
Watch Count	The number of watchers set up over the zookeeper nodes.*
Packets Recvd	The number of packets received.*
Packets Sent	The number of packets sent.*
Delta Packets Recvd	The increase in the amount of packets received by the zookeeper (from the previous polling period to the current polling period).*
Delta Packets Sent	The increase in the amount of packets sent from the zookeeper (from the previous polling period to the current polling period).*
Rate Packets Recvd	The rate at which packets are being received by the zookeeper.*
Rate Packets Sent	The rate at which packets are being sent by the zookeeper.*
Max Client Cnxns Per Host	The maximum number of connections allowed from each host.*
Max Session Timeout	The maximum allowed session timeout allowed for registered consumers.*
Min Session Timeout	The minimum allowed session timeout allowed for registered consumers.*
Version	The current version of Kafka being used.*
Client Port	Lists the client's port.*
JMX Connection String	Lists the connection string.*
Connected	Denotes whether or not the zookeeper is connected.

Expired	When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response. For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.
Start Time	The date and time the zookeeper was started.*
Timestamp	The date and time the row data was last updated.

Zookeepers Summary

This display provides a view of the current and historical metrics for a single zookeeper. You can view JVM runtime statistics and trend data as well as zookeeper status and trend data for the selected zookeeper.





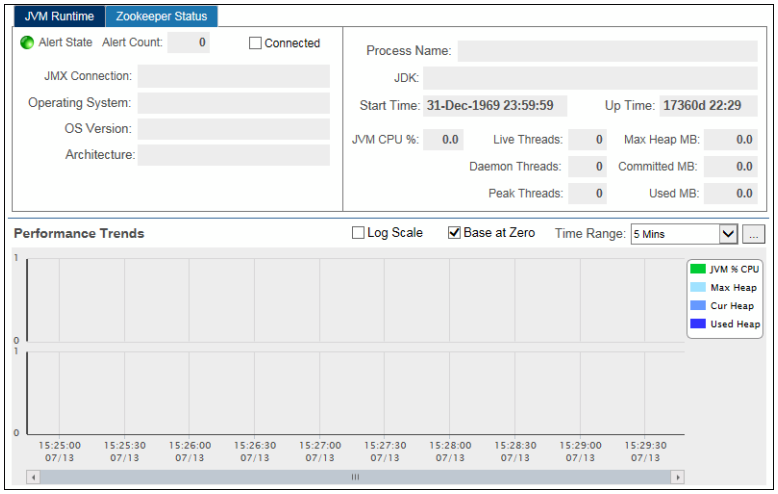
Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster Select the cluster for which you want to show data in the display.

Zookeeper Select the zookeeper for which you want to show data in the display.

JVM Runtime Tab:



Alert State The current alert severity.
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

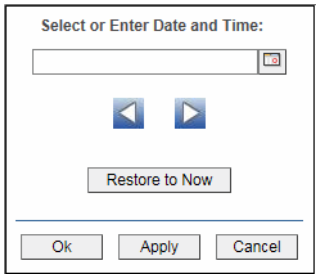
Connected Denotes whether or not the jmx connection is connected.

JMX Connection The name of the JMX connection.*

Operating System The operating system installed on the zookeeper.*

OS Version	The version number of the operating systems.*
Architecture	The type of processor being used.*
Process Name	The name of the process.*
JDK	The JDK version number.*
Start Time	The date and time when the zookeeper was started.*
Up Time	The amount of time the zookeeper has been up and running.*
JVM CPU %	The percentage of CPU being used by the JVM.*
Live Threads	The number of live threads.*
Max Heap MB	The maximum amount of available heap, in megabytes.*
Daemon Threads	The number of daemon threads running.*
Committed MB	The total number of megabytes committed.*
Peak Threads	The highest number of threads running at one time during the current polling period.*
Used MB	The number of used megabytes.*
Performance Trends	Traces the following: **JVM % CPU** -- traces the percentage of CPU being used by the JVM. **Max Heap** -- traces the maximum amount of available heap. **Cur Heap**-- traces the current amount of heap being used. **Used Heap**-- traces the highest amount of heap used.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

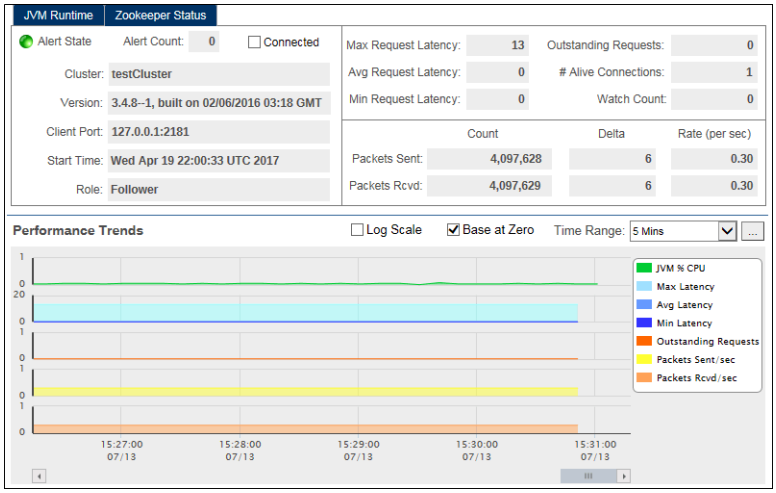


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Zookeeper Status Tab:



Alert State The current alert severity.

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Connected When checked, denotes that the zookeeper is connected.

Cluster The name of the cluster in which the zookeeper is contained.

Version The current version of Apache Kafka installed.*

Client Port The client's IP address and port.*

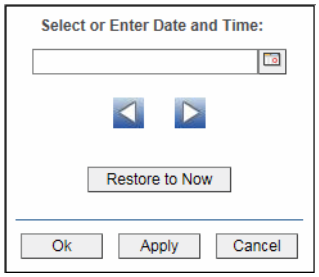
Start Time The date and time when the zookeeper was started.*

Role	The zookeeper's role (**Leader**/**Follower**).*
Max Request Latency	The longest amount of time taken to respond to a client request (in milliseconds) on the zookeeper since the last polling update.*
Avg Request Latency	The average amount of time taken to respond to a client request (in milliseconds) on the zookeeper since the last polling update.*
Min Request Latency	The least amount of time taken to respond to a client request (in milliseconds) on the zookeeper since the last polling update.*
Outstanding Requests	The number of queued requests.*
# Alive Connections	The number of clients connected to the zookeeper.*
Watch Count	The number of watchers set up over the zookeeper nodes.*
Packets Sent	**Count** -- The number of packets sent.* **Delta** -- The increase in the amount of packets sent from the zookeeper (from the previous polling period to the current polling period).* **Rate (per sec)** -- The rate at which packets are being sent (per second) by the zookeeper.*
Packets Rcvd	**Count** -- The number of packets received.* **Delta** -- The increase in the amount of packets received by the zookeeper (from the previous polling period to the current polling period).* **Rate (per sec)** -- The rate at which packets are being received (per second) by the zookeeper.*
Performance Trends	Traces the following: **JVM % CPU** -- traces the percentage of CPU used by the JVM. **Max Latency** -- traces the longest amount of time taken to respond to a client request. **Avg Latency** -- traces the average amount of time taken to respond to a client request. **Min Latency** -- traces the least amount of time taken to respond to a client request. **Outstanding Requests** -- traces the number of queued requests. **Packets Sent/sec** -- traces the rate at which packets are being sent (per second) by the zookeeper. **Packets Rcvd/sec** -- traces the rate at which packets are being received (per second) by the zookeeper.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Kafka Producers View

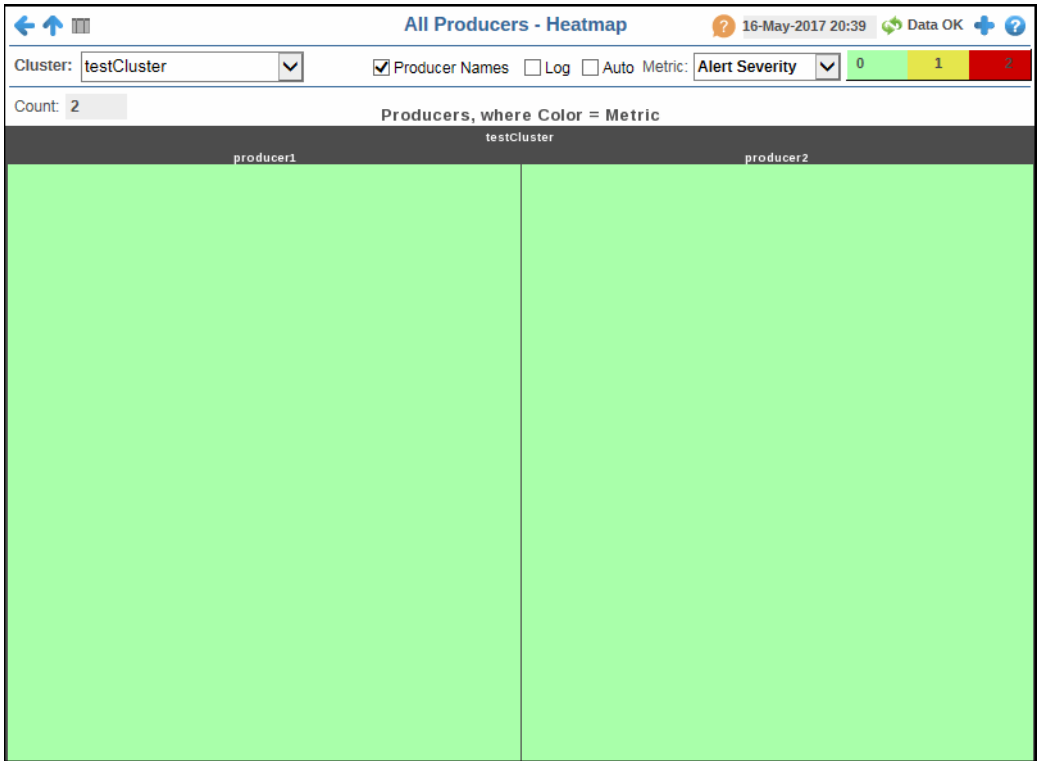
These displays provide detailed data for all producers or for a particular producer. The available displays in this View are:

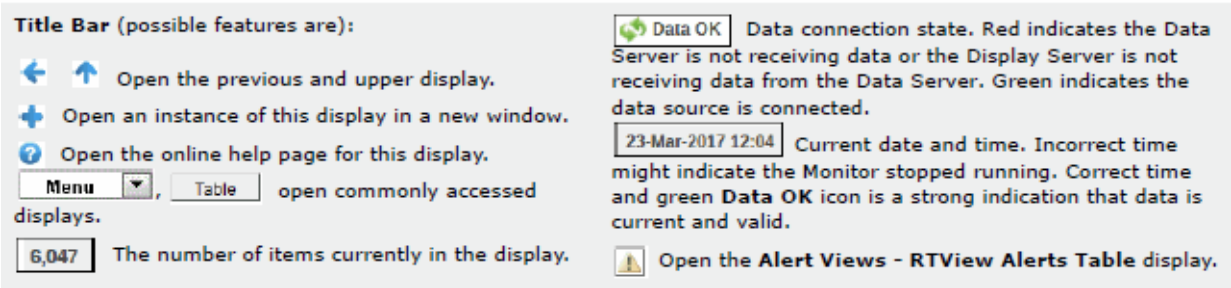
- "All Producers Heatmap": Heatmap view of all producers and their associated metrics in a particular cluster.
- "All Producers Table": Tabular view of all producers and their associated metrics in a particular cluster.
- "Producer Summary": Contains current and historical metrics, as well as trend data, for a single producer.

All Producers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your producers for each available metric. You can view the producers in the heatmap based on the following metrics: the current alert severity, the current alert count, the incoming/outgoing byte rate, the IO wait time, the request latency, and the request/response rates. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Producer Names** check-box to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a producer. Clicking one of the rectangles in the heatmap opens the "Producer Summary" display, which allows you to see additional details for the selected producer.





Fields and Data:

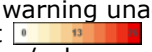
Cluster	Select the cluster for which you want to view data.
Producer Names	Select this check box to display the names of the producers at the top of each rectangle in the heatmap.
Log	Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. **Note:** Some metrics auto-scale automatically, even when **Auto** is not selected.
Metric	Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

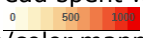
Alert Count The total number of critical and warning unacknowledged alerts in the adapters. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Incoming Byte Rate The rate of incoming bytes (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaProducerIncomingByteRate**. The middle value in the gradient bar indicates the middle value of the range.

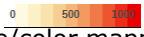
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Outgoing Byte Rate The rate of outgoing bytes (per second). The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaProducerOutgoingByteRate**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

IO Wait Time NSec Avg The average length of time the IO thread spent waiting for a socket (in nanoseconds). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaProducerIoWaitTimeMS**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Request Latency The amount of time between when a producer is called and when the producer receives a response from the broker. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaProducerRequestLatency**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Request Rate The average number of requests sent per second. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaProducerRequestRate**. The middle value in the gradient bar indicates the middle value of the range.

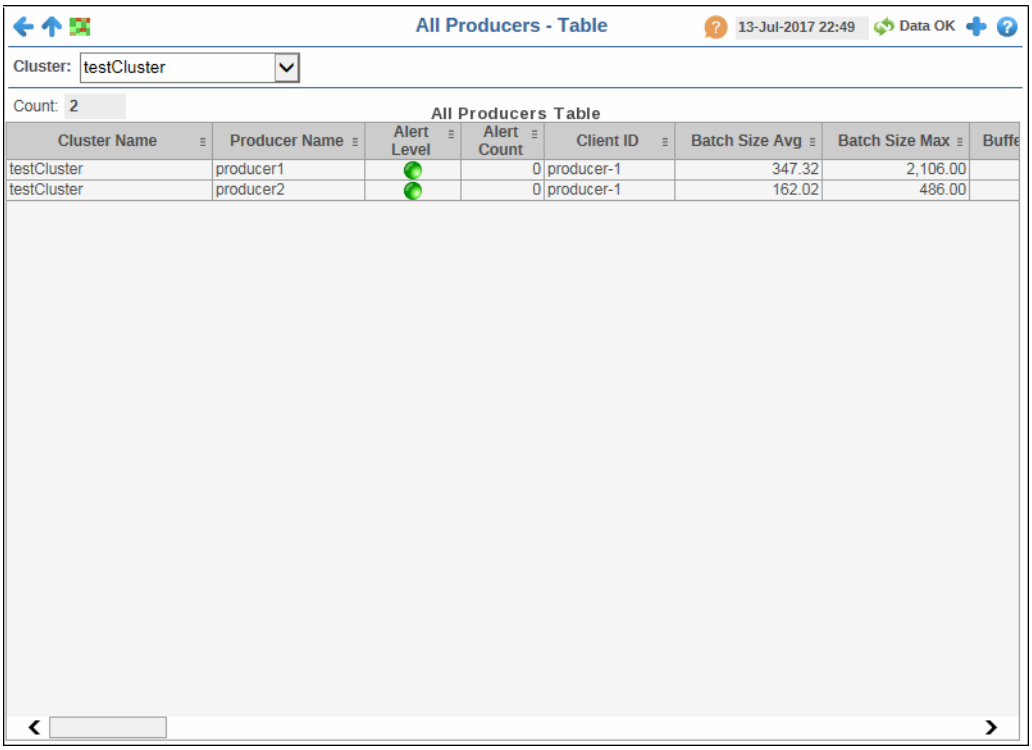
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

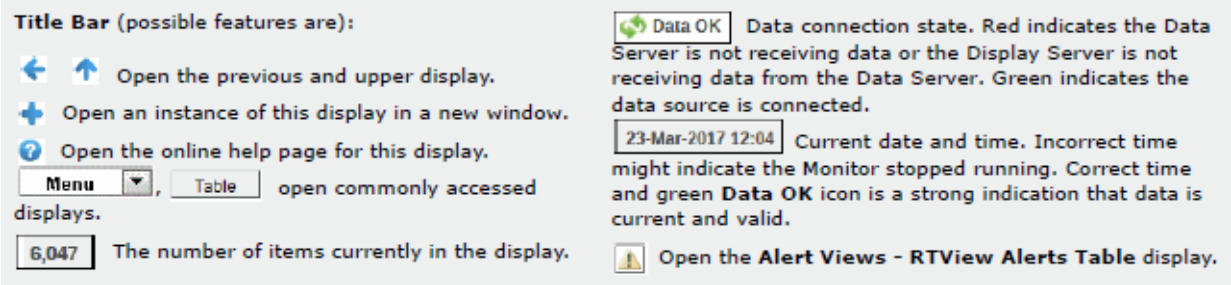
Response Rate The average number of responses received (per second). The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaProducerResponseRate**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Producers Table

The table in this display provides a view of all of your producers and their associated metric data including connection, alert level, alert count, cluster name, client ID, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected adapter in the "Producer Summary" display.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster	Select the cluster for which you want to view data.
Count	The number of producers found on the selected cluster, and that are listed in the **All Producers Table**.

All Producers Table:

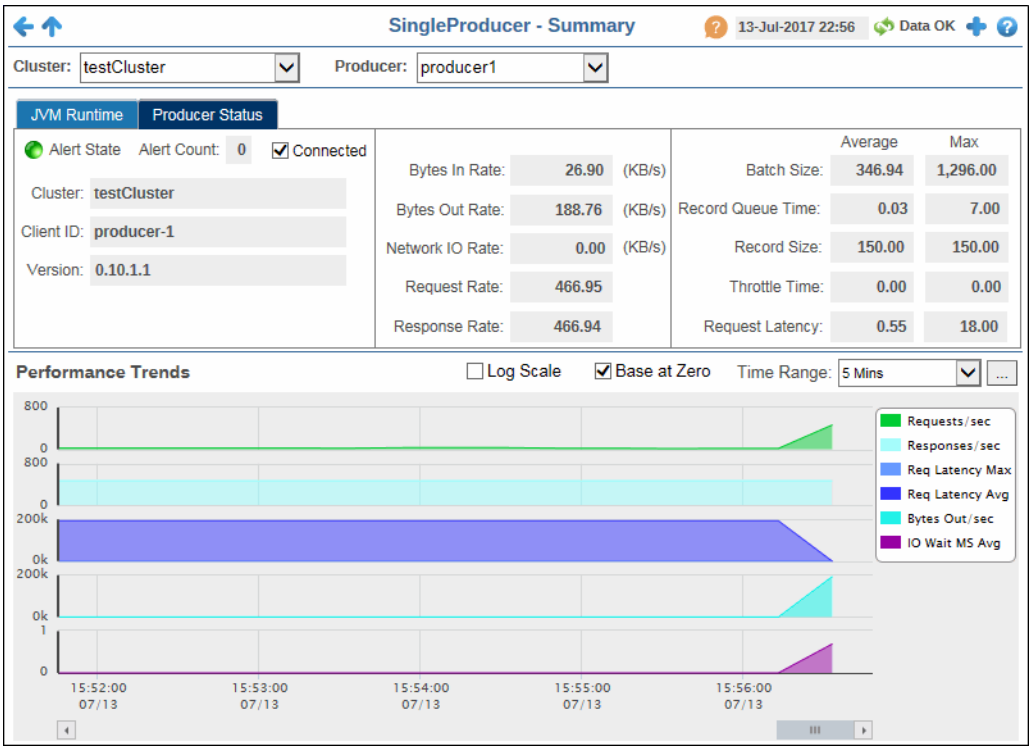
Cluster Name	The name of the cluster.*
Producer Name	The name of the producer.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Client ID	The ID of the producer.*
Batch Size Average	The average batch size sent by the producer.*
Batch Size Max	The maximum number of messages that can be added to a batch before being sent to the event handler.*
Buffer Available Bytes	The number of available bytes in the buffer.*
Buffer Exhausted Rate	The average per-second number of record sends that are dropped due to buffer exhaustion.*
Buffer Total Bytes	The total number of bytes allowed in the buffer.*
Buffer Pool Wait Ratio	The fraction of time an appender waits for space allocation.*
Compression Rate Avg	The average compression rate of record batches.*
Connection Close Rate	The rate of connections being closed.*

Connection Count	The number of active connections.*
Connection Creation Rate	The rate of connections being created.*
Incoming Byte Rate	The average number of incoming bytes per second.*
IO Ratio	The rate of input/output operations.*
IO Time NS Avg	The average length of time the I/O thread spent waiting for a socket (in nanoseconds).*
IO Wait Ratio	The percent of time the producer was performing I/O operations while the CPU was idle.*
IO Wait Time Millisec Avg	The average length of time the I/O thread spent waiting for a socket (in milliseconds).*
Metadata Age	The age (in seconds) of the current producer metadata being used.*
Network IO Rate	The rate of input/output network operations.*
Outgoing Byte Rate	The average number of outgoing bytes per second.*
Produce Throttle Time Avg	The avg time (in milliseconds) a request was throttled by a broker.*
Produce Throttle Time Max	The maximum time (in milliseconds) a request was throttled by a broker.*
Record Error Rate	The average per-second number of record sends that resulted in errors for a topic.*
Record Queue Time Avg	The average time (in milliseconds) record batches spent in the record accumulator.*
Record Queue Time Max	The maximum time (in milliseconds) record batches spent in the record accumulator.*
Record Retry Rate	The average per-second number of retried record sends.
Record Send Rate	The average number of records sent (per second) for a topic.*
Record Size Avg	The average record size.*
Record Size Max	The maximum record size.*
Records per Request Avg	The average number of records per request.*
Request Latency Avg	The average request latency (in milliseconds).*
Request Latency Max	The maximum request latency (in milliseconds).*
Request Rate	The average number of requests sent per second.*
Request Size Avg	The average request size.*
Request Size Max	The maximum request size.*

Requests In Flight	The current number of in-flight requests awaiting a response.*
Response Rate	The average number of responses received per second.*
Select Rate	The number of times the I/O layer checked for new I/O operations to perform per second.*
Waiting Threads	The number of user threads blocked waiting for buffer memory to enqueue their records.*
Jmx Connection String	The JMX connection string.*
Version	The current version of Apache Kafka installed.*
Connected	Denotes whether or not the producer is connected.
Expired	When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response. For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.
Timestamp	The date and time the row data was last updated.

Producer Summary

This display provides a view of the current and historical metrics for a single producer. You can view JVM runtime statistics and trend data as well as producer status and trend data for the selected producer.



Title Bar (possible features are):

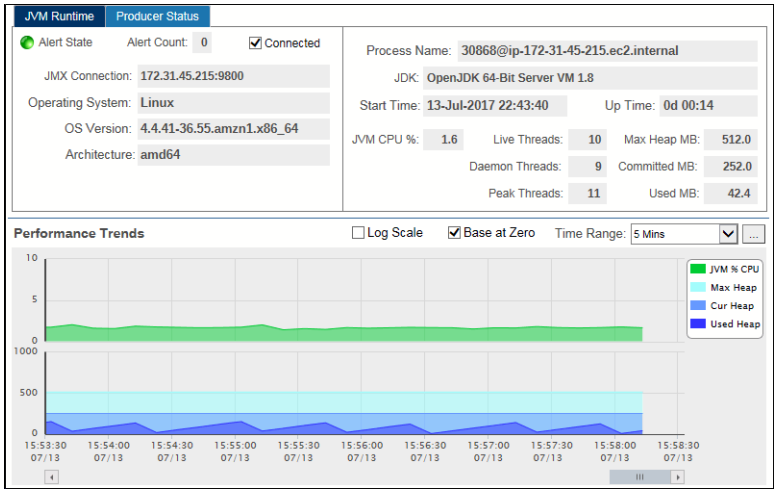
- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Producer Select the producer for which you want to show data in the display.

JVM Runtime Tab:



Alert State	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Connected	Denotes whether or not the jmx connection is connected.
JMX Connection	The name of the JMX connection.*
Operating System	The operating system installed on the producer.*
OS Version	The version number of the operating systems.*
Architecture	The type of processor being used.*
Process Name	The name of the process.*
JDK	The JDK version number.*
Start Time	The date and time when the producer was started.*
Up Time	The amount of time the producer has been up and running.*
JVM CPU %	The percentage of CPU being used by the JVM.*
Live Threads	The number of live threads.*
Max Heap MB	The maximum amount of available heap, in megabytes.*
Daemon Threads	The number of daemon threads running.*
Committed MB	The total number of megabytes committed.*
Peak Threads	The highest number of threads running at one time during the current polling period.*
Used MB	The number of used megabytes.*

Performance Trends

Traces the following:

JVM % CPU -- traces the CPU being used by the JVM.

Max Heap -- traces the maximum amount of available heap.

Cur Heap-- traces the current amount of heap being used.

Used Heap-- traces the highest amount of heap used.

Log Scale

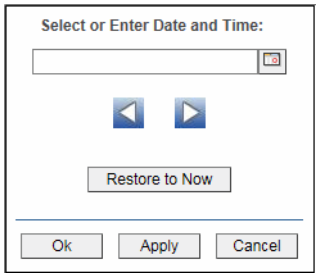
Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .

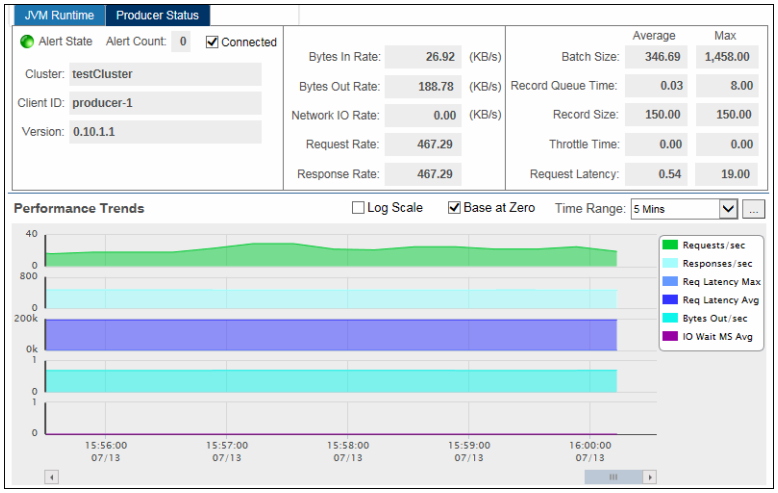


By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

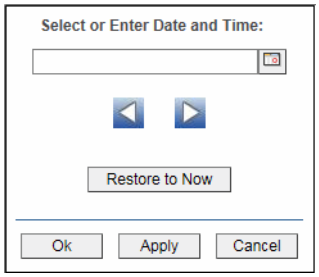
Producer Stats Tab:



Alert State	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Connected	When checked, denotes that the producer is connected.
Cluster	The name of the cluster in which the producer is contained.
Client ID	The ID of the client.
Version	The current version of Apache Kafka installed.*
Bytes In Rate	The rate of incoming bytes (kilobytes per second).*
Bytes Out Rate	The rate of outgoing bytes (kilobytes per second).*
Network IO Rate	The rate of input/output network operations.*
Request Rate	The average number of requests sent per second.*
Response Rate	The average number of responses received per second.*
Batch Size	**Average** -- The average batch size sent by the producer.* **Max** -- The maximum number of messages that can be added to a batch before being sent to the event handler.*
Record Queue Time	**Average** -- The average time (in milliseconds) record batches spent in the record accumulator.* **Max** -- The maximum time (in milliseconds) record batches spent in the record accumulator.*
Record Size	**Average** -- The average record size.* **Max** -- The maximum record size.*
Throttle Time	**Average** -- The average throttle time (in milliseconds).* **Max** -- The maximum time (in milliseconds) a request was throttled by a broker.*
Request Latency	**Average** -- The average request latency (in milliseconds).* **Max** --The maximum request latency (in milliseconds).*
Performance Trends	Traces the following: **Requests/sec** -- traces the number of requests per second. **Responses/sec** -- traces the number of responses per second. **Req Latency Max** -- traces the maximum request latency (in milliseconds). **Req Latency Avg** -- traces the average request latency (in milliseconds). **Bytes Out/sec** -- traces the rate of outgoing bytes (kilobytes per second). **IO Wait MS Avg** -- traces the average length of time the I/O thread spent waiting for a socket (in milliseconds).
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Kafka Consumers View

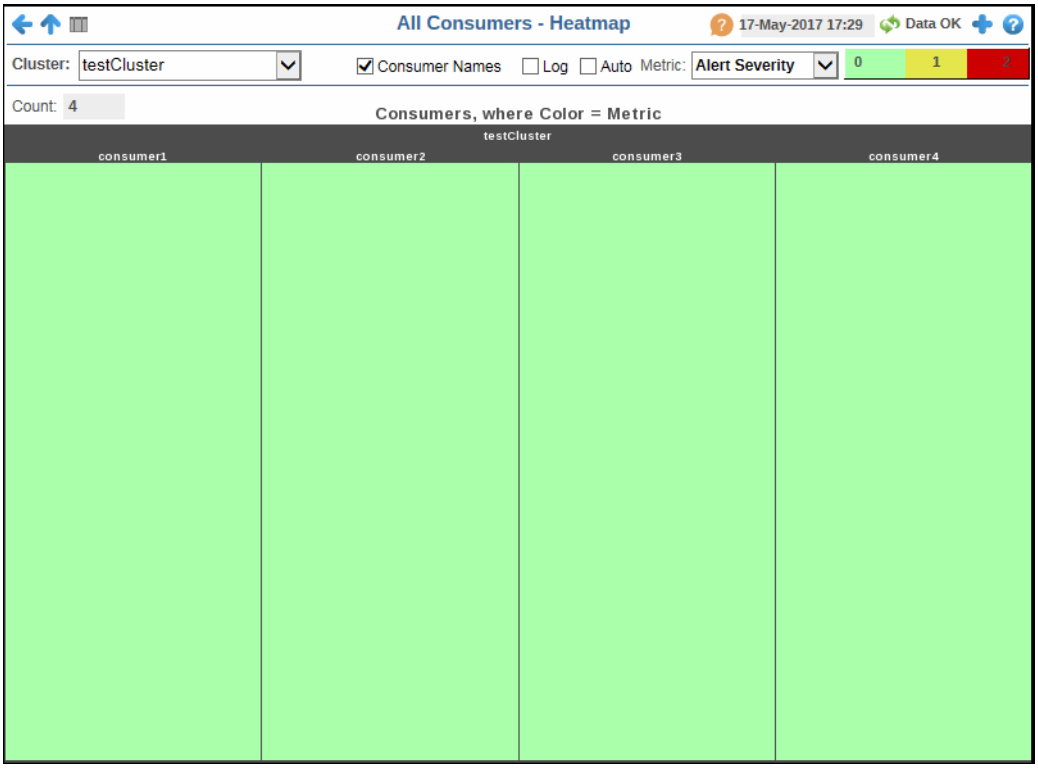
These displays provide detailed data for all consumers or for a particular consumer. The available displays in this View are:

- "All Consumers Heatmap": Heatmap view of all consumers and their associated metrics in a particular cluster.
- "All Consumers Table": Tabular view of all consumers and their associated metrics in a particular cluster.
- "Consumers Summary": Contains current and historical metrics, as well as trend data, for a single consumer.

All Consumers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your consumers for each available metric. You can view the consumers in the heatmap based on the following metrics: the current alert severity, the current alert count, the bytes consumed rate, the fetch latency average, the fetch rate, the maximum consumer lag, and the records consumed rate. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Consumer Names** check-box to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a consumer. Clicking one of the rectangles in the heatmap opens the "Consumers Summary" display, which allows you to see additional details for the selected consumer.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

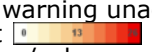
Cluster	Select the cluster for which you want to view data.
Consumer Names	Select this check box to display the names of the consumers at the top of each rectangle in the heatmap.
Log	Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. **Note:** Some metrics auto-scale automatically, even when **Auto** is not selected.
Metric	Choose a metric to view in the display.

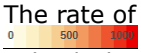
Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

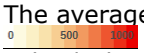
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

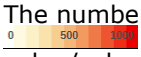
Alert Count The total number of critical and warning unacknowledged alerts in the adapters. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Bytes Consumed Rate The rate of bytes being consumed (per second). The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaConsumer**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Fetch Latency Avg The average time taken for fetch request. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaConsumer**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Fetch Rate The number of fetch request per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaConsumer**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Consumer Max Lag

The maximum lag in the number of records for any partition. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaConsumer**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

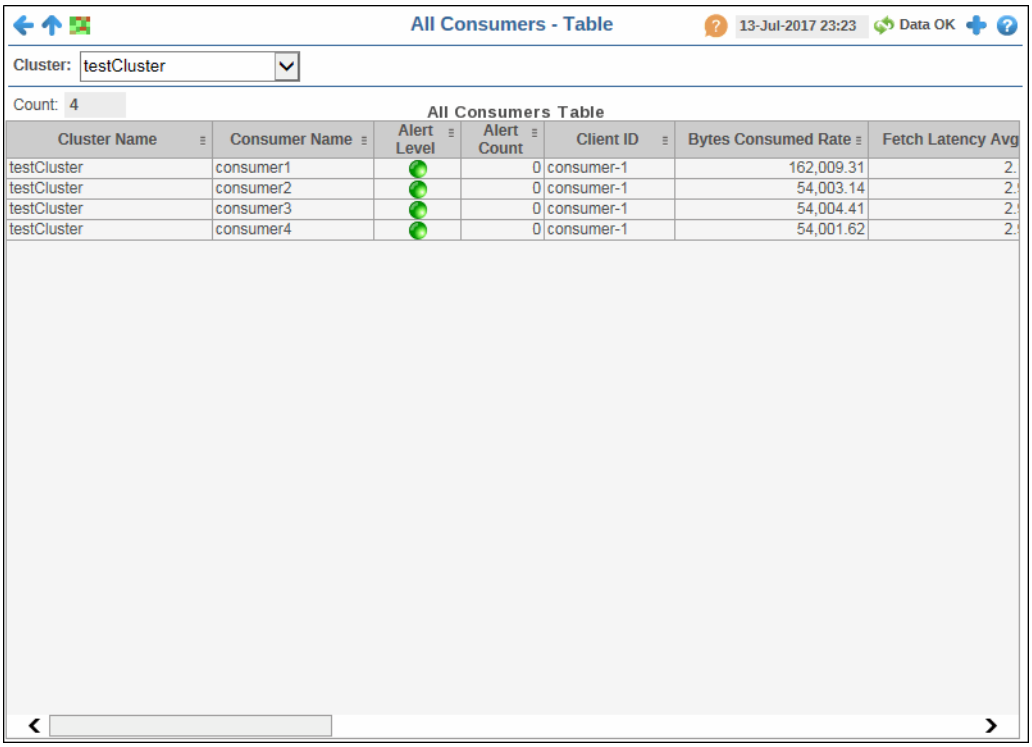
Records Consumed Rate

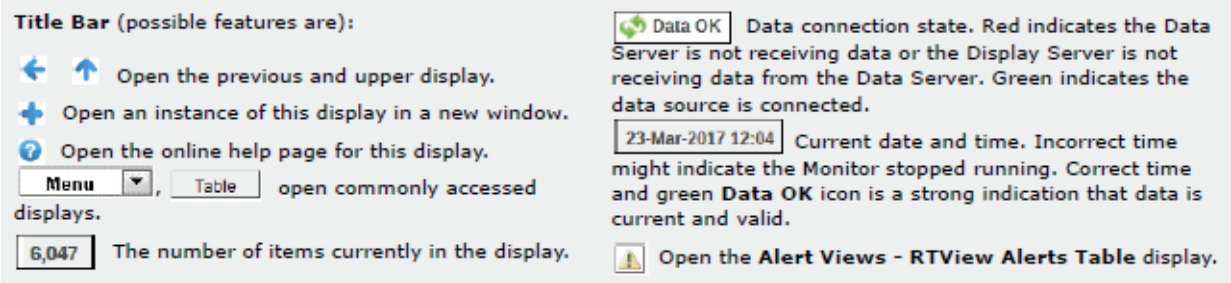
The rate of records being consumed (per second). The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **KafkaConsumer**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Consumers Table

The table in this display provides a view of all of your consumers and their associated metric data including connection, alert level, alert count, cluster name, client ID, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected consumer in the "Consumers Summary" display





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster	Select the cluster for which you want to view data.
Count	The number of consumers found on the selected cluster, which are listed in the **All Consumers Table**.

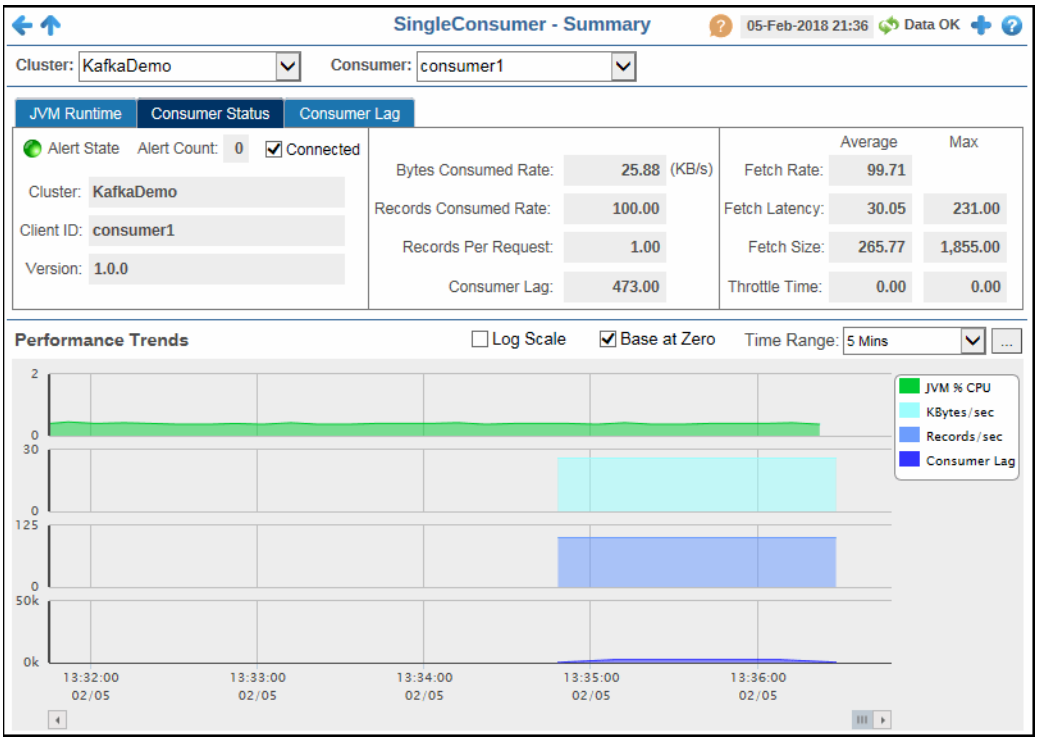
All Consumers Table:

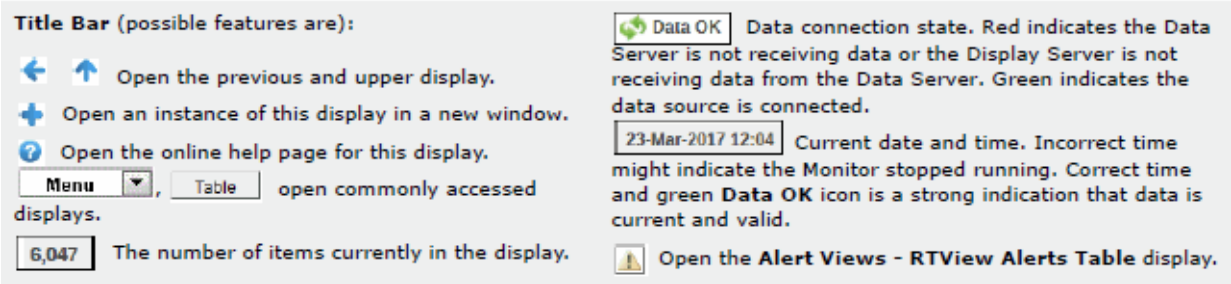
Cluster Name	The name of the cluster.
Consumer Name	The name of the consumer.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Client ID	The ID of the consumer.*
Bytes Consumed Rate	The average number of bytes consumed per second.*
Fetch Latency Avg	The average time taken for a fetch request.*
Fetch Latency Max	The maximum time taken for a fetch request.*
Fetch Rate	The number of fetch requests per second.*
Fetch Size Avg	The average number of bytes fetched per request.*
Fetch Size Max	The maximum number of bytes fetched per request.*
Fetch Throttle Time Avg	The average throttle time in milliseconds.*
Fetch Throttle Time Max	The maximum throttle time in milliseconds.*

Records Consumed Rate	The average number of records consumed per second.*
Records Lag Max	The maximum lag in the number of records for any partition.*
Records per Request Avg	The average number of records in each request.*
JMX Connection String	The JMX connection string.*
Version	The current version of Apache Kafka installed.*
Connected	Denotes whether or not the consumer is connected.*
Expired	When checked, performance data in the row has not been received within the time specified (in seconds) in the **Expire Time** field in the RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA STORAGE** > **Duration** > **Expire Time** property. The RTView Configuration Application > (**KAFKAMON-LOCAL/Project Name**) > **Solution Package Configuration** > **Apache Kafka** > **DATA Storage** > **Duration** > **Delete Time** property allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response. For example, if **Expire Time** was set to 120 and **Delete Time** was set to 3600, then the **Expired** check box would be checked after 120 seconds and the row would be removed from the table after 3600 seconds.
Timestamp	The date and time the row data was last updated.

Consumers Summary

This display provides a view of the current and historical metrics for a single consumer. You can view JVM runtime statistics and trend data as well as consumer statistics and trend data for the selected consumer.



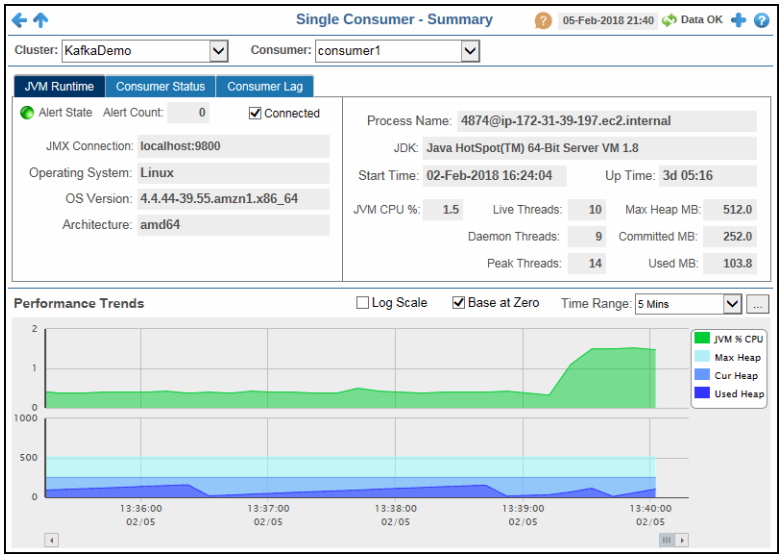


Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected cluster. Refer to KAFKA documentation for more information regarding these fields.

Filter By:

Cluster	Select the cluster for which you want to show data in the display.
Consumer	Select the consumer for which you want to show data in the display.

JVM Runtime Tab:



Alert State	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Connected	Denotes whether or not the JMX connection is connected.
JMX Connection	The name of the JMX connection.*
Operating System	The operating system installed on the producer.*
OS Version	The version number of the operating systems.*
Architecture	The type of processor being used.*
Process Name	The name of the process.*
JDK	The JDK version number.*
Start Time	The date and time when the producer was started.*
Up Time	The amount of time the producer has been up and running.*
JVM CPU %	The percentage of CPU used by the JVM.*
Live Threads	The number of live threads.*
Max Heap MB	The maximum amount of available heap, in megabytes.*
Daemon Threads	The number of daemon threads running.*
Committed MB	The total number of megabytes committed.*
Peak Threads	The highest number of threads running at one time during the current polling period.*
Used MB	The number of used megabytes.*

Performance Trends

Traces the following:

JVM % CPU -- traces the CPU percentage being used by the JVM.

Max Heap -- traces the maximum amount of available heap.

Cur Heap-- traces the current amount of heap being used.

Used Heap-- traces the highest amount of heap used.

Log Scale

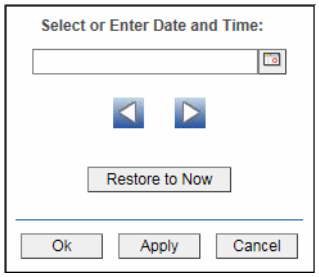
Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

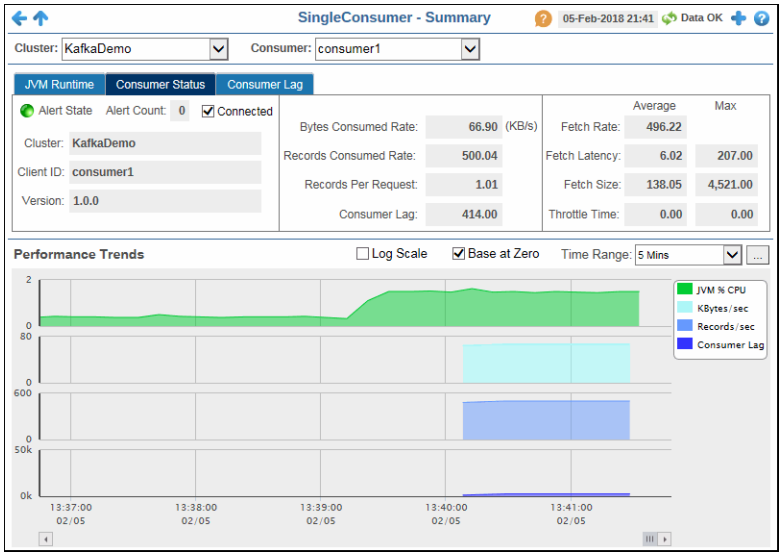


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Consumer Status Tab:



Alert State	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Connected	When checked, denotes that the consumer is connected.
Cluster	The name of the cluster in which the consumer is contained.
Client ID	The ID of the client.
Version	The current version of Apache Kafka installed.*
Bytes Consumed Rate	The average number of bytes consumed per second.*
Records Consumed Rate	The average number of records consumed per second.*
Records Per Request	The average number of records in each request.*
Consumer Lag	The maximum lag in number of records for any partition.*
Fetch Rate	**Average** -- The average number of fetch requests per second.* **Max** -- The highest number of fetch requests per second.*
Fetch Latency	**Average** -- The average time taken for a fetch request.* **Max** -- The maximum amount of time taken for a fetch request.*
Fetch Size	**Average** -- The average number of bytes fetched per request.* **Max** -- The highest number of bytes fetched per request.*
Throttle Time	**Average** -- The average throttle time, in milliseconds.* **Max** -- The maximum throttle time, in milliseconds.*

Performance Trends

Traces the following:

JVM % CPU-- traces the CPU percentage being used by the JVM.

KBytes/sec -- traces the number of kilobytes consumed per second.

Records/sec -- traces the number of records being fetched per second.

Consumer Lag-- traces the lag in number of records for any partition.

Log Scale

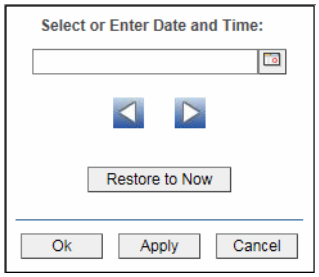
Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .

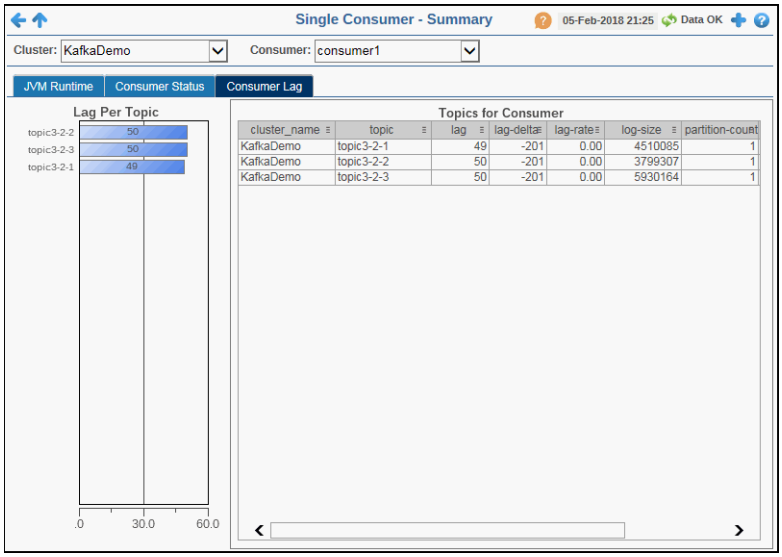


By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Consumer Lag Tab



Lag Per Topic Bar Graph Displays the lag per topic in a bar graph format.

Topics for Consumer Table

cluster_name	The name of the cluster in which the topic resides.
topic	The name of the topic.
lag	The difference between the current consumer position in the partition and the end of the log.*
lag-delta	The difference in the amount of lag from the previous polling period to the current polling period.*
lag-rate	The rate of change in the amount of lag.*
log-size	The current number of messages in the log.*
partition-count	The number of partitions containing the topic.
time_stamp	The date and time the row data was last updated.

CHAPTER 9 Solution Package for Docker

The Solution Package for Docker is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your Docker Engines, Docker Containers, and the applications that rely on them.

The Monitor enables Docker users to continually assess and analyze the health and performance of their infrastructure and gain early warning of issues with historical context. It does so by aggregating and analyzing key performance metrics across all engines and containers and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

Most of the setup in this chapter is done in the RTView Configuration Application. See "RTView Configuration Application" for more information on accessing and using the RTView Configuration Application.

This section includes:

Configuration Parameters You Need

To configure the Solution Package for Docker make a note of the following values:

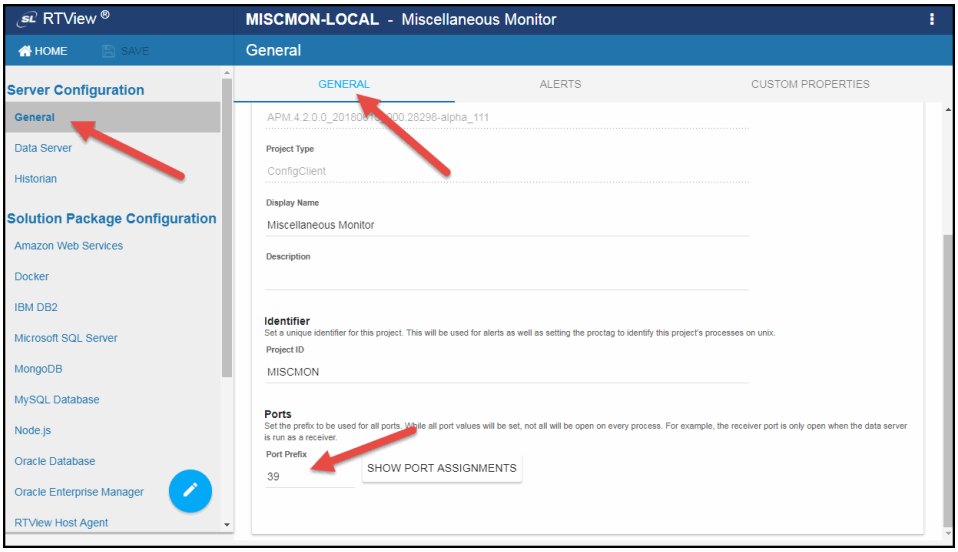
- **PackageName=dockermon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Doc**

Configure Data Collection

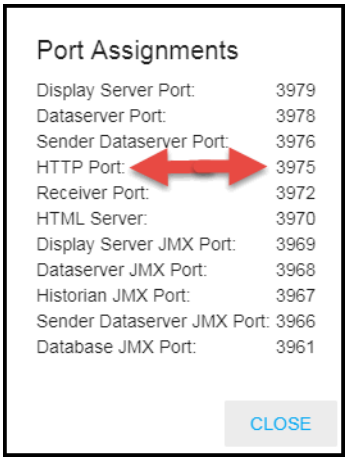
The Solution Package for Docker relies on a customized version of the cAdvisor (Container Advisor) daemon that sends formatted JSON to an RTView data server. This daemon is provided as a Docker image. For more information on loading this image into Docker, see the README file in the **C:/RTViewEnterpriseMonitor/rtvapm/dockermon/agents/cadvisor-rtview** directory.

The default port used for data collection is defined in the "RTView Configuration Application" under **Server Configuration** > **General** > **Ports**. To modify the default, perform the following:

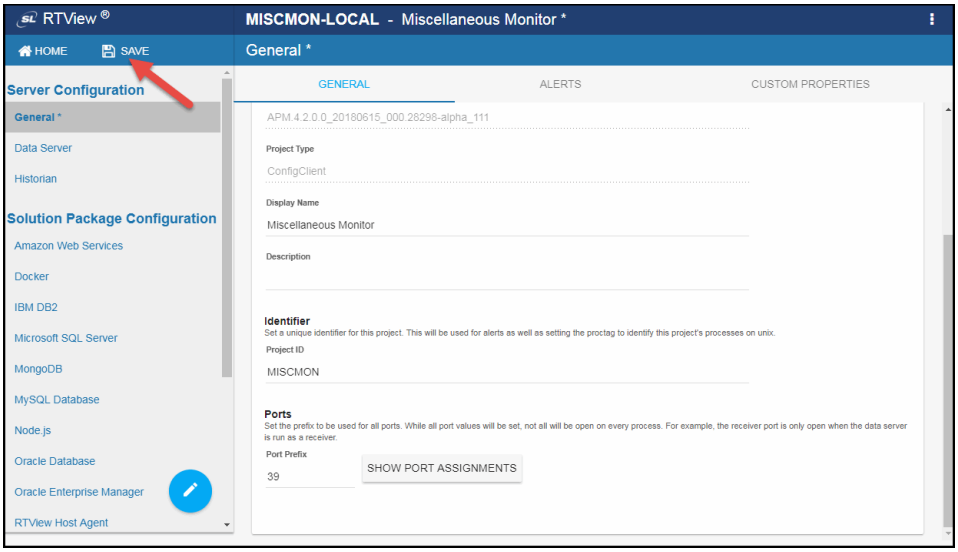
1. Open the "RTView Configuration Application" and navigate to **Server Configuration** > **General** > **GENERAL** (tab) >**Ports**.



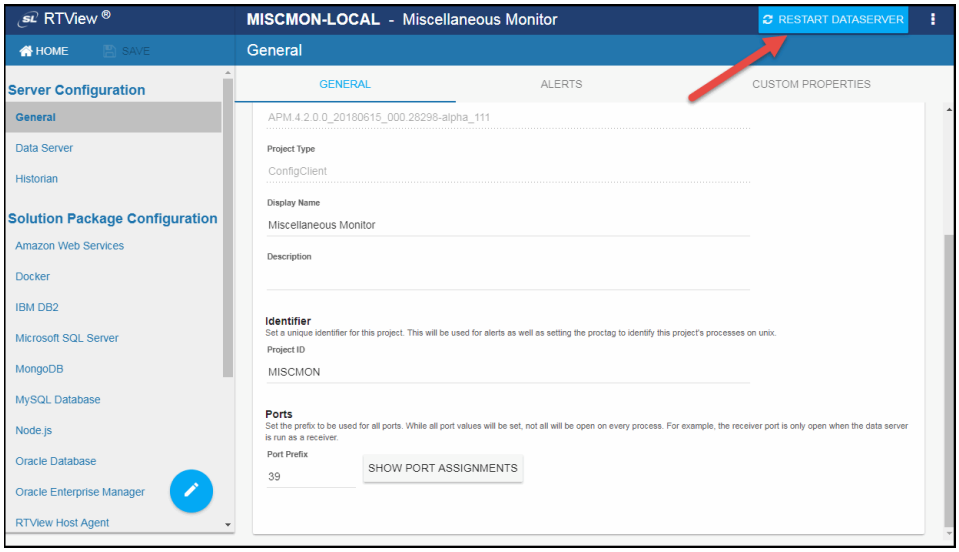
2. Specify the Docker rtvhttp data adapter port prefix to which you want to connect (to enable the Monitor to collect data). The last two numbers in the **HTTP Port** are automatically set to 75. You can click the **SHOW PORT ASSIGNMENTS** button to see the default port assignments. For example, if you specify 39 as the **Port Prefix**, then the combined port will be 3975.



3. Save your changes in the RTView Configuration Application.



4. To apply the changes you made, you must restart the data server, which can be done by clicking the **RESTART DATASERVER** button that appears once changes have been saved. Clicking this button automatically restarts the data server and takes you back to the projects page, which will require you to wait for a couple of minutes for the data server to restart. Once the data server has restarted, you can select the project again to verify your changes. Note that this process only restarts the data server. See "RTView Configuration Application" for more information.



Additional Configurations

This section describes the additional optional Solution Package for Docker configurations:

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. Once you have made all of your changes, you need to save your changes in the RTView Configuration Application and restart your data server for the changes to take place. See "RTView Configuration Application" for more information. This section contains the following:

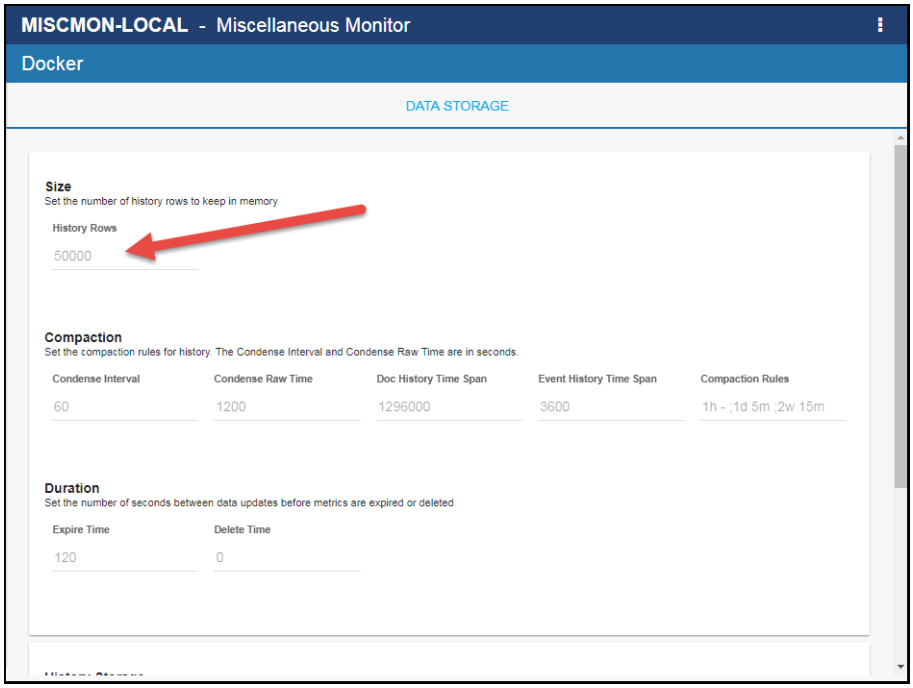
- "Defining the Storage of In-Memory History for DOCKERMON"
- "Defining DOCKERMON Compaction Rules"
- "Defining Expiration and Deletion Duration for DOCKERMON Metrics"
- "Enabling/Disabling Storage of DOCKERMON Historical Data"
- "Defining a Prefix for All History Table Names for DOCKERMON Metrics"

Defining the Storage of In-Memory History for DOCKERMON

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the DockerContainer, DockerEngine, and DockerContainerEvent caches. The default settings for **History Rows** is 50,000. To update the default setting:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining DOCKERMON Compaction Rules

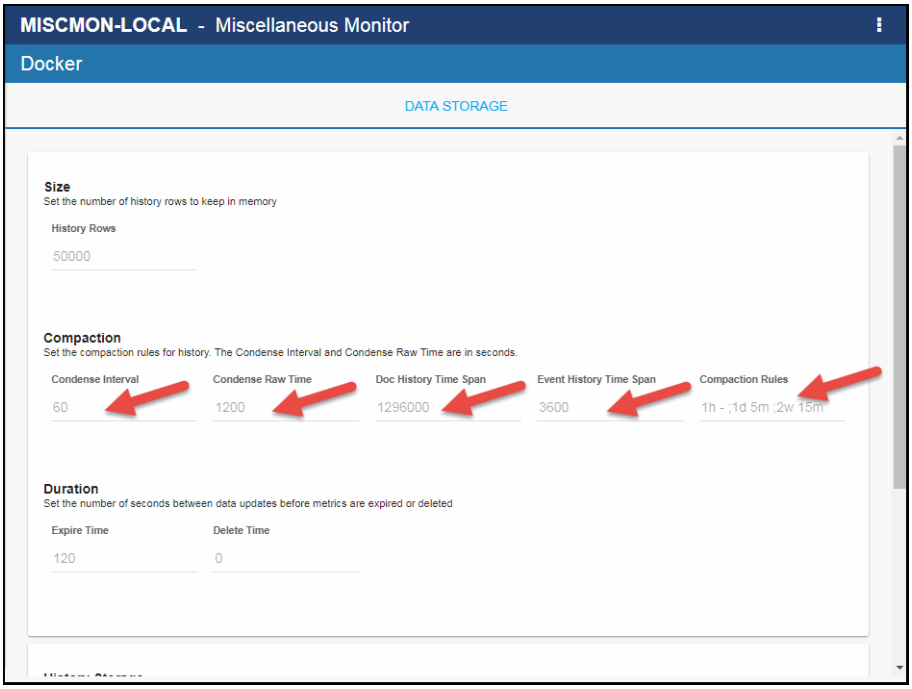
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: DockerContainer and DockerEngine. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: DockerContainer and DockerEngine. The default is 1200 seconds.
- **Doc History Time Span** -- The time span of data kept in the cache history table for the following caches: DockerContainer and DockerEngine.
- **Event History Time Span** -- The time span of event data kept in the cache history table for the following cache: DockerContainerEvent.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: DockerContainer and DockerEngine. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h - ;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, **Doc History Time Span**, **Event History Time Span**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



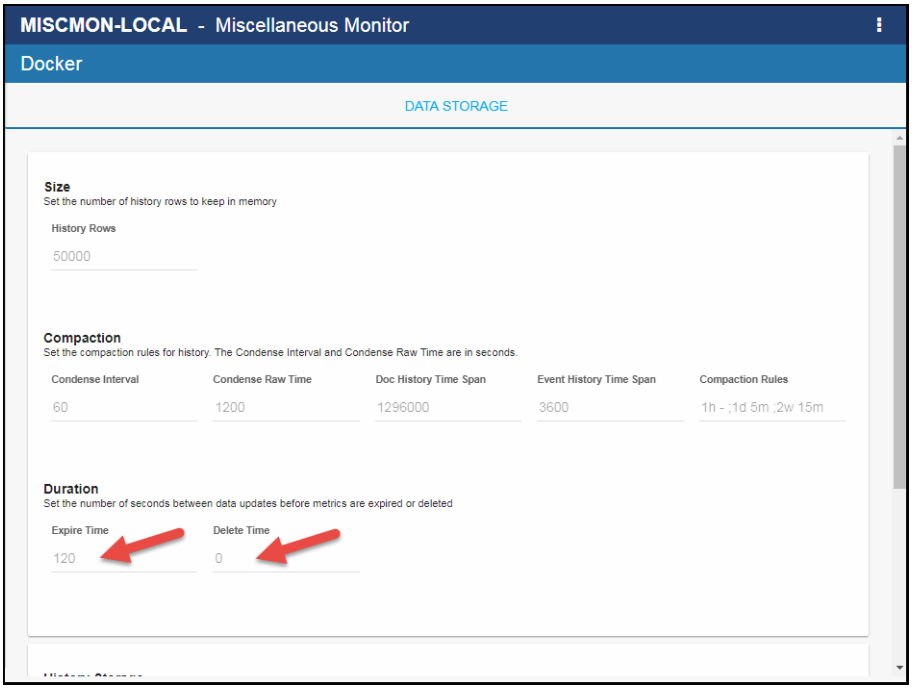
Defining Expiration and Deletion Duration for DOCKERMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The following caches are impacted by settings in the **Expire Time** and **Delete Time** fields: DockerContainer and DockerEngines. To modify these defaults:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

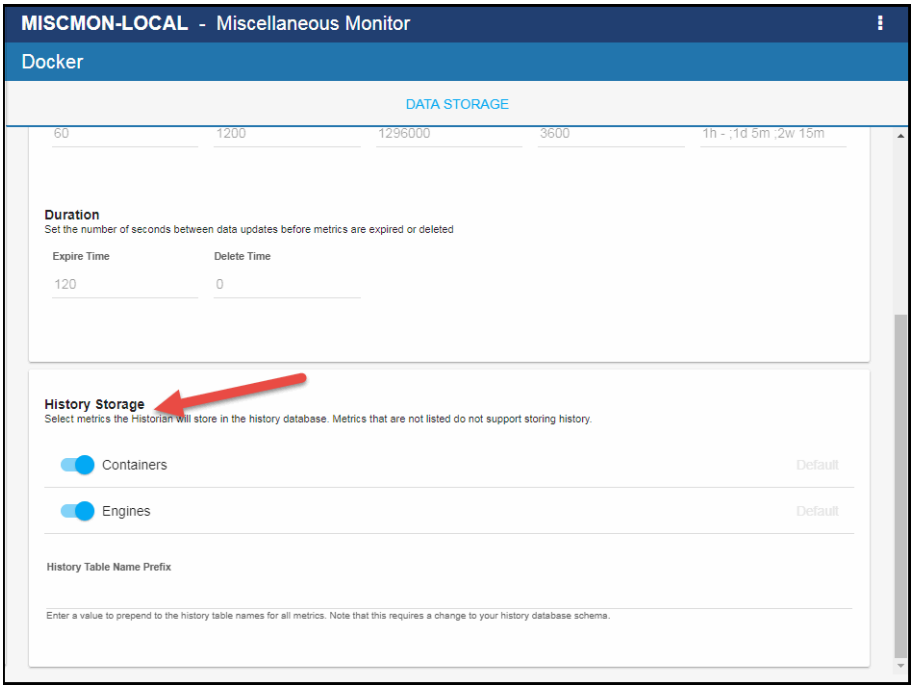


Enabling/Disabling Storage of DOCKERMON Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical Containers (DockerContainer cache) and Engines (DockerEngine cache) are saved to the database. To disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab.

2. In the **History Storage** region, deselect the toggles for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for DOCKERMON Metrics

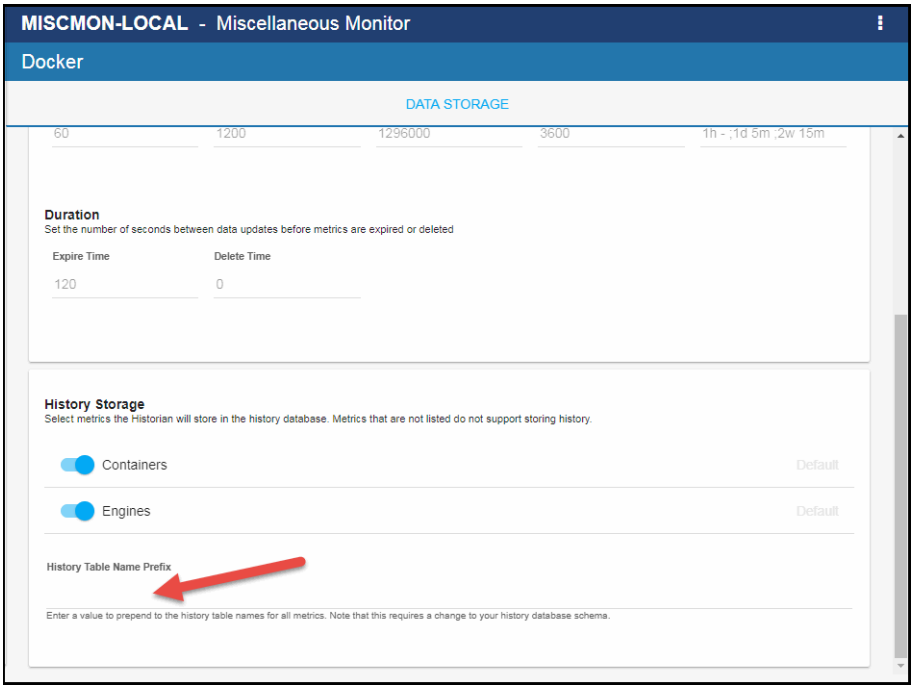
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**dockermon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Doc." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Docker Monitor Views/Displays

The following Docker Monitor Views (and their associated displays) can be found under **Components** tab **> Processes > Docker Engines** once the Solution Package for Docker is installed.

This section contains the following:

- "Engine View": The displays in this View allow you to view the current and historical metrics for all engines in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single engine.
- "Container View": The displays in this View allow you to view the current and historical metrics for all containers in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single container.

Engine View

These displays provide detailed data for all engines or for a particular engine. Displays in this View are:

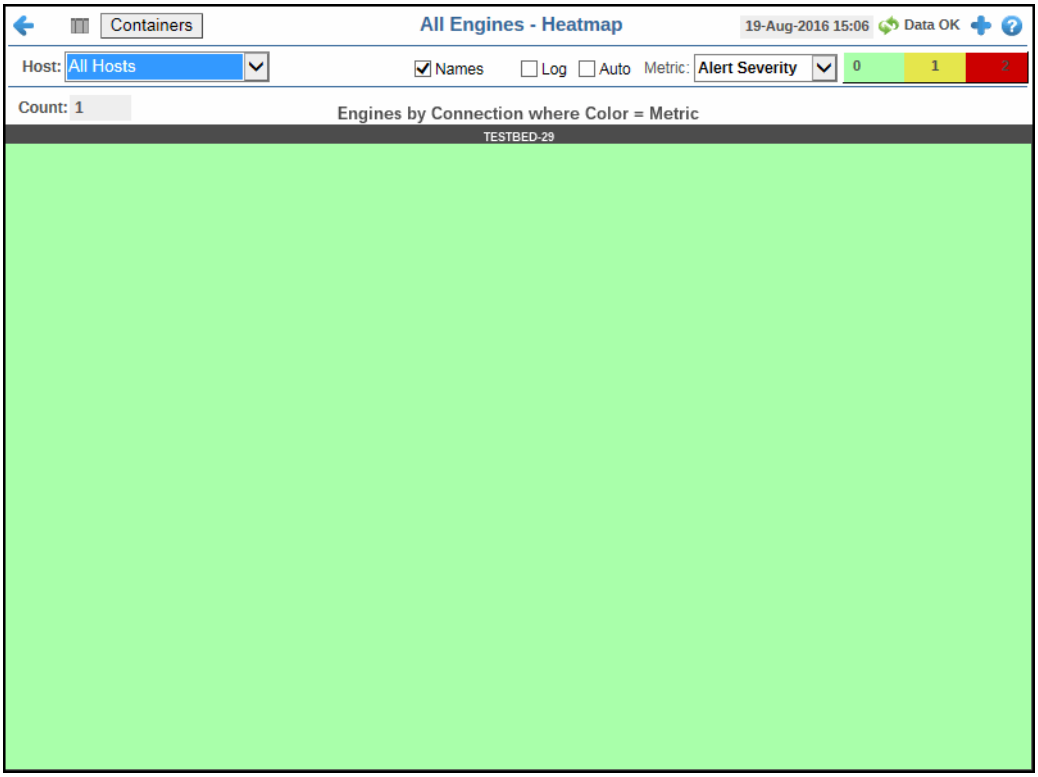
- "Engines Heatmap": A heatmap view of all engines and their associated metrics.
- "Engines Table": A tabular view of your engines and their associated metrics.
- "Engine Summary": Provides additional details and a way to view trending data for a single engine.

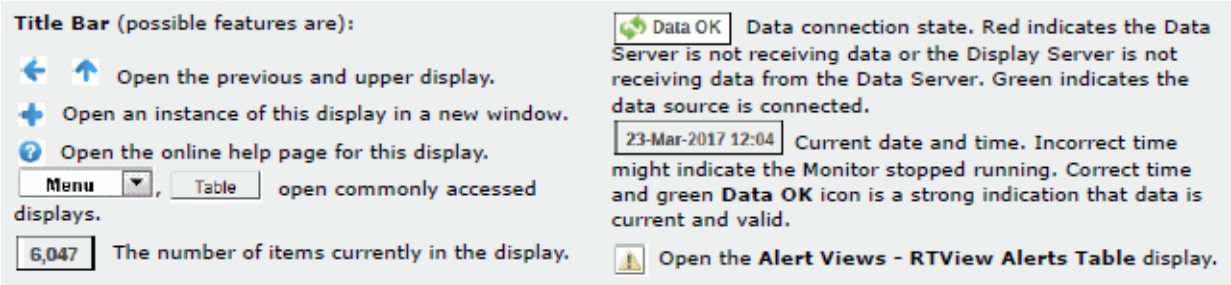
Engines Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your engines for each available metric. You can view the engines in the heatmap based on the following metrics: the current alert severity, the current alert count, the percentage of CPU used, the amount of memory used, the total incoming bytes, and the total outgoing bytes. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for an engine. Clicking one of the rectangles in the heatmap opens the "Engine Summary" display, which allows you to see additional details for the selected engine.

Note: When the data for the engine being monitored expires, the color of the rectangle representing that engine in the heatmap automatically changes to a color that is not included in the color gradient bar so that you can easily identify when the data is stale. Expired data could occur for a number of reasons including, but not limited to, the connection to the engine may have been lost, or the engine could have experienced a problem and may no longer be up-and-running.





Fields and Data:

Host	Select the host for which you want to show data in the display.
Count	Lists the total number of engines found using the search parameters.
Names	Select this check box to display the names of the engines at the top of each rectangle in the heatmap.
Log	Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. **Note:** Some metrics auto-scale automatically, even when **Auto** is not selected.

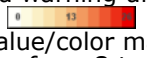
Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

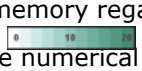
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts in the engine. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Usage The percentage of CPU used by the engine. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **DocEngineCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Memory The current memory usage by the engine, in kilobytes, which includes all memory regardless of when it was accessed. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of connections in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Net Bytes In The total number of incoming bytes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **DocEngineNetBytesInHigh**. The middle value in the gradient bar indicates the middle value of the range.

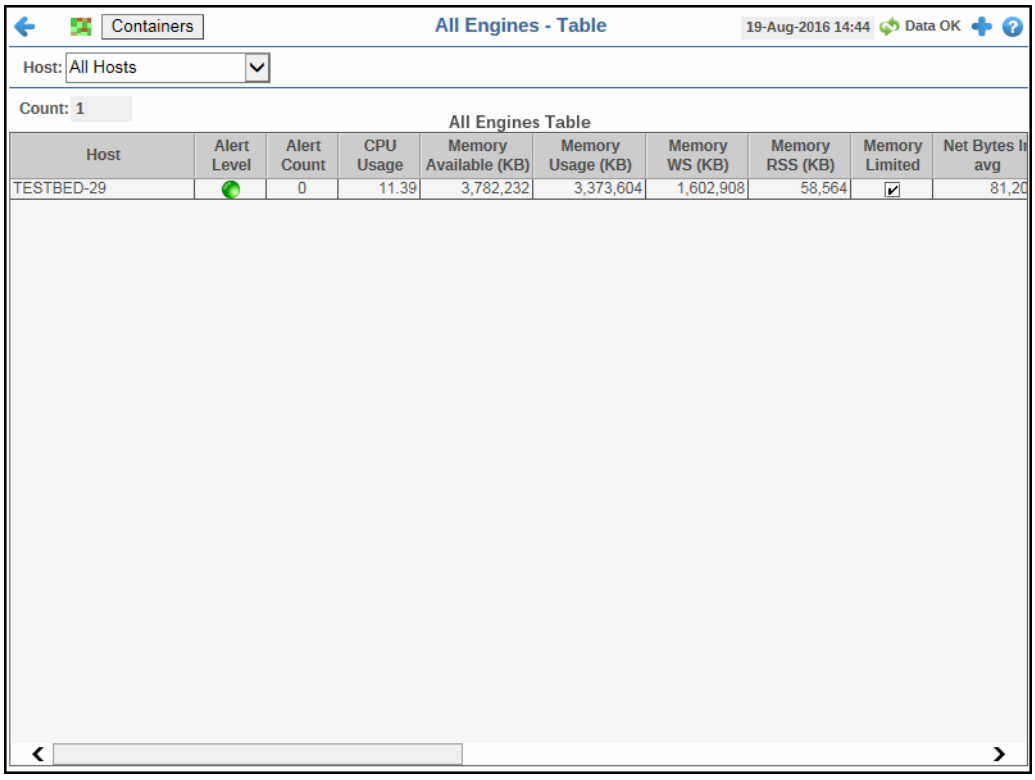
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Net Bytes Out The total number of outgoing bytes.The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **DocEngineNetBytesOutHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Engines Table

This table provides a view of all of your engines and their associated metric data including host, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected engine in the "Engine Summary" display



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The **Containers** button takes you to "Containers Table".

Fields and Data:

Host Select the name of the host (or **All Hosts**) containing the engines for which you want to view data.

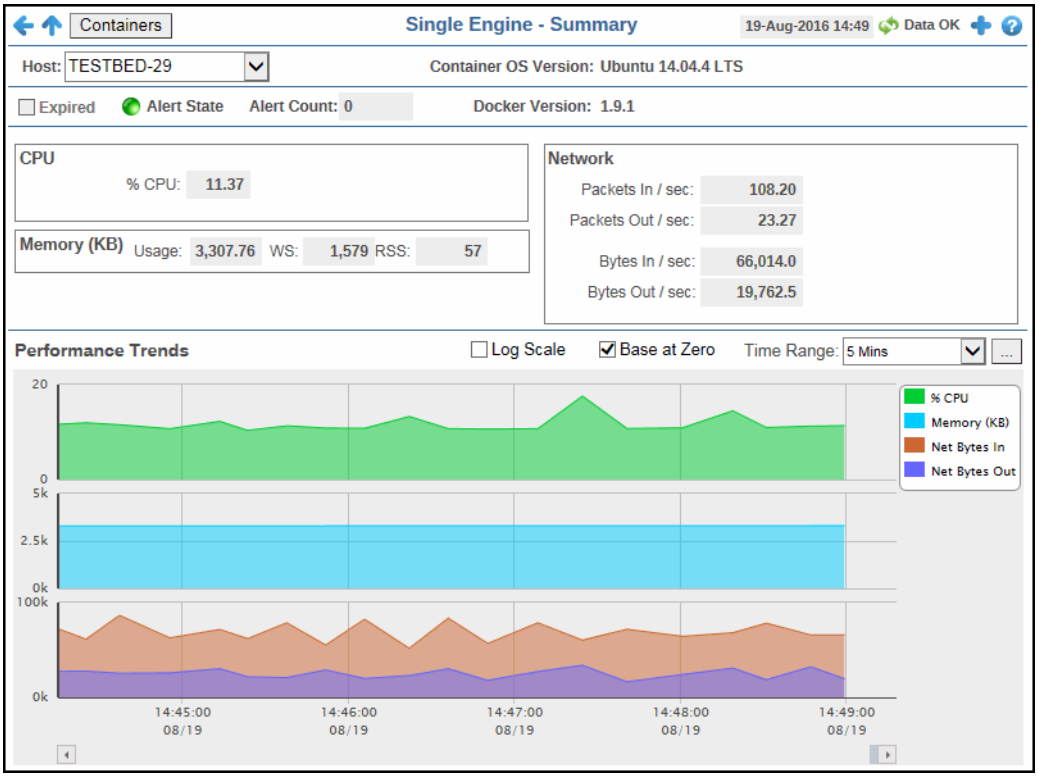
Count	The total number of engines being monitored based on your search criteria.

All Engines Table:

Host	The name of the host.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
CPU Usage	The percentage of CPU used by the engine.
Memory Available (KB)	The amount of memory, in kilobytes, that is available to the engine.
Memory Usage (KB)	The current memory usage by the engine, in kilobytes, which includes all memory regardless of when it was accessed.
Memory WS (KB)	The amount of memory (in kilobytes) in the working set, which includes recently accessed memory, dirty memory, and kernel memory.
Memory RSS (KB)	The amount of anonymous and swap cache memory (including transparent/ hugepages), in kilobytes.
Memory Limited	When checked, the amount of memory available to the engine is limited.
Net Bytes In avg	The average number of incoming bytes per second.
Net Bytes Out avg	The average number of outgoing bytes per second.
Net Packets In avg	The average number of incoming packets per second.
Net Packets Out avg	The average number of outgoing packets per second.
Docker Version	The Docker software version of the Docker Engine.
Container OS Version	The version of the container's operating system on which the docker engine is running.
Container Kernal Version	The version of the container's Kernal in which the docker engine is running.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Engine Summary

This display allows you to view current as well as trending data for the percentage of CPU used by the engine, memory usage details, and network data details.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: The **Containers** button takes you to "Containers Table".

Filter By:

Host	Select the host for which you want to show data in the display.
Container OS Version	The version of the container's operating system on which the docker engine is running.

Fields and Data:

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert severity.

- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Docker Version The Docker software version of the Docker Engine.

CPU

% CPU	The percentage of CPU used by the engine.

Memory (KB)

Usage	The current memory usage by the engine, in kilobytes, which includes all memory regardless of when it was accessed.
WS	The amount of memory (in kilobytes) in the working set, which includes recently accessed memory, dirty memory, and kernel memory.
RSS	The Resident Set Size, which is the amount of anonymous and swap cache memory (including transparent/hugepages), in kilobytes.

Network

Packets In/ sec	The average number of incoming packets per second..
Packets Out/ sec	The average number of outgoing packets per second.
Bytes In/sec	The average number of incoming bytes per second.
Bytes Out/sec	The average number of outgoing bytes per second.

Performance Trends Graph Traces the following:

% CPU -- traces the percentage of CPU being used on the engine.

Memory (KB) -- traces the amount of memory, in kilobytes, used by the engine.

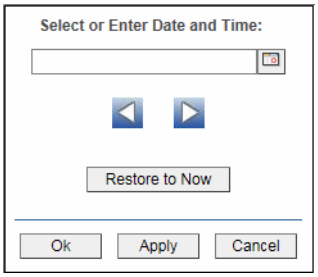
Net Bytes In -- traces the average number of incoming bytes per second.

Net Bytes Out -- traces the average number of outgoing bytes per second.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Container View

These displays allow you to view the current and historical metrics for all containers in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single container. Displays in this View are:

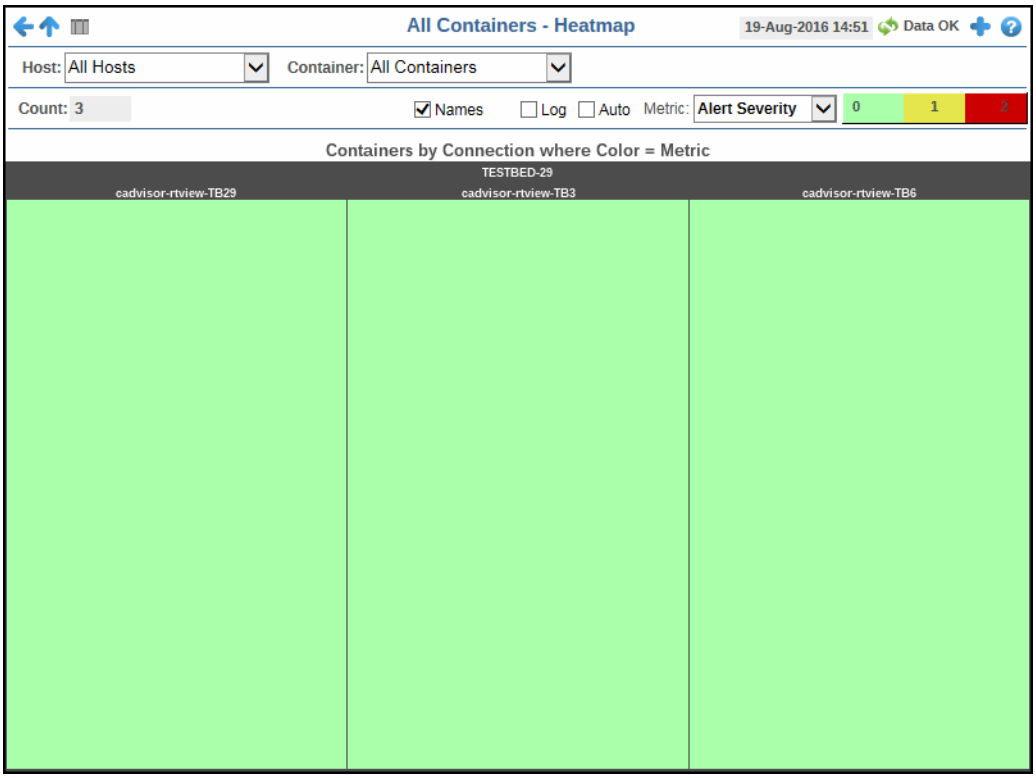
- "Containers Heatmap": A color-coded heatmap view of data for all containers for a particular host.
- "Containers Table": A tabular view of data for all containers for a particular host.
- "Container Summary": This display allows you to view current and trending data for a single container for a particular host.

Containers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your containers for each available metric. You can view the containers in the heatmap based on the following metrics: the current alert severity, the current alert count, the percentage of CPU used, and the percentage of memory used. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a container. Clicking one of the rectangles in the heatmap opens the "Container Summary" display, which allows you to see additional details for the selected container.

Note: When the data for the container being monitored expires, the color of the rectangle representing that container in the heatmap automatically changes to a color that is not included in the color gradient bar so that you can easily identify when the data is stale. Expired data could occur for a number of reasons including, but not limited to, the connection to the container may have been lost, or the container could have experienced a problem and may no longer be up-and-running.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

Host Select the host (or **All Hosts**) for which you want to show data in the heatmap.

Container Select the container (or **All Containers**) for which you want to show data in the heatmap..

Count Lists the total number of containers (rows) found using the search parameters.

Names Select this check box to display the names of the containers at the top of each rectangle in the heatmap.

Log Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

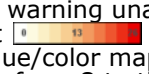
Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts in the instance. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Usage The percentage of CPU used by the container. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **DocContainerCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Memory The current memory usage by the container, in kilobytes, which includes all memory regardless of when it was accessed. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of connections in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Net Bytes In The number of incoming bytes per second. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **DocContainerNetBytesInHigh**. The middle value in the gradient bar indicates the middle value of the range.

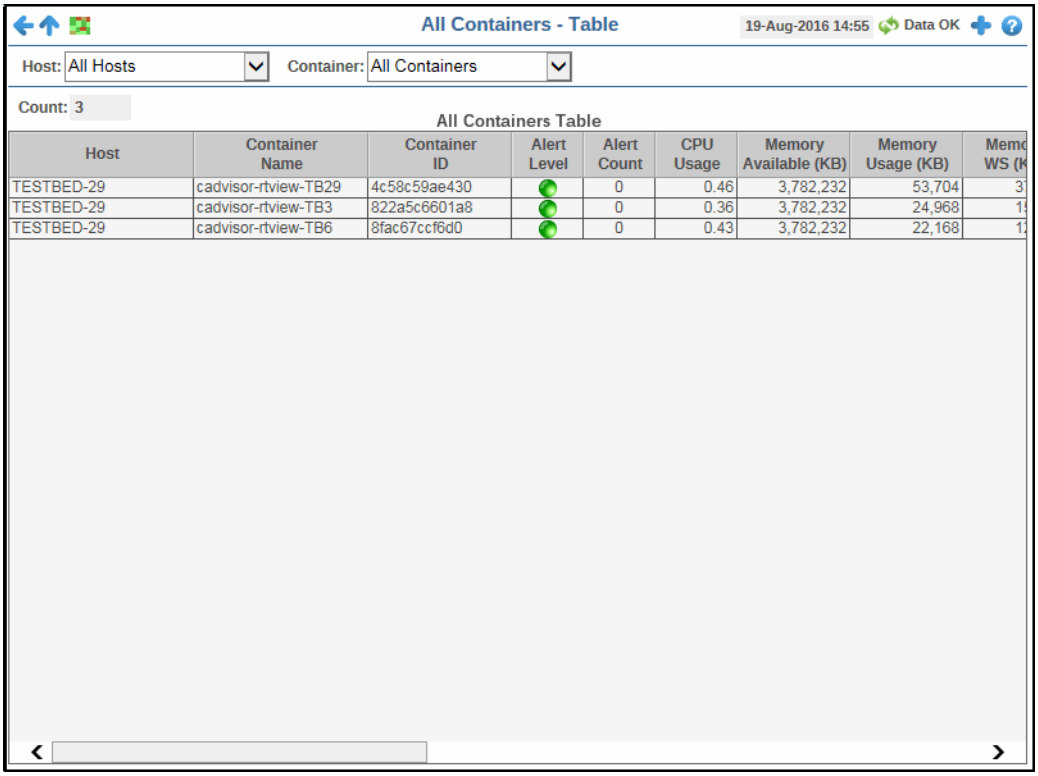
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

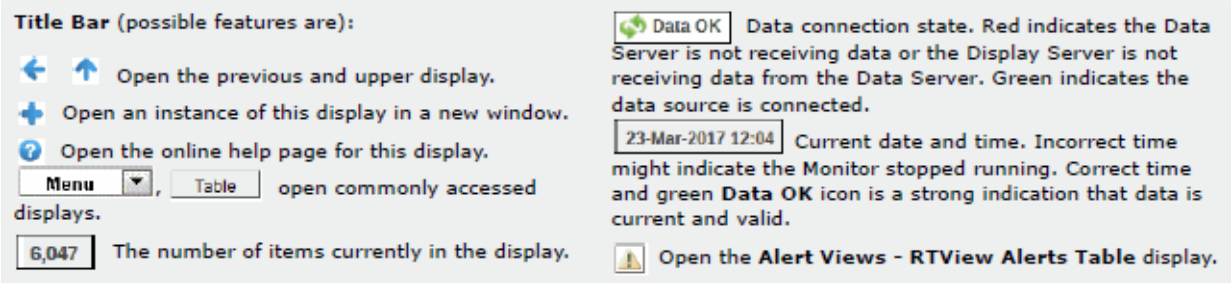
Net Bytes Out The number of outgoing bytes per second.The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **DocContainerNetBytesOutHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Containers Table

This display allows you to view details in a table format for one container on a particular host, for all containers on a particular host, for a particular container on all hosts, or for all containers on all hosts. You can drill-down and view the details for a particular container in the "Container Summary" display by clicking on a row in the resulting table.





Filter By:

The display includes these filtering options:

Host	Select the host for which you want to show data in the display.
Container	Select the container (or **All Containers**) for which you want to view data..
Count	Lists the total number of containers (rows) found using the search parameters.

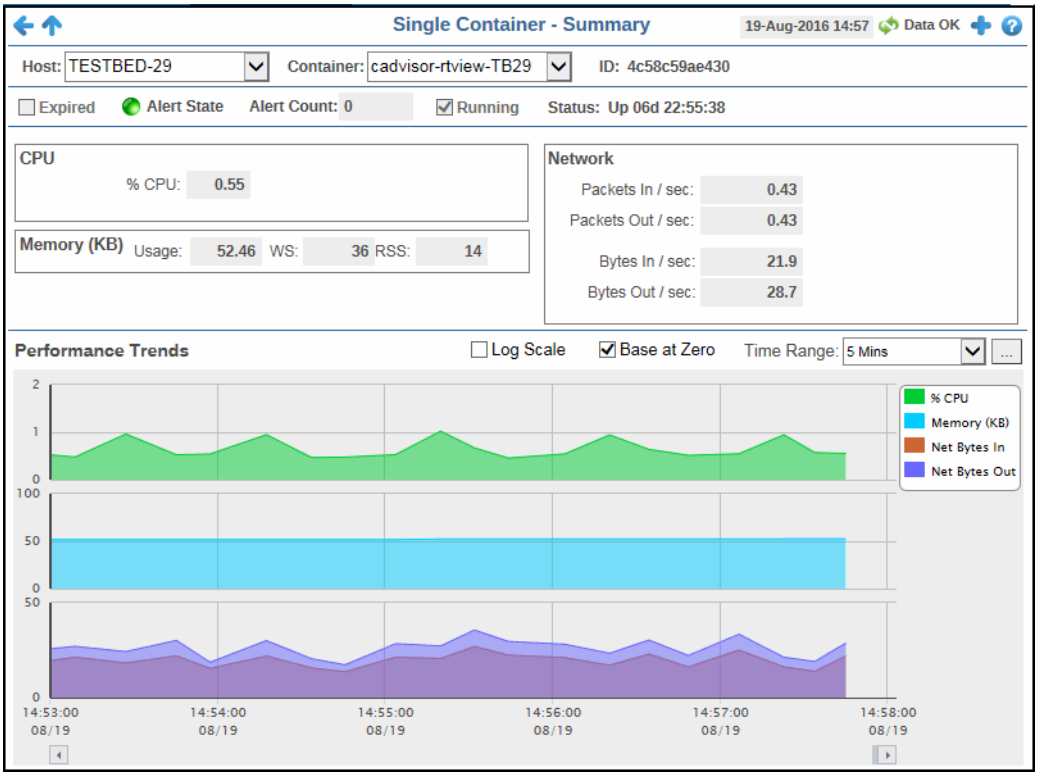
All Containers Table

Host	The name of the host.
Container Name	The name of the container.
Container ID	The absolute container name.
Alert Level	The current alert status. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Total number of alerts for the process.
CPU Usage	The percentage of CPU used by the container.
Memory Available (KB)	The amount of memory, in kilobytes, that is available to the container.
Memory Usage (KB)	Current memory usage by the container, in kilobytes, which includes all memory regardless of when it was accessed.
Memory WS (KB)	The amount of memory (in kilobytes) in the working set, which includes recently accessed memory, dirty memory, and kernel memory.
Memory RSS (KB)	The Resident Set Size, which is the amount of anonymous and swap cache memory (including transparent/hugepages), in kilobytes.
Memory Limited	When checked, the amount of memory available to the container is limited. If not checked, then the amount of memory available to the container is unlimited, which means the amount of memory available to the container is the same as the memory available to the engine.
Net Bytes In avg	The average number of incoming bytes per second.
Net Bytes Out avg	The average number of outgoing bytes per second.
Net Packets In avg	The average number of incoming packets per second.

Net Packets Out avg	The average number of outgoing packets per second.
Uptime	The amount of time (in seconds) that the container has been up and running.
Running	When checked, this check box indicates that the container is running.
Status	The current status of the container. Values are: **Up** - indicates that the container is up and running, and lists the amount of time the container has been up and running (**Uptime**). **Created** - indicates that the container has been created but is currently not in use. **Exited** - indicates that the container has been stopped, and lists the error code as well as the amount of time since the container was stopped.
Starts	The number of times the container (re)started within the time specified (in seconds) in the **$docEventCacheTimeRange** field in the **conf\rtvapm_dockermon.properties** file. The default is 3600 seconds (1 hour). For example, by default, this row column lists the number of times the container has (re)started in the past hour. This number provides a good indication of the stability of the container; the higher the number, the more unstable the container.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Container Summary

This display provides a view of the current and historical metrics for a single container. You can view the current information pertaining to CPU usage percentage, Memory details, Disk read and write details, and network data details in the upper portion of the display. The trend graph in the bottom half of the display traces the current and historical CPU usage, the average memory used, and the number of incoming and outgoing network bytes.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Host Select the host for which you want to show data in the display.

Container Select the container for which you want to show data in the display.

ID The absolute container name.

Fields and Data:

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Docker** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert severity.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Running When checked, this check box indicates that the container is running.

Status The current status of the container. Values are:
Up - indicates that the container is up and running, and lists the amount of time the container has been up and running (**Uptime**).
Created - indicates that the container has been created but is currently not in use.
Exited - indicates that the container has been stopped, and lists the error code as well as the amount of time since the container was stopped.

CPU

% CPU	The percentage of CPU used by the container.

Memory (KB)

Usage	The current memory usage by the container, in kilobytes, which includes all memory regardless of when it was accessed.
WS	The amount of memory (in kilobytes) in the working set, which includes recently accessed memory, dirty memory, and kernel memory.
RSS	The Resident Set Size, which is the amount of anonymous and swap cache memory (including transparent/hugepages), in kilobytes.

Network

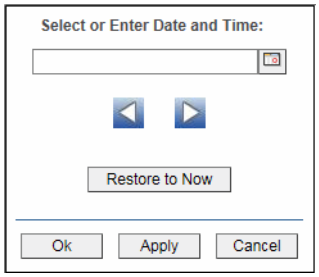
Packets In/sec	The average number of incoming packets per second.
Packets Out/ sec	The average number of outgoing packets per second.
Bytes In/sec	The average number of incoming bytes per second.
Bytes Out/sec	The average number of outgoing bytes per second.

Performance Trends Graph Traces the following:
% CPU -- traces percentage of CPU used by the container.
Memory (KB) -- traces the current memory usage by the container, in kilobytes, which includes all memory regardless of when it was accessed.
Net Bytes In -- traces the average number of incoming bytes per second.
Net Bytes Out -- traces the average number of outgoing bytes per second.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

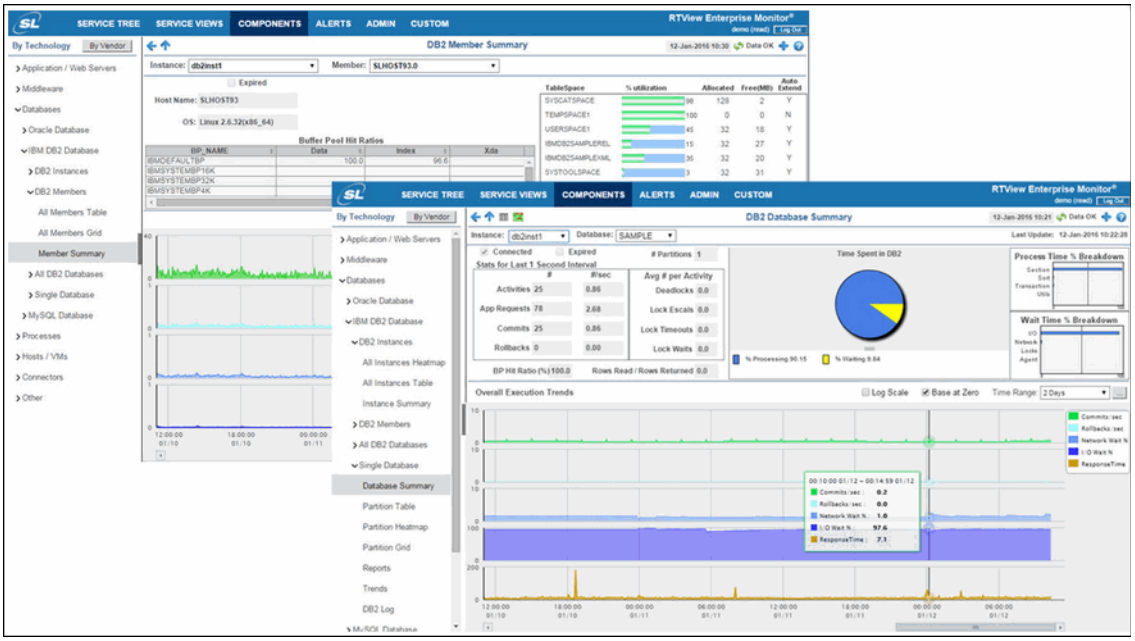
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 10 Solution Package for IBM DB2

RTView Enterprise Monitor® uses Solution Packages to gather and process performance metrics from a wide variety of different technologies, including IBM DB2 Databases.

The Solution Package for IBM® DB2 includes high level heatmap and tabular displays as well as drilldown views to access real-time and historical performance metrics for each DB2 Database in your monitored services and applications.



With the Solution Package for IBM DB2, you are able to drill down from a high level alert at a business service or application health level into the supporting database infrastructure, to determine what is causing the alert and to take corrective action. This service-centric approach makes it easy for application support teams and IBM DBAs to prioritize incidents based on the impact to the business.

Solution Packages include a data adapter, real-time memory cache, alert rule engine, pre-configured displays, and a data historian for persisting of real-time performance metrics.

For Linux, these instructions require a BASH-compatible shell.

See **README_sysreq.txt** for the full system requirements for RTView®.

This section includes:

Configuration Parameters You Need

To configure the Solution Package for IBM® DB2 make a note of the following values, then follow instructions in "Configure Data Collection". You will replace all references to **PackageName**, **ServerDirectory**, and **AlertPrefix** with the following values:

- **PackageName=db2mon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Db2**

Configure Data Collection

To configure data collection, use the "RTView Configuration Application" to do the following in the order provided:

- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Set the poll rate interval for data updates and enable/disable autodiscover. This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

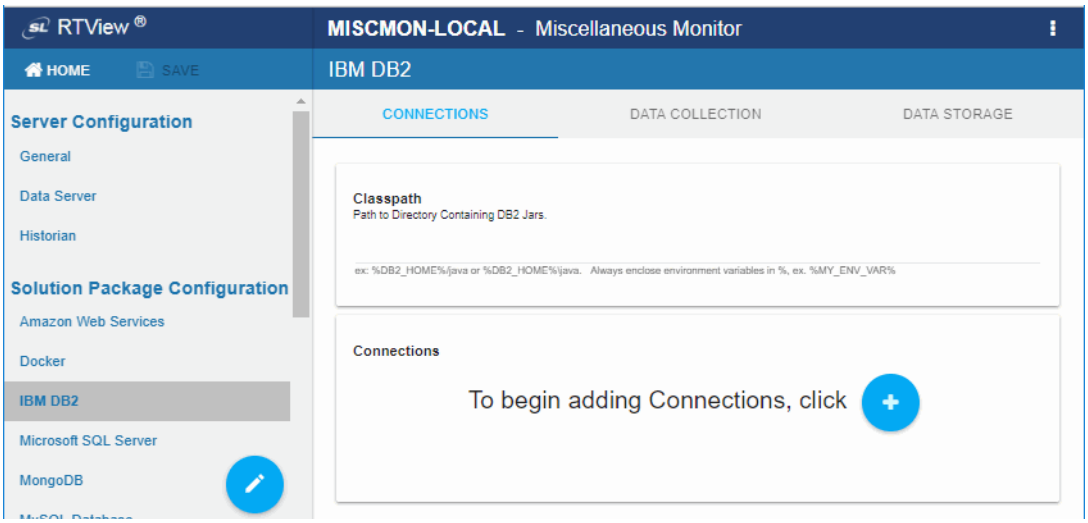
  Tip: Gray servers are either not running or not yet configured for RTView EM.

Configure CONNECTIONS

This step is required.

To configure data connections for the Solution Package for IBM DB2:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **IBM DB2** from the navigation tree (left panel).



2. On the **CONNECTIONS** tab, enter the full path to the directory containing your IBM DB2 jar files in the **Path to Directory Containing DB2 Jars** field. Use forward slashes (**/**) in the path name. For env vars, always use **%%** (including on UNIX).

3. **Save** your settings.

4. Click  to open the **Add Connection** dialog.

5. In the **Add Connection** dialog, enter the following for each database you wish to connect (one connection per database is required):

   Connection Name - (Required) The name of the database. This value is also used as the index.

   Database URL - (Required) For example: **jdbc:db2://hostOrIP>:50001/databaseName**

   User Name (Optional)

   Password (Optional)

6. **Save** your settings. The new connection displays in the **Connections** section.

7. Repeat these instructions for each IBM DB2 database to be monitored.

Proceed to "Setup DATA COLLECTION," next (you can do this later).

Setup DATA COLLECTION

This step is optional.

Use the RTView Configuration Application to configure data collection for the Solution Package for IBM DB2. You can specify **Poll Rates** (query interval, in seconds) that will be used to collect the metric data.

To configure data collection for the Solution Package for IBM DB2:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **IBM DB2** from the navigation tree (left panel)Choose the **DATA COLLECTION** tab and make the following entries as appropriate:

   Poll Rate: Enter the time interval, in seconds, to check for data updates. The default is **30** seconds. The caches impacted by this field are Db2EnvSysResources, Db2SnapDbm, Db2SnapDb, Db2DbSummary and Db2TimeSpent.

   Poll Rate Large: Enter the time interval, in seconds, to check for data updates. The default is 60 seconds. The default is **60** seconds. The caches impacted by this field are Db2BufferPools, Db2TableSpace, Db2PdLogMsgs and Db2SnapSwitches.

2. **Save** your settings.

Proceed to "Configure DATA STORAGE," next (you can optionally do this later).

Configure DATA STORAGE

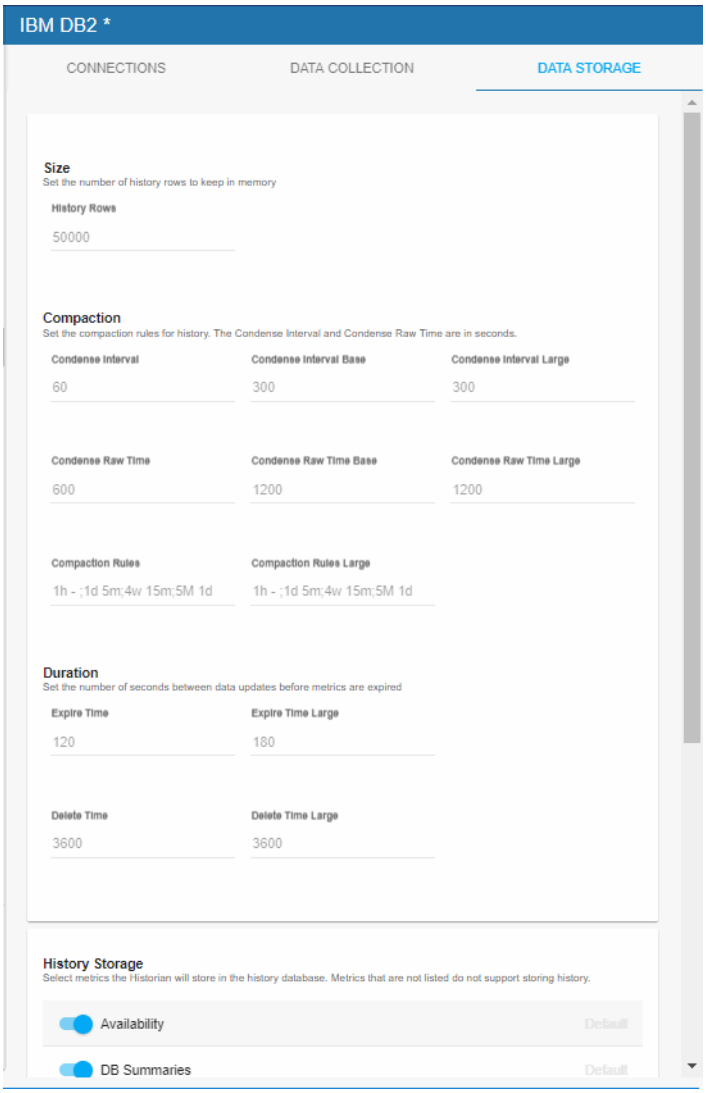
This step is optional.

These instructions describe options for storing your IBM DB2 data. This includes both in-memory History data and on-disk History data. You can set size limits, storage duration (when to expire or remove data) and data compaction intervals (rules for reducing/increasing the amount of data stored).

To configure data storage for the Solution Package for IBM DB2:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **IBM DB2** from the navigation tree (left panel)

2. Choose the **DATA COLLECTION** tab.



Note: Scroll down to see addtional IBM DB2 metric data the Historian can store.

3. Under **Size**, make the following entries:

History Rows: The maximum number of table rows to keep in he History table. If set to **0**, no History table is created. The default is **50000**. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2TableSpace, Db2Availability, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent.

4. Under **Compaction**, make the following entries:

Condense Interval: The number of seconds to wait to condense cached history data. The default is **60** seconds. The Db2Availability cache is impacted by this field.

Condense Interval Base: The number of seconds to wait to condense cached history data. The default is **300** seconds. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent.

Condense Interval Large: The number of seconds to wait to condense cached history data. The default is **300** seconds. The Db2TableSpace cache is impacted by this field.

Condense Raw Time: The number of seconds to wait to condense data in the cache history table. The default is **600** seconds. The Db2Availability cache is impacted by this field.

Condense Raw Time Base: The number of seconds to wait to condense data in the cache history table. The default is **1200** seconds. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent

Condense Raw Time Large: The number of seconds to wait to condense data in the cache history table. The default is **1200** seconds. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent. The Db2TableSpace cache is impacted by this field.

Compaction Rules: Specifies the frequency for condensing data. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent.

Compaction Rules Large: Specifies the frequency for condensing data. The Db2TableSpace cache is impacted by this field.

5. Under **Duration**, make the following entries:

Expire Time: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The default is **120** seconds. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2Availability, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent.

Expire Time Large: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The default is **180** seconds. The caches impacted by this field are Db2SnapSwitches, Db2BufferPools, Db2TableSpace and Db2PdLogMsgs.

Delete Time: The number of seconds to wait for a data update before cached history data is removed from displays. The default is **3600** seconds. The caches impacted by this field are Db2SnapDb, Db2SnapDbm, Db2DbSummary, Db2Availability, Db2ResponseTime, Db2EnvSysResources and Db2TimeSpent.

Delete Time Large: The number of seconds to wait for a data update before cached history data is removed from displays. The default is **3600** seconds. The caches impacted by this field are Db2SnapSwitches, Db2BufferPools, Db2TableSpace and Db2PdLogMsgs.

6. Under **History Storage**, toggle on at least one of the metrics listed for the Historian to store (**Servers**, **Buffer Pools**, **Response Time**, **Availability**, **DB Summaries**, **Snap DB**, **Snap DBM**, **Table Spaces**, **Time Spent** and **Env Sys Resources**). The caches impacted by these selections are the Db2* (where ***** is the name of the data type, for example, the Db2TimeSpent cache).

   For **History Table Name Prefix**: Enter a prefix that you will recognize to prepend to the history data table names for these metrics.

   The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME/db2mon/dbconfig** and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

7. **Save** your settings (choose  if **SAVE** is not visible, or expand your browser width).

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

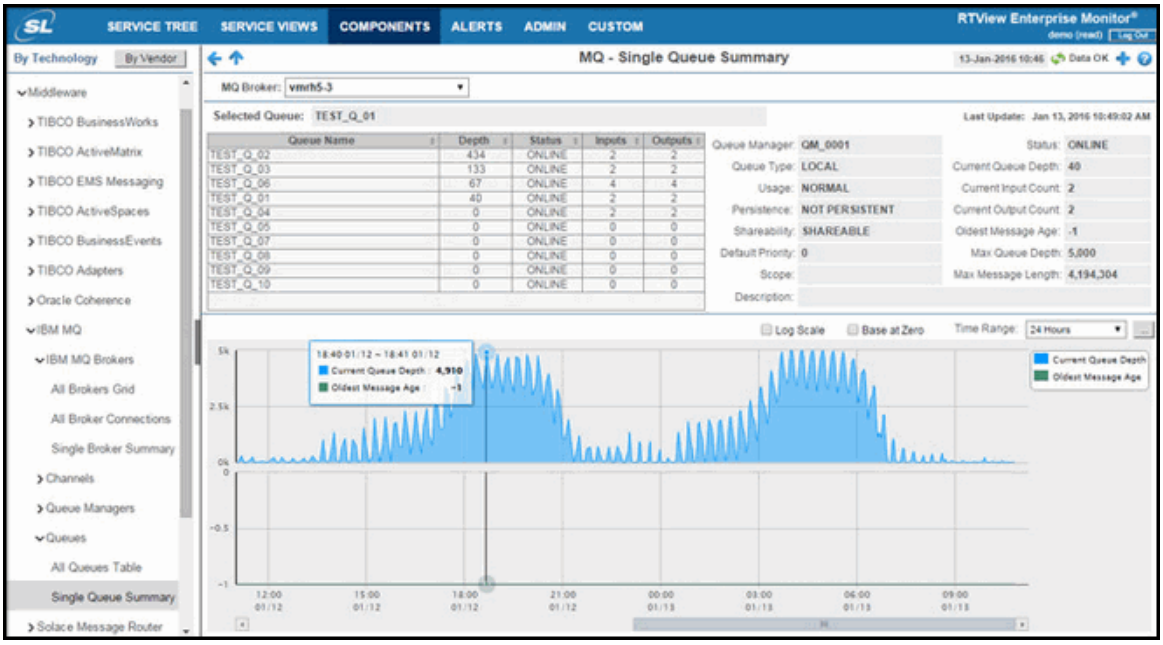
Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

CHAPTER 11 Solution Package for IBM MQ

Gain real-time visibility into the health and performance of IBM® MQ objects including brokers, queues, channels and queue managers.

RTView Enterprise Monitor® and the Solution Package for IBM® MQ provide out of box performance and availability monitoring for support teams and IBM MQ administrators. Configuration options enable both consolidated views across the enterprise or views configured for specific support teams. As part of an end to end monitoring solution, users can view IBM MQ performance in the context of an application or service. This provides visibility into how IBM MQ performance is impacting adjacent technologies and the resulting business impact. Typical installations of RTView Enterprise Monitor and its Solution Packages take only a few hours, while developing custom views for a variety of IT and development roles can be achieved in just days.



Key Features

- Monitor real-time performance for early warning
- Analyze historical performance to differentiate trends and spikes
- Out of the box discovery and monitoring of key metrics
- Powerful diagnostics and correlations for complex performance analysis
- View IBM MQ in an application context for Application Support teams and Operations
- Minimal training, highly configurable by business and technical users

Metrics for IBM MQ

- **All MQ Brokers:**

Queue Manager Status, Number of Channels, Number of Queues, Total Queue Depth

- **MQ Broker Summary:**

  Total Queue Depth

  Overall Health State: Queue Manager, Channel, Queue Depth High, Queue Full

- **MQ Broker Connections:**

  Connection Status, Alert Status, Channel, Model Queue Name, Max Retries, Retry Interval, Wait Interval, Connection

- **All Queues:**

  Queue Manager, Queue type, Status, Alert State, Outputs, Inputs, Depth, Max Depth, Persistence Settings, Description, Max Message Length, Host, Default Priority, Get Messages, Put Messages, Scope, Shareability, Usage, Connection

- **Prebuilt Displays:**

  All Brokers Grid, Single Broker Summary, All Brokers detail table

  All Channels table, Single Channel Summary, Single Channel Detail

  All Queue Managers Detail table

  All Queues Table, Single Queue Summary

  All Trend Graphs show Historical Data

End-to-End Context for IBM MQ

- Custom flow diagrams help visualize complex applications and IBM MQ's place in that architecture
- Provides an Intuitive View of How IBM MQ Interacts with other Enterprise PaaS Components
- Designed and Developed for Large Scale, Mission Critical Environments

This section includes:

Configuration Parameters You Need

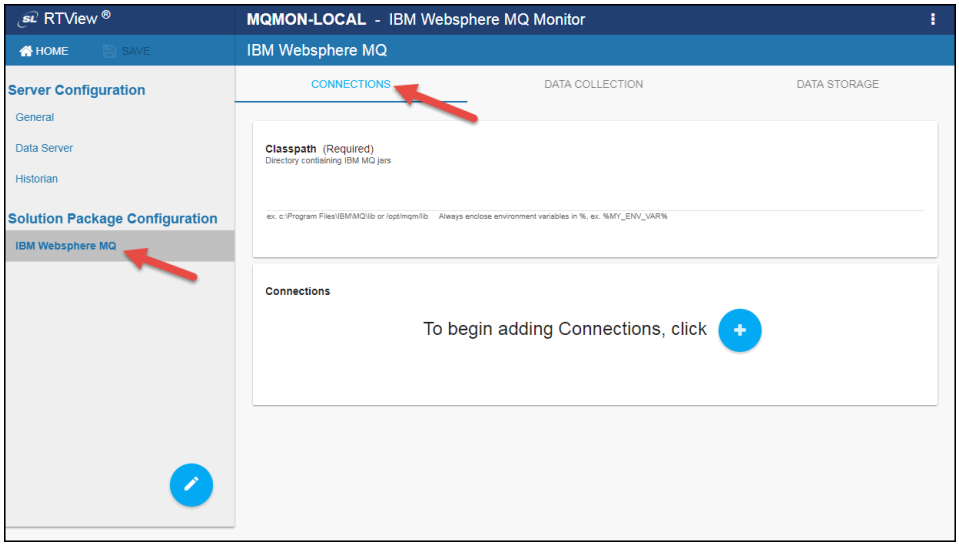
To configure the Solution Package for IBM® MQ make a note of the following values:

- **PackageName=mqmon**
- **ServerDirectory=mqmon**
- **AlertPrefix=Mq**

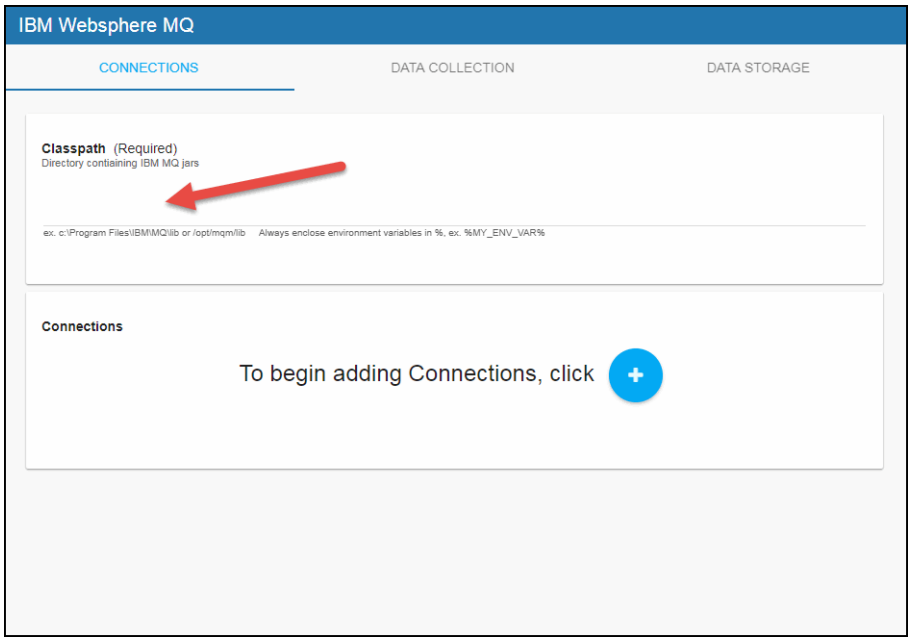
Configure Data Collection

Use the "RTView Configuration Application" to configure your data collection.

1. "Open the Solution Package Project" (the project name is **MQMON-LOCAL**), then select **IBM DB2** from the navigation tree (left panel).

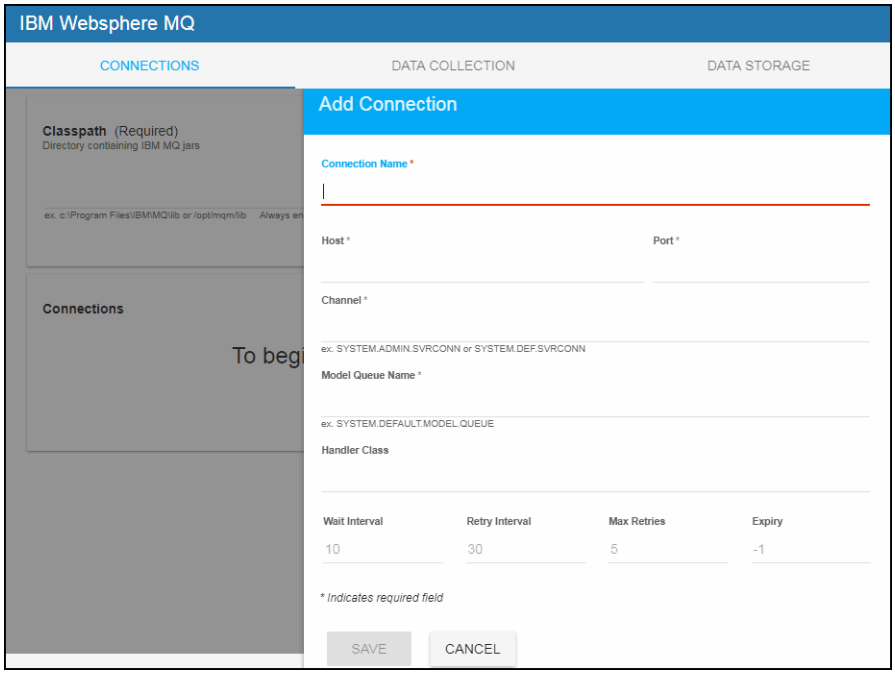


2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the IBM MQ jar files in the **Classpath** field.



3. In the **Connections** section, click the icon.

The **Add Connection** dialog displays.



4. Specify the connection information and click **Save** where:

Connection Name: Name to use when referencing this connection.

Host: Name or IP address of the host computer.

Port: Port number of the connection.

Channel: Client Channel to use for this connection (use SYSTEM.DEF.SVRCONN).

Model Queue Name: Named model queue of the connection.

Handler Class: Specify the user-defined handler class name you want to use for the connection.

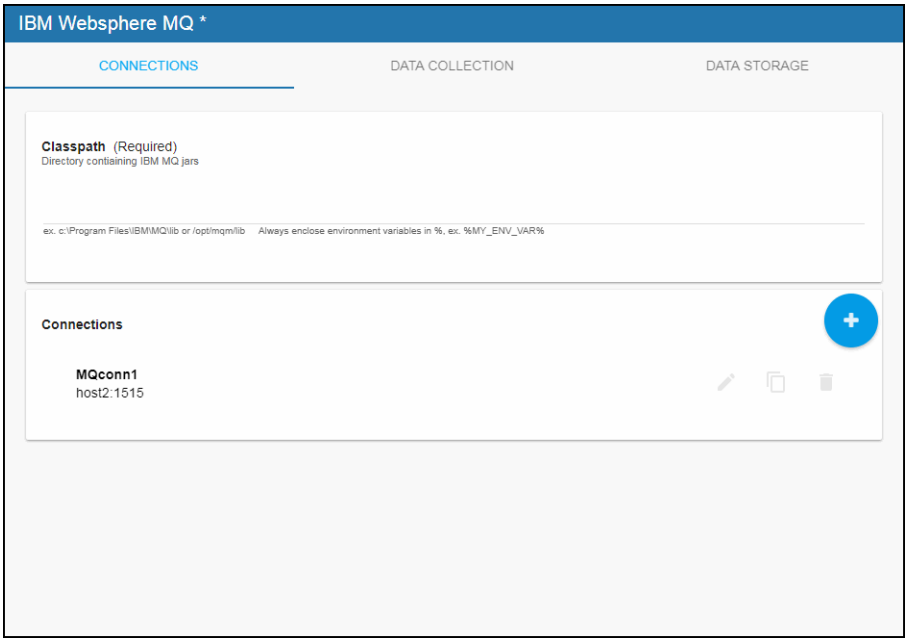
Wait Interval: Wait interval (in seconds) between attempts to create a connection. The default value is 10 seconds.

Retry Interval: Minimum interval (in seconds) between connection retry attempts. The default value is 30 seconds.

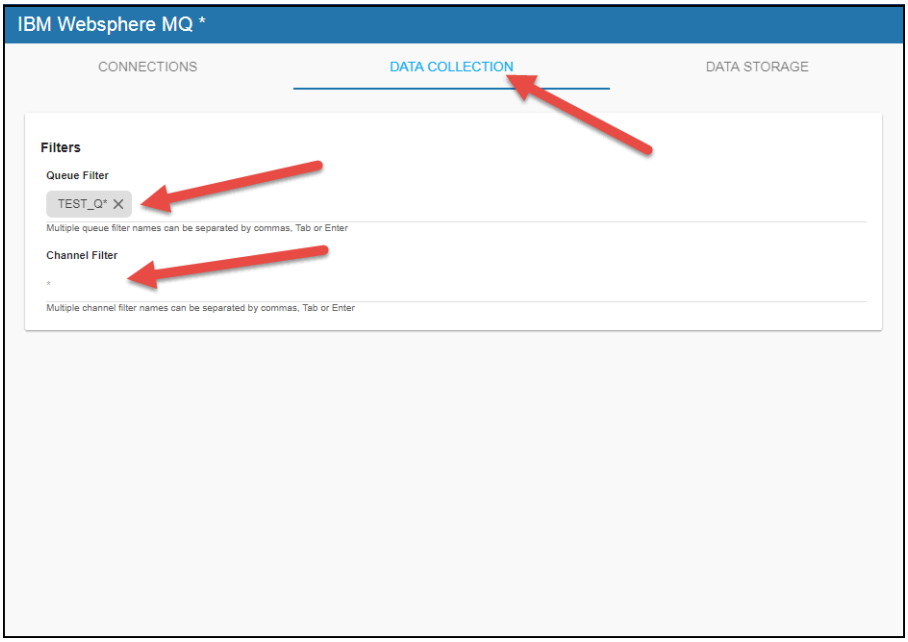
Max Retries: Maximum number of subsequent connection retry attempts. A retry will only be attempted when the initial connection failed or when a broken connection error has occurred. When a successful connection has been made, the connection attempt counter is reset to zero. If set to 0, only an initial connect attempt is made for this connection. If set to -1, unlimited connection attempts will be made until a connection is established, which may be useful when MQ servers are cycled for maintenance, or the servers are expected to be down for a period of time and a connection is wanted when the servers come back up. The default value is 5.

Expiry: The time (in seconds) in which the attempt to connect to the data source will expire. The default value is -1, which means the connection will not expire.

The newly created connection displays in the **Connections** section.



5. You can optionally define queue and channel filters in the **Filters** region on the **DATA COLLECTION** tab. The **Queues Filter** filters incoming data from the MqQueues cache and the **Channel Filter** filters incoming data from the MqChannels and MqBrokers caches.The filter name displays in the field after entering the name and typing a comma or by clicking the **Tab** or **Enter** key. You can enter more than one filter in each field. Once the filter is specified, you can delete the filter by clicking the **X** next to the name.



Additional Configurations

This section describes the additional optional IBM Websphere MQ Monitor configurations:

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

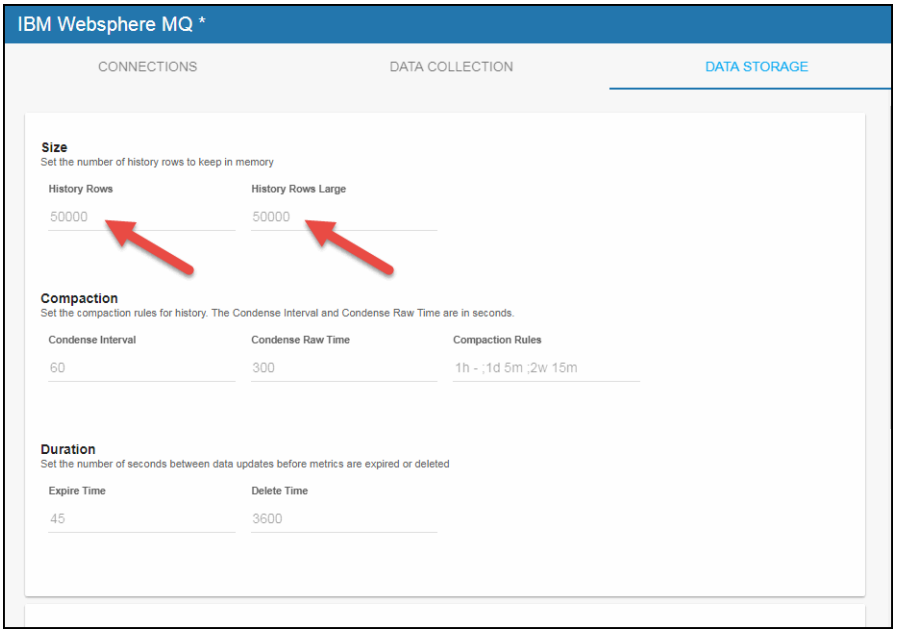
- "Defining the Storage of In-Memory History for MQMON"
- "Defining MQMONCompaction Rules"
- "Defining Expiration and Deletion Duration for MQMON Metrics"
- "Enabling/Disabling Storage of MQMON Historical Data"
- "Defining a Prefix for All History Table Names for MQMON Metrics"

Defining the Storage of In-Memory History for MQMON

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the MqChannels, MqQueueMgrs, MqConnections, and MqBrokers caches. The **History Rows Large** property defines the maximum number of rows to store for the MqQueues cache. The default setting for **History Rows** is 50,000, and the default setting for **History Rows Large** is 50,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (Project Name/**MQMON-LOCAL**) > **Solution Package Configuration** > **IBM Websphere MQ** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** and **History Rows Large** fields and specify the desired number of rows.



Defining MQMONCompaction Rules

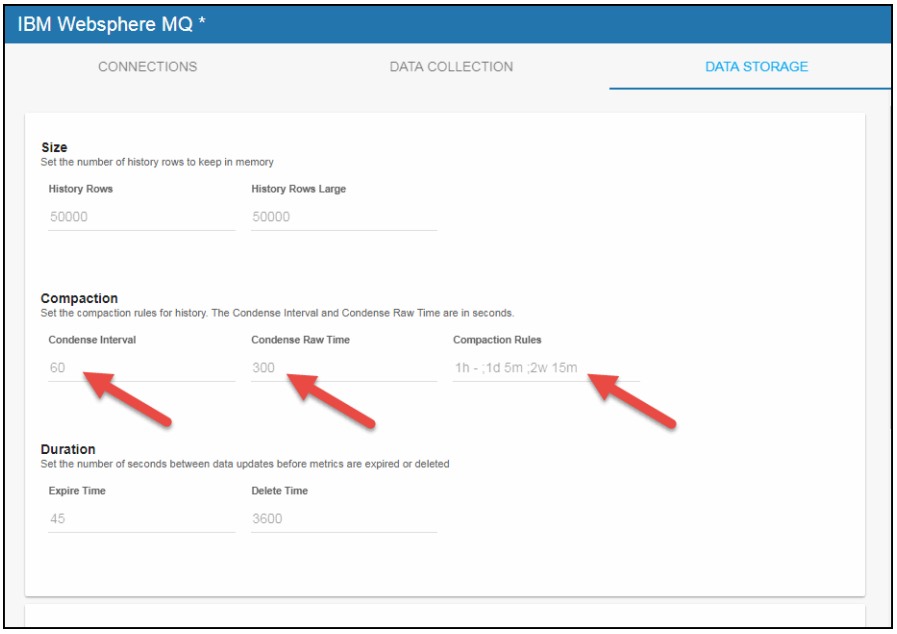
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: MqChannels, MqQueues, and MqBrokers. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: MqChannels, MqQueues, and MqBrokers. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: MqQueues and MqBrokers. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (Project Name/**MQMON-LOCAL**) > **Solution Package Configuration** > **IBM Websphere MQ** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



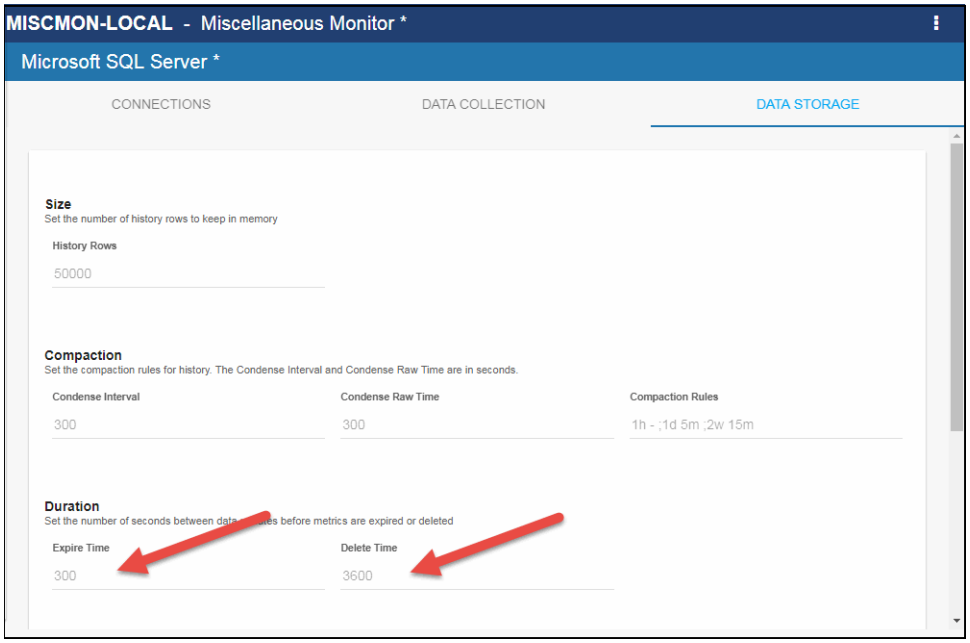
Defining Expiration and Deletion Duration for MQMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The following caches are impacted by settings in the **Expire Time** and **Delete Time** fields: MqChannels, MqQueues, MqQueueMgrs, MqConnections, and MqBrokers. To modify these defaults:

1. Navigate to the RTView Configuration Application > (Project Name/**MQMON-LOCAL**) > **Solution Package Configuration** > **IBM Websphere MQ** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

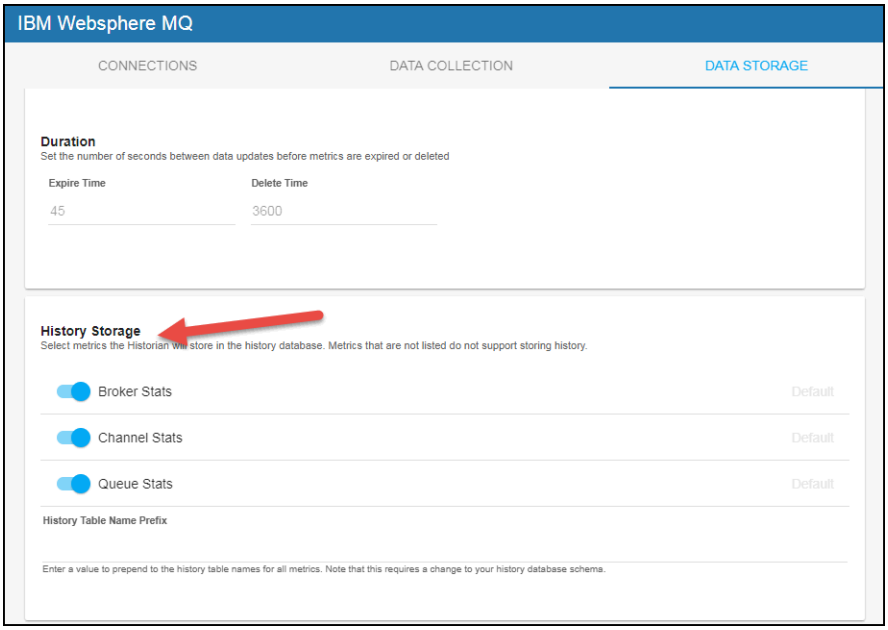


Enabling/Disabling Storage of MQMON Historical Data

The **History Storage** section allows you to select which metrics you want the Historian to store in the history database. By default, historical **Broker Stats** (MqBrokers cache), **Channel Stats** (MqChannels cache), and **Queue Stats** (MqQueues cache) are saved to the database. To disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (Project Name/**MQMON-LOCAL**) > **Solution Package Configuration** > **IBM Websphere MQ** > **DATA STORAGE** tab.

2. In the **History Storage** region, deselect the toggles for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for MQMON Metrics

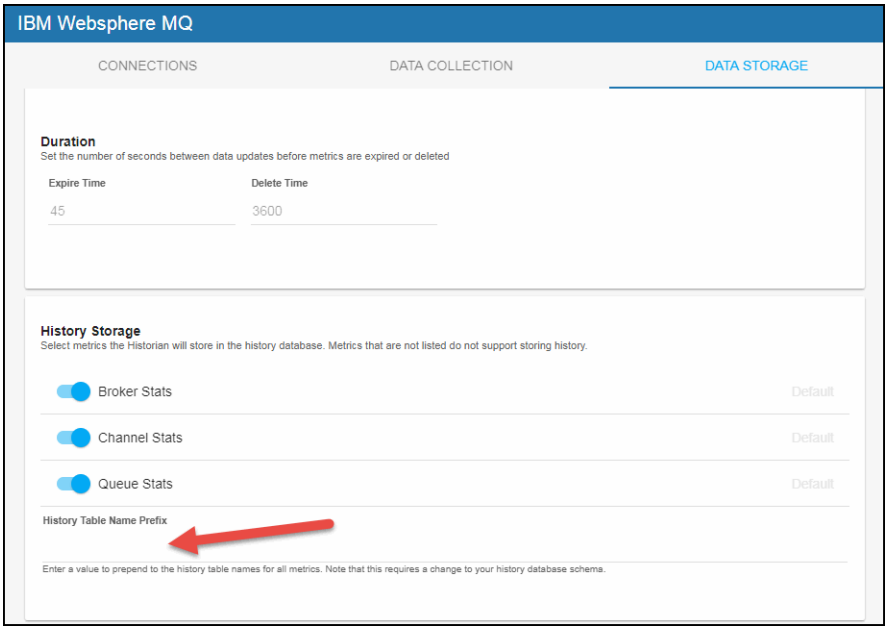
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**mqmon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (Project Name/**MQMON-LOCAL**) > **Solution Package Configuration** > **IBM Websphere MQ** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshooting

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MQMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Mq." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

IBM Websphere MQ Monitor Views/Displays

The following WebSphere Monitor Views (and their associated displays) can be found under **Components** tab **> Middleware> IBM MQ.**

Note: This document assumes familiarity with IBM Websphere MQ. For details about IBM Websphere MQ, refer to vendor documentation.

This section contains the following:

- "IBM MQ Brokers View": The displays in this View present performance and utilization metrics for your IBM MQ Brokers.
- "Channels View": The displays in this View present performance and utilization metrics for your IBM MQ Channels.
- "Queue Managers": The displays in this View present performance and utilization metrics for your IBM MQ Queue Managers.
- "Queues": The displays in this View present performance and utilization metrics for your IBM MQ Queues.

IBM MQ Brokers View

See performance and utilization metrics for all of your IBM MQ Brokers.

Displays in this View are:

- "All Brokers Grid": This display presents a high-level perspective of utilization metrics for each IBM MQ Broker.
- "All Broker Connections": This display presents detailed connection metrics for each IBM MQ Broker.
- "Single Broker Summary": This display presents performance metrics for a single IBM MQ Broker, as well as detailed metrics for its channels and queues.

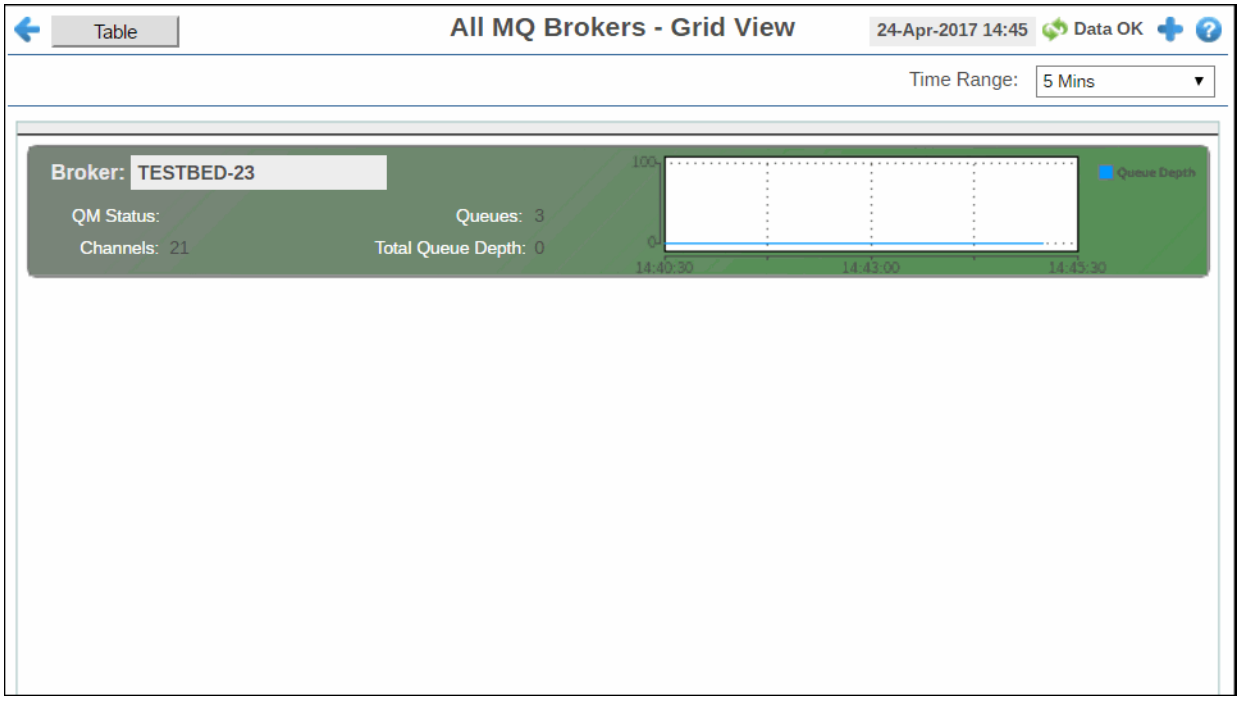
All Brokers Grid

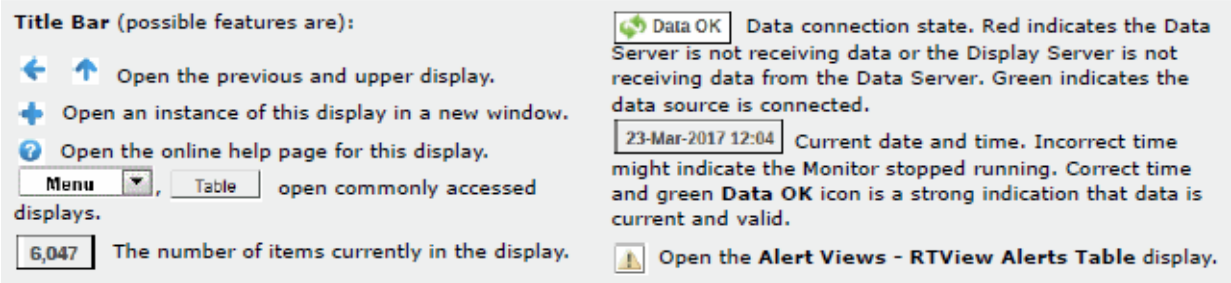
Track current and historical utilization and performance trends of all MQ Brokers in parallel. Use this display to quickly identify hosts with performance issues and verify whether the load is distributed evenly across brokers.

Each grid object is a different MQ Broker. Inactive brokers are shown in dark red, active brokers are shown in green. Metrics include QM status, queue depth and the number of channels per broker.

This display contains data obtained from IBM MQ. For example, MQIACH_HB_INTERVAL, MQIA_MONITORING_CHANNEL and MQIACH_MSG_COMPRESSION. For details, refer to vendor documentation.

Choose a time range to display from the drop-down menu and drill-down and investigate by clicking a broker to view details in the "Single Broker Summary" display.





Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**.

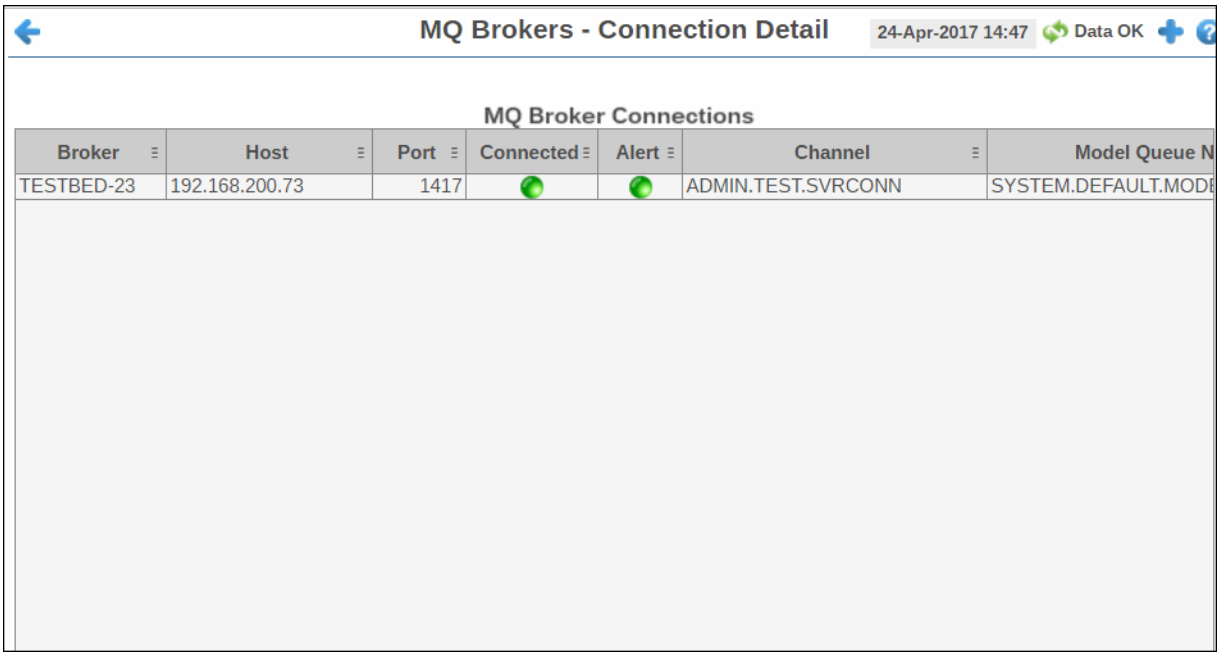
Fields and Data:

Broker	The name of the broker.
QM Status:	The status of the Queue Manager on the broker.
Queues	The number of queues on the broker.
Channels	The number of channels on the broker.
Total Queue Depth	The total queue depth.
Trend Graph	Traces the queue depth on the broker.

All Broker Connections

View connection performance details for each MQ Broker in a tabular format, including current status, greatest alert severity and wait time to connect. Each row in the table is a different MQ Broker. Inactive brokers are shown in dark red.

Drill-down and investigate by clicking a row in the table to view details for the selected connection in the "Single Broker Summary" display.



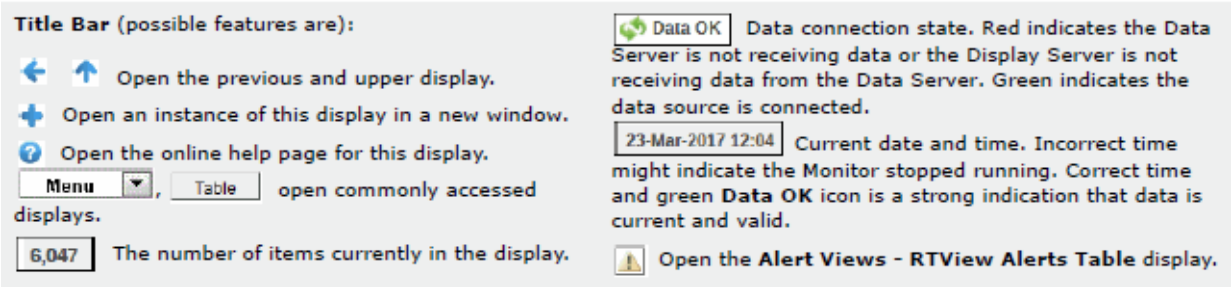


Table
Each table row is a different connection. Column values describe the connection except where noted.

Broker	The name of the broker.
Host	The name of the host.
Port	The port number used.
Connected	The current connection state: Disconnected Connected

Alert	The current alert severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Channel	The name of the channel.
Model Queue Name	Named model queue of the connection.
Max Retries	Maximum number of subsequent connection retry attempts.
Retry Interval	Minimum interval (in seconds) between connection retry attempts.
Wait Interval	Wait interval (in seconds) between attempts to create a connection.
conn	The name of the connection.
time_stamp	The data and time of the last data update.

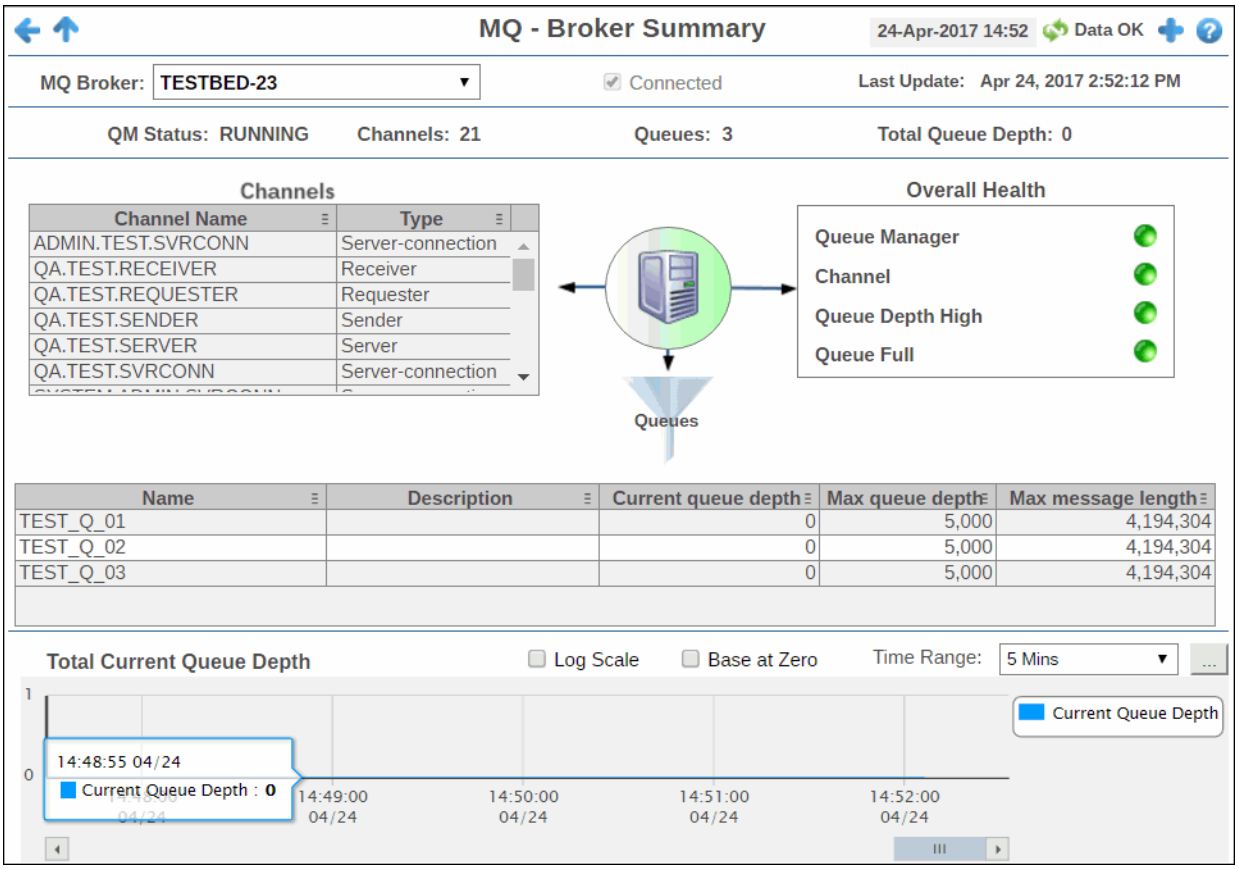
Single Broker Summary

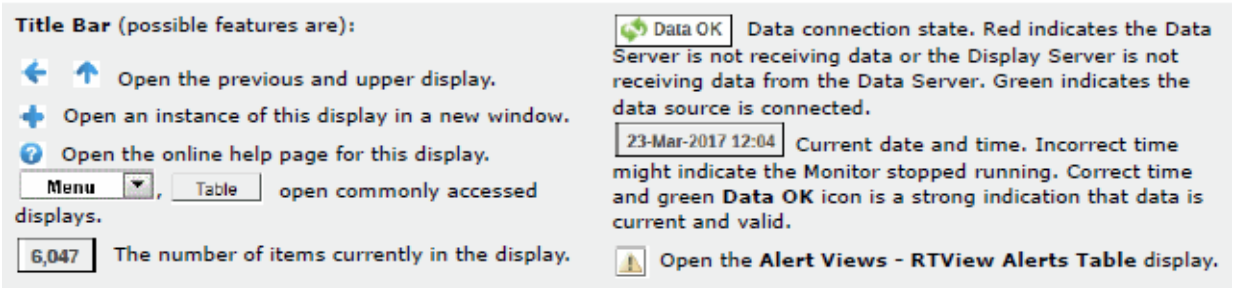
View detailed utilization metrics and health for a single MQ Broker, such as Channel and Queue health and the number of channels per broker.

Use this display to investigate the performance and health of a broker.

Choose a broker from the drop-down menu. Click a row in the **Channels** table to investigate in the "All Channels Table" display. Click a row in the **Queues** table. to investigte in the "All Queues Table" display.

The trend graph traces the total **Current Queue Depth** for the selected broker. .





Filter By:

MQ Broker Choose a broker to display.

Fields and Data
All values describe the selected broker except where noted.

Connected When checked, the broker is connected.

Last Update The data and time of the last data update.

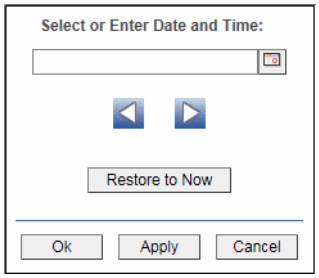
QM Status The queue manager status. For example:
RUNNING - The QM is operating properly.

Channels The current number of channels on the broker.

Queues	The current number of queues on the broker.
Total Queue Depth	The total depth of all queues combined.
Channels	Lists the channels on the broker. **Channel Name**: The name of the channel. **Type**: The type of channel (for example, Receiver, Cluster-sender, etc.)
Overall Health	The current alert severity for the broker **Queue Manager**, **Channel**, **Queue Depth High** and **Queue Full**: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Queues	Each row is a different queue on the broker. Column values describe the queue. **Name:** The name of the queue. **Description**: A textual description of the queue. **Current queue depth**: The current queue depth. **Max queue depth**: The maximum queue depth. **Max message length**: The maximum message length in the queue.

Trend Graph
Traces the **Queue Depth** for the selected broker.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Channels View

See performance and utilization metrics for all of your IBM MQ Brokers.

Displays in this View are:

- "All Channels Table": This display presents a high-level perspective of utilization metrics for each IBM MQ Broker.
- "Single Channel Summary": This display presents detailed performance metrics for each channel
- "Single Channel Detail": This display presents additional configuration metrics for a single channel.

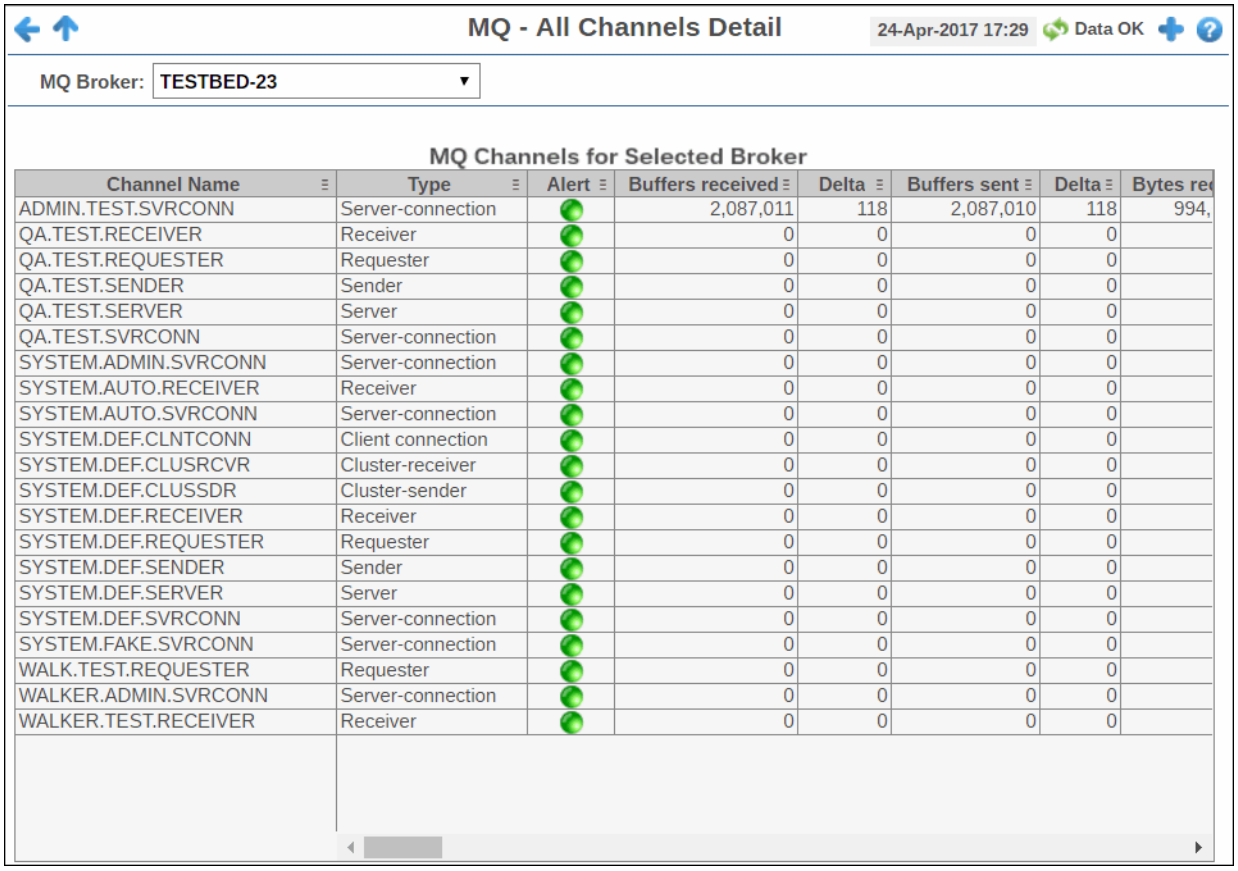
All Channels Table

View detailed utilization metrics and parameter settings for MQ Channels on a broker. Metrics include total and delta counts for buffers received/sent. Parameter settings such as MQIACH_KEEP_ALIVE_INTERVAL, MQIACH_HDR_ COMPRESSION and MQIACH_MAX_MSG_LENGTH are shown.

Each table row is a different channel. Inactive channels are shown in dark red, active channels are shown in green.

Use this display to quickly identify channels with performance issues and confirm channel configurations.

Note: This display contains vendor data. Refer to vendor documentation for details.



Channel Name	Type	Alert	Buffers received	Delta	Buffers sent	Delta	Bytes re
ADMIN.TEST.SVRCONN	Server-connection		2,087,011	118	2,087,010	118	994,
QA.TEST.RECEIVER	Receiver		0	0	0	0	
QA.TEST.REQUESTER	Requester		0	0	0	0	
QA.TEST.SENDER	Sender		0	0	0	0	
QA.TEST.SERVER	Server		0	0	0	0	
QA.TEST.SVRCONN	Server-connection		0	0	0	0	
SYSTEM.ADMIN.SVRCONN	Server-connection		0	0	0	0	
SYSTEM.AUTO.RECEIVER	Receiver		0	0	0	0	
SYSTEM.AUTO.SVRCONN	Server-connection		0	0	0	0	
SYSTEM.DEF.CLNTCONN	Client connection		0	0	0	0	
SYSTEM.DEF.CLUSRCVR	Cluster-receiver		0	0	0	0	
SYSTEM.DEF.CLUSSDR	Cluster-sender		0	0	0	0	
SYSTEM.DEF.RECEIVER	Receiver		0	0	0	0	
SYSTEM.DEF.REQUESTER	Requester		0	0	0	0	
SYSTEM.DEF.SENDER	Sender		0	0	0	0	
SYSTEM.DEF.SERVER	Server		0	0	0	0	
SYSTEM.DEF.SVRCONN	Server-connection		0	0	0	0	
SYSTEM.FAKE.SVRCONN	Server-connection		0	0	0	0	
WALK.TEST.REQUESTER	Requester		0	0	0	0	
WALKER.ADMIN.SVRCONN	Server-connection		0	0	0	0	
WALKER.TEST.RECEIVER	Receiver		0	0	0	0	

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

MQ Broker Choose a broker to display.

MQ Channels for Selected Broker Table
Each table row is a different channel on the selected broker. Column values describe the channel.

Channel Name The name of the channel.

Type The type of channel.

Alert	The current alert severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Buffers Received	The number of buffers received.
Delta	The number of buffers received since the last data update.
Buffers Sent	The number of buffers sent.
Delta	The number of buffers sent since the last data update.
Bytes Received	The number of bytes received.
Delta	The number of bytes received since the last data update.
Bytes Sent	The number of bytes sent.
Delta	The number of bytes sent since the last data update.
Batches Completed	The number of batches completed.
Delta	The number of batches completed since the last data update.
Description	A textual description of the channel.

Vendor Data

This display contains vendor data. Refer to vendor documentation for details.

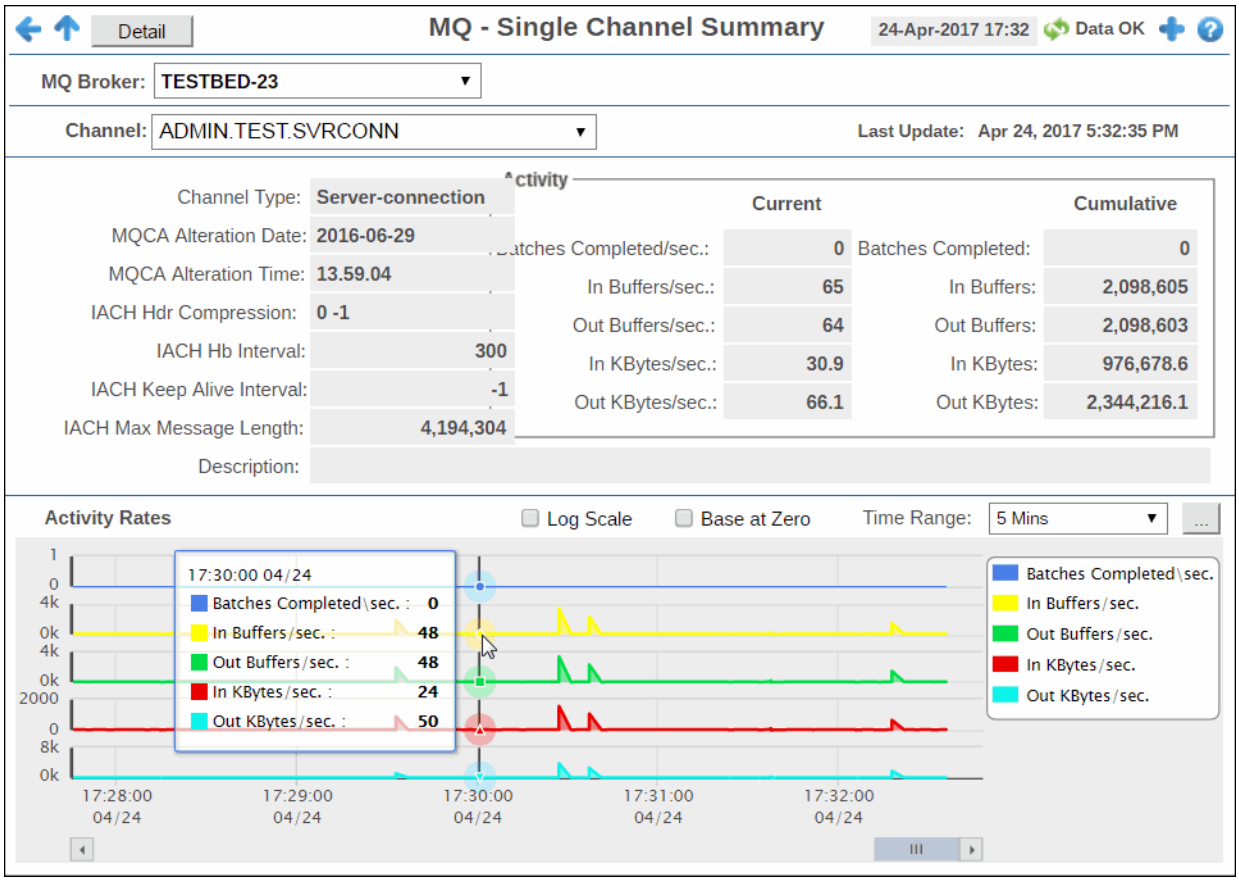
Max message length	The maximum length of messages on the channel.
Status	The channel status.
Transmission queue name	The name of the queue that transmits for the channel.
Connection Name	The name of the connection.
time_stamp	The date and time of the last data update.
conn	The name of the connection.

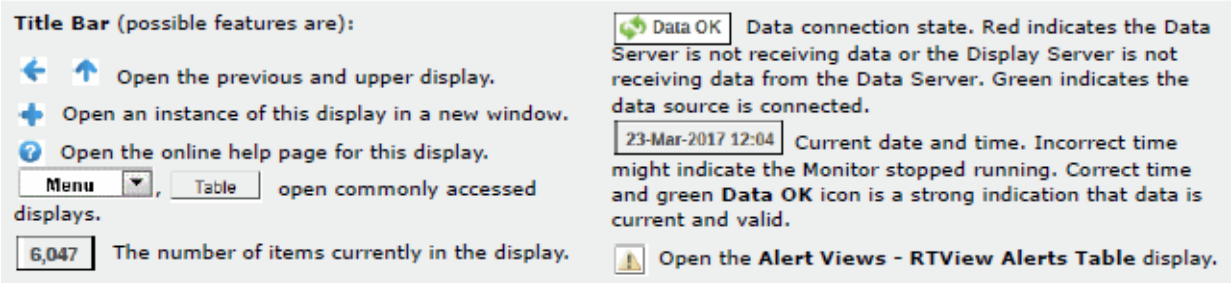
Single Channel Summary

View current and historical activity rates and transmission settings for a single MQ channel. Metrics include buffers received/sent per second and batches completed. Parameter settings such as MQCA Alteration date, IACH Keep Alive Interval and Max Message Length are shown.

Use this display to check the health of a channel and its configuration.

Note: This display contains vendor data. Refer to vendor documentation for details.





MQ Broker Choose a broker to display.

Channel Choose a channel to display.

Last Update The date and time of the last data update.

Channel Type The type of channel.

Vendor Data

This display contains vendor data. Refer to vendor documentation for details.

Activity Rates Trend Graph
Values describe the selected channel.

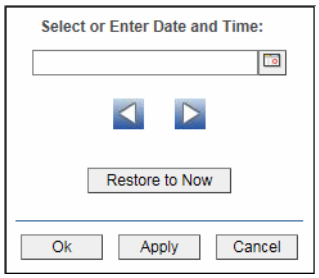
	Current	Cumulative
Batches Completed/sec	The current number of batches completed per second.	The total number of batches completed since the channel started.
In Buffers/sec	The current number of buffers received per second.	The total number of buffers received since the channel started.
Out Buffers/ sec	The current number of buffers sent per second.	The total number of buffers sent since the channel started.
In KBytes/sec	The current number of kilobytes received per second.	The tota number of kilobytes received since the channel started.
Out KBytes/ sec	The current number of kilobytes sent per second.	The tota number of kilobytes sent since the channel started.

Activity Rates
Traces the following for the selected channel:
- **Batches Completed/sec**: The current number batches completed per second.
- **In Buffers/sec**: The current number of buffers received per second.
- **Out Buffers/sec**: The current number of buffers sent per second.
- **In KBytes/sec**: The current number of kilobytes received per second.
- **Out KBytes/sec**: The current number of kilobytes sent per second.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

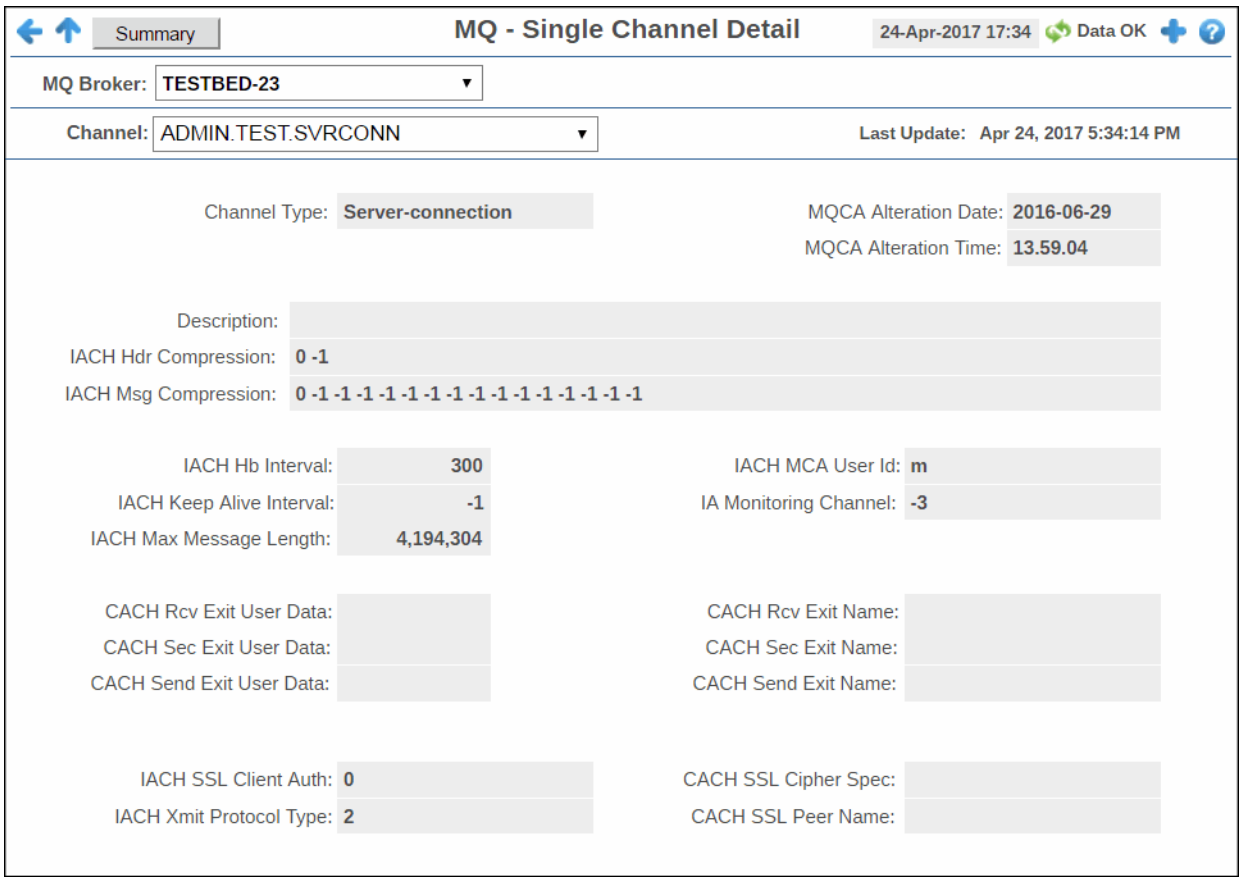
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

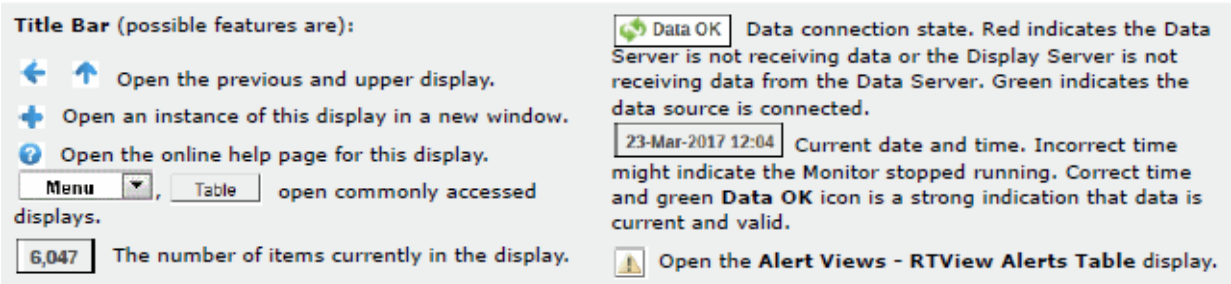
Click **Restore to Now** to reset the time range end point to the current time.

Single Channel Detail

Get detailed transmission specifications and settings for a single MQ channel. Parameter settings such as CACH Rcv Exit User, IACH Msg Compression and CACH SSL Cipher Spec, as well as DataMQCA Alteration date, IACH Keep Alive Interval and Max Message Length are shown.

Note: This display contains vendor data. Refer to vendor documentation for details.





MQ Broker	Choose a broker to display.
Channel	Choose a channel to display.
Last Update	The date and time of the last data update.

Channel Type	The type of channel. For example, **Server-connection**.
MQCA Alteration Date	The date the MQ CA was last modified.
MQCA Alteration Time	The time the MQ CA was last modified.
Description	The description of the channel definition.
IACH Hdr Compression	The ACH header data compression techniques supported by the channel.
IACH Msg Compression	The ACH message data compression techniques supported by the channel.
IACH Hb Interval	The ACH heartbeat interval setting.
IACH Keep Alive Interval	The ACH keep alive interval setting (the timeout value for the channel).
IACH Max Message Length	The ACH maximum message length setting.
CACH Rcv Exit User Data	The user data that is passed to the receive exit.
CACH Sec Exit User Data	The user data that is passed to the security exit.
CACH Send Exit User Data	The user data that is passed to the send exit.
IACH SSL Client Auth	Denotes whether the channel needs to receive and authenticate an SSL certificate from an SSL client.
IACH Xmit Protocol Type	The transport type used.
IACH MCA User Id	The user ID used by the MCA when attempting to initiate a secure SNA session with a remote MCA.
IA Monitoring Channel	Denotes the attribute used to control the collection of online monitoring data.
CACH Rcv Exit Name	Denotes the name of the user exit program that was run by the channel receive user exit.
CACH Sec Exit Name	Denotes the name of the exit program that was run by the channel security exit.
CACH SSL Cipher Spec	Denotes the single CipherSpec for a TLS or SSL connection.
CACH SSL Peer Name	The Distinguished Name (DN) of the certificate from the peer queue manager or client at the other end of a IBM WebSphere MQ channel.

Queue Managers

See performance and utilization metrics for all of your IBM MQ queue managers.

Displays in this View are:

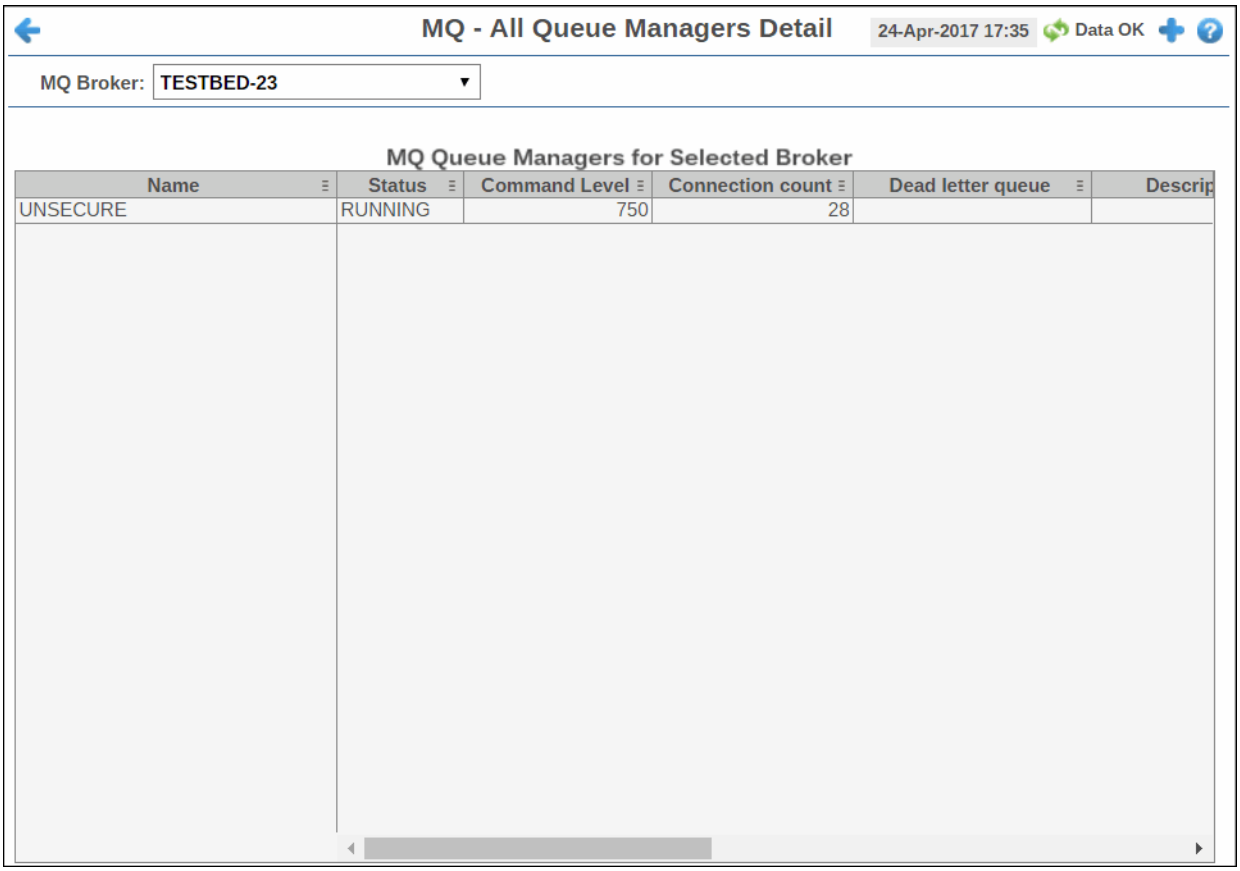
- "All Queue Managers Table": This display presents a high-level perspective of utilization metrics for each IBM MQ queue managers.

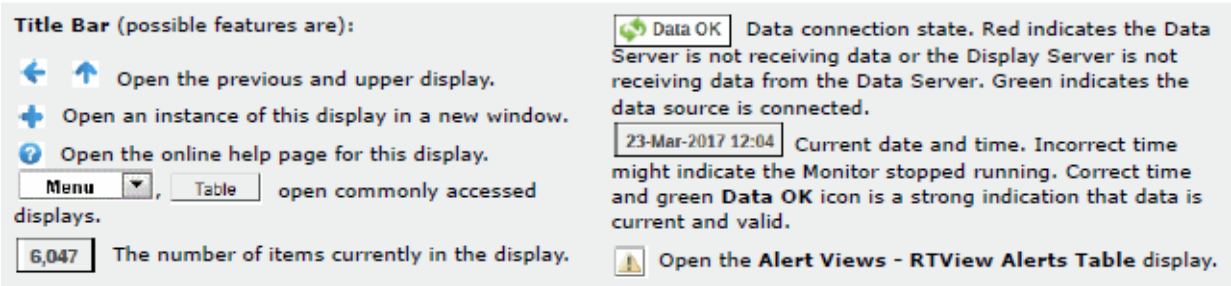
All Queue Managers Table

View detailed utilization metrics and parameter settings for all queue managers on a broker. Metrics include Connection Count and Max Message Length. Parameter settings such as Command Level are shown.

Each table row is a different queue manager. Use this display to quickly identify queue managers with performance issues and confirm configurations.

Note: This display contains vendor data. Refer to vendor documentation for details.





MQ Broker Choose a broker to display.

MQ Queues Managers for Selected Broker Table
Each table row is a different queue manager on the selected broker. Column values describe the queue.

Name	The name of the queue manager.
Status	The queue manager status (for example, Running).
Command Level	The command level.
Connection Count	The number of connections on the queue manager.
Dead Letter Queue	The number of undelivered messages in the dead letter queue.
Description	A textual description of the queue manager.
Max Message Length	The maximum message length sent or received by the queue manager.
Max Priority	The queue manager rank in priority.
Platform	The queue manager platform type.
Host	The host name.
time_stamp	The date and time of the last data update.
Connection	The connection name.

Queues

See performance and utilization metrics for all of your IBM MQ queues.

Displays in this View are:

- "All Queues Table": This display lists all IBM MQ queues with detailed performance metrics and configuration information.
- "Single Queue Summary": This display presents detailed performance metrics and configuration information for a single IBM MQ queue.

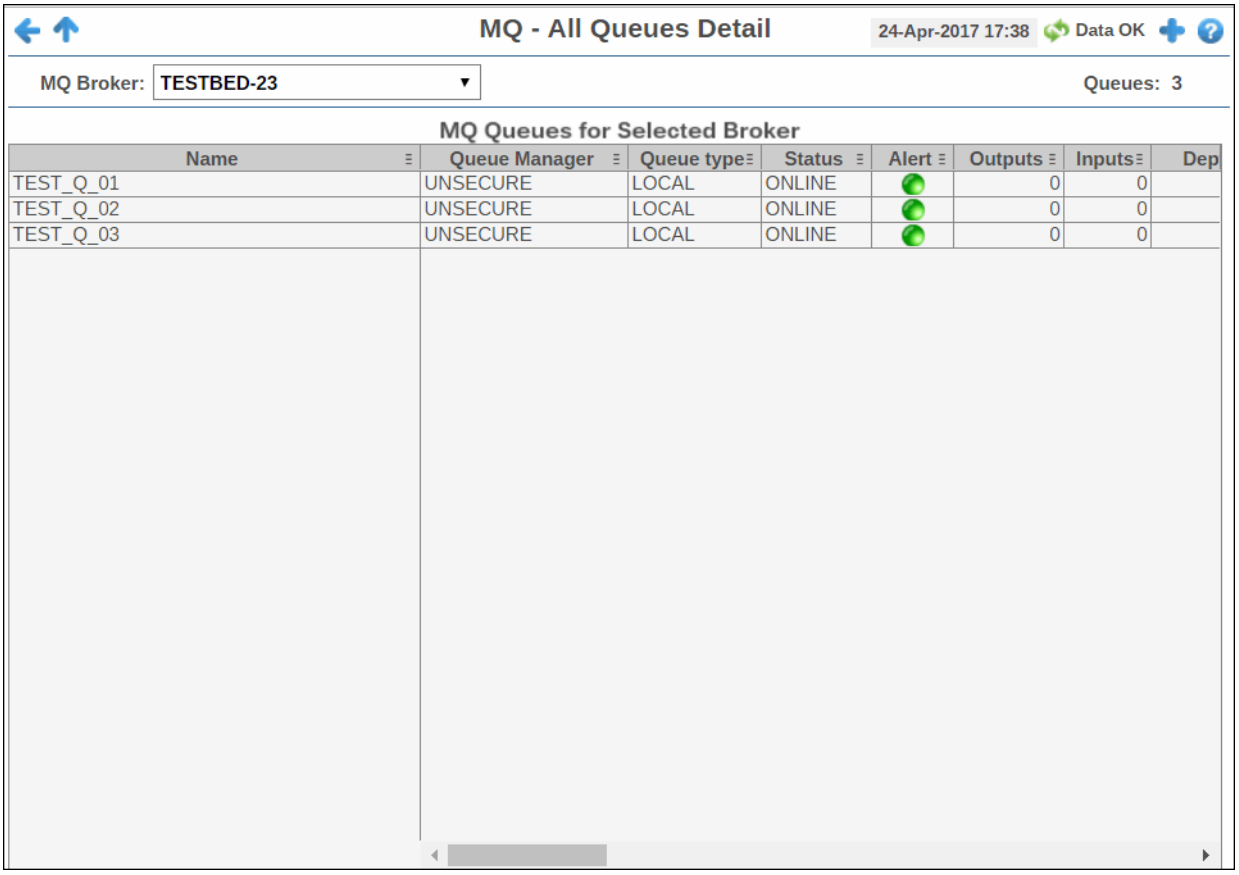
All Queues Table

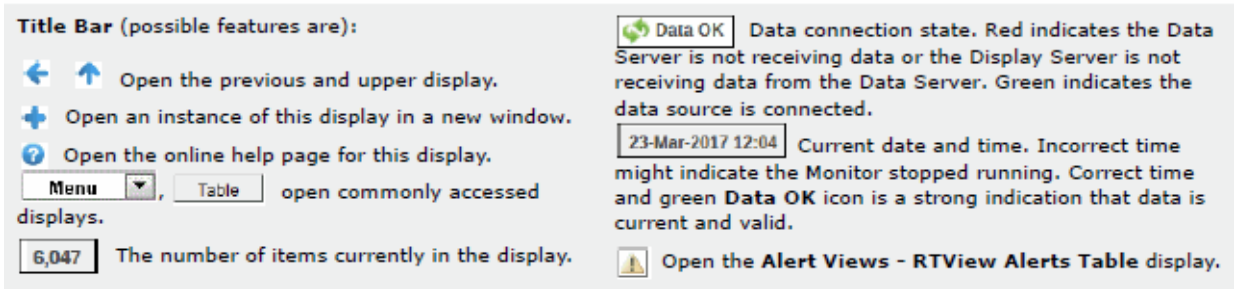
View detailed utilization metrics, alert status and settings for IBM MQ queues on a broker. Metrics include total inputs/outputs, depth and Get Messages. Settings such as queue type and default priority are shown.

Choose a broker from the drop-down menu. Each table row is a different queue. Inactive queues are shown in dark red, active queues are shown in green. Investigate by clicking a row to see queue details in the "Single Queue Summary" display.

Use this display to quickly identify queues with performance or capacity issues and confirm queue configurations.

Note: This display contains vendor data. Refer to vendor documentation for details.





MQ Broker Choose a broker to display.

MQ Queues for Selected Broker Table
Each table row is a different queue on the selected broker. Column values describe the queue.

Name The name of the queue.

Queue Manager The name of the queue manager.

Queue type The type of queue.

Status The queue status (for example, Online).

Alert	The current alert severity: ● Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. ● Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. ● Green indicates that no metrics have exceeded their alert thresholds.
Outputs	The number of outgoing transactions.
Inputs	The number of incoming transactions.
Depth	The current queue depth.
Max Depth	The maximum number of messages allowed on the queue at any one time.
Persistence	Denotes whether or not the queue manager is persistent (**PERSISTENT**/**NOT PERSISTENT**).
Description	The description of the purpose of the queue.
Max Message Length	The maximum length of messages.
Host	The IP address of the host.
Default Priority	The default priority value for messages placed on the queue.
Get Messages	Denotes whether or not the queue enabled to get messages (**GET ALLOWED**/**GET NOT ALLOWED**).
Put Messages	Denotes whether or not the queue enabled to put messages (**PUT ALLOWED**/**PUT NOT ALLOWED**).
Scope	The defined scope setting for the queue.
Shareability	Denotes whether or not the queue is shareable (**SHAREABLE**/ **NOT SHAREABLE**).
Usage	The queue usage type (**NORMAL**/**TRANSMISSION**).
Connection	The name of the queue connection.
Expired	When checked, this connection is expired due to inactivity.
time_stamp	The date and time of the last data update.

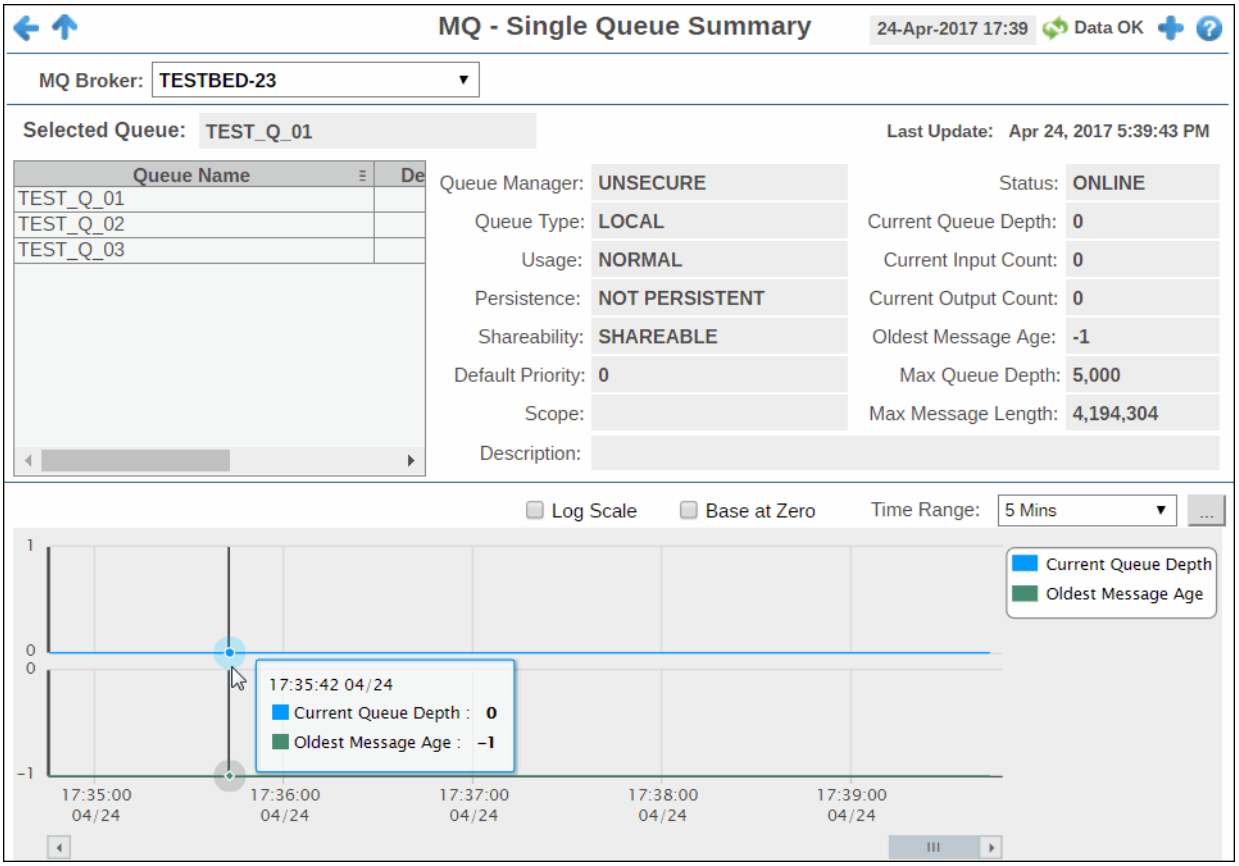
Single Queue Summary

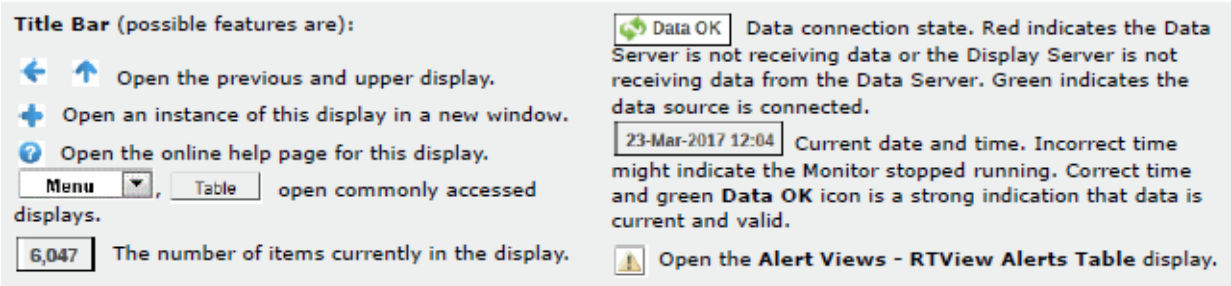
View detailed performance metrics and settings for a single IBM MQ queue. Metrics include input/output counts, queue depth and max message length. Settings such as persistence, shareability, and scope are shown. Trend graph traces current queue depth and the oldest message age for the selected queue.

Choose a broker from the drop-down menu, then choose a queue from the **Queue** table.

Use this display to check the health of a queue and its configuration.

Note: This display contains vendor data. Refer to vendor documentation for details.





MQ Broker	Choose a broker to display.
Selected Queue	Choose a queue from the table to populate the display. The name of the queue selected in the **Queue** table (below).
Last Update	The data and time of the last data update.
Queue Table	Choose a queue to populate the display.

Queue Name	The queue name.
Depth	The current queue depth.
Status	The current queue status.

Inputs	The current number of incoming transactions for the queue.
Outputs	The current number of outgoing transactions for the queue.

Queue Manager The name of the queue manager for the queue.

Queue Type The type of queue.

Usage The queue usage type (**NORMAL**/**TRANSMISSION**).

Persistence Denotes whether or not the queue manager is persistent (**PERSISTENT**/**NOT PERSISTENT**).

Shareability Denotes whether or not the queue manager is shareable (**SHAREABLE**/**NOT SHAREABLE**).

Default Priority The default priority setting on the queue manager.

Scope The defined scope for the queue.

Description The description of the queue.

Status The status of the queue.

Current Queue Depth The current depth of the queue.

Current Input Count The number of incoming transactions.

Current Output Count The number of outgoing transactions.

Oldest Message Age The age of the oldest message in the queue.

Max Queue Depth The maximum number of messages allowed on the queue.

Max Message Length The maximum message length on the queue.

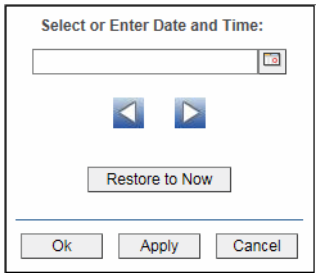
Trend Graph
Traces the following for the selected queue:

- **Current Queue Depth**: The current depth of the queue.
- **Oldest Message Age**: The age of the oldest message in the queue.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

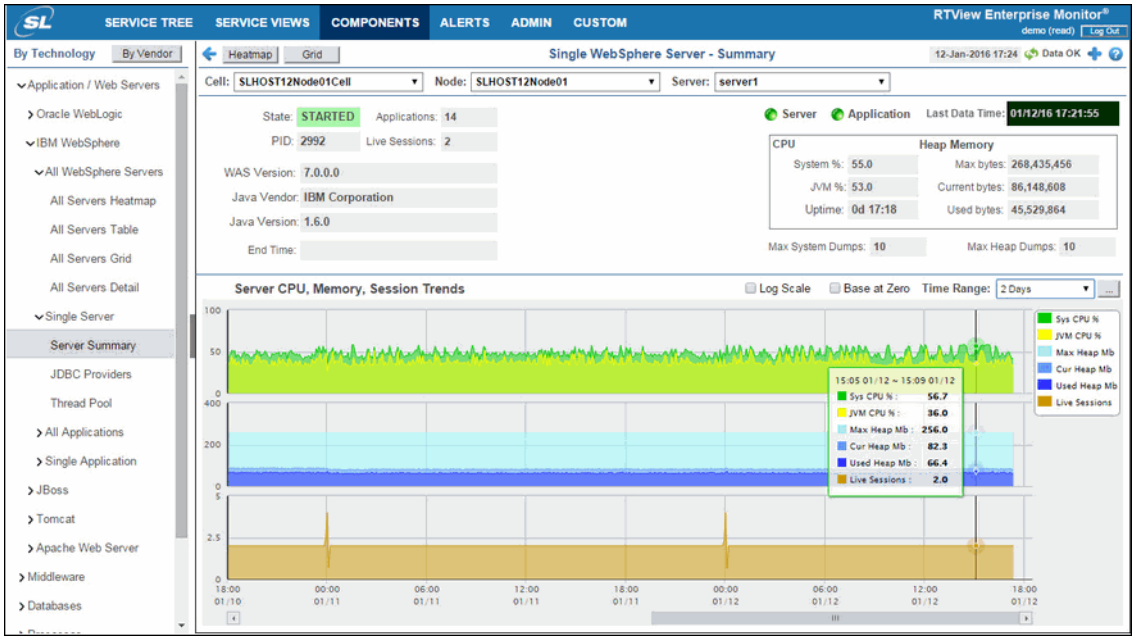
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 12 Solution Package for IBM WebSphere

Gain real-time visibility into the health and performance of WebSphere Application Server and deployed applications.

RTView Enterprise Monitor and the Solution Package for IBM® WebSphere provide out of box performance and availability monitoring for support teams and WebSphere administrators. It enables users to ensure effective resource allocation by providing access to a wide variety of current and historical metrics.



This section includes:

- "Product Overview," next
- "Configuration Parameters You Need"
- "Configure Data Collection"
- "Troubleshoot"
- "IBM WebSphere Monitor Views/Displays"

Product Overview

Configuration options enable both consolidated views across the enterprise as well as views configured for specific support teams. As part of an end to end monitoring solution, users can view WebSphere performance in the context of an application or service. This provides visibility into how WebSphere performance is impacting adjacent technologies and the resulting business impact. Typical installations of RTView Enterprise Monitor and its Solution Packages take only a few hours, while developing custom views for a variety of IT and development roles can be achieved in just days.

Key Features

- Monitor real-time performance for early warning
- Analyze historical performance to differentiate trends and spikes
- Out of the box discovery and monitoring of key metrics and resources
- Ensure effective resource allocation
- Powerful diagnostics and correlations for complex performance analysis
- View WebSphere performance in an application context

Metrics for WebSphere Server

- System CPU Usage & Process CPU Usage
- Uptime
- Max Memory
- Heap Size & Max Heap Dumps on Disks
- Java Vendor & Version
- Used Memory, Free Memory & Used Memory Percent
- JVM Memory
- Max Heap, Current Heap, Used Heap
- Live Sessions
- JDBC Providers: Open Count, Created, Pool Size, Used Pool, Use Time
- Thread Pools: Pool Size, Active Count, Growable Indication, Inactivity Timeout & Max size
- Server Applications Sessions/Requests: Number of Sessions, Servlets, Total Requests, Current Requests, Avg. Response Time
- JSP Requests, JSP Response Time, Servlet Requests, Servlet Response Time, EJB Method Calls, EJB Response Time
- Component Detail
- Module Detail Totals for Charts & Tables

End-to-End Context for WebSphere

- Custom flow diagrams help visualize complex applications and WebSphere's place in that architecture
- Provides an Intuitive View of How WebSphere Interacts with other Enterprise PaaS Components
- Designed and Developed for Large Scale, Mission Critical Environments

Configuration Parameters You Need

To configure the Solution Package for IBM® WebSphere make a note of the following values, then follow instructions in "Configure Data Collection". You will replace all references to **PackageName**, **ServerDirectory**, and **AlertPrefix** with the following values:

- **PackageName=wsm**
- **ServerDirectory**=**wsm**
- **AlertPrefix**=**Was**

Configure Data Collection

To configure data collection, use the "RTView Configuration Application" to do the following in the order provided:

- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

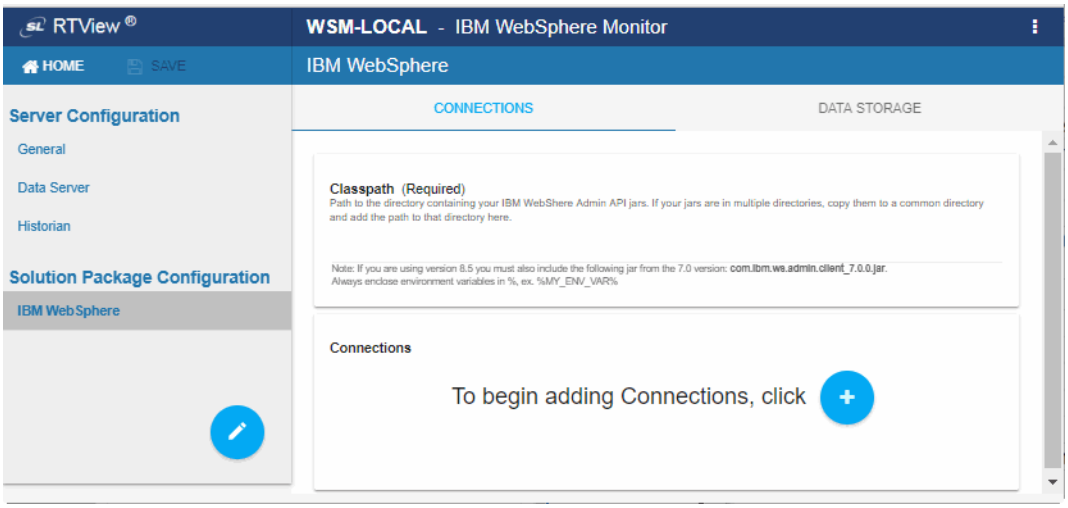
  Tip: Gray servers are either not running or not yet configured for RTView EM.

Configure CONNECTIONS

This step is required.

To configure data connections for the Solution Package for IBM WebSphere :

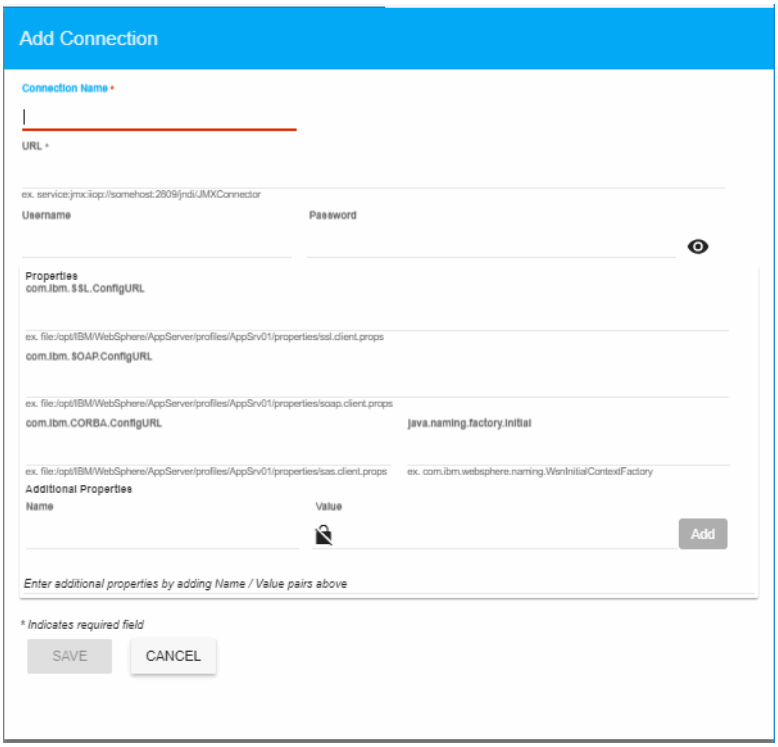
1. "Open the Solution Package Project" (the project name is **WSM--LOCAL**), then select **IBM DB2** from the navigation tree (left panel).



2. In the **CONNECTIONS** tab, enter the correct full paths to the directory containing the IBM WebSphere Admin API jars in the **Classpath** field. If your jars are in multiple directories, copy them to a common directory and add the path to that directory here.

3. SAVE your changes.

4. Click + to open the **Add Connection** dialog and enter the following:



Connection Name: The name of the connection (this must be unique).

URL: Specify the path to the JMX connection of the IBM WebSphere Server to which you want to connect. For example, **service:jmx:iiop://somehost:2809/jndi/JMXConnector**.

Username: The username defined to secure the connection. This value is only required when the connection has been secured.

Password: This password defined to secure the connection. This value is only required when the connection has been secured. By default, the password entered is hidden. Click the icon to view the password text.

Properties

com.ibm.SSL.ConfigURL: Specify the full path to the ... For example, **file:/opt/WebSphere/AppServer/profiles/AppSrv01/properties/ssl.client.props**.

com.ibm.SOAP.ConfigURL: Specify the full path to the ... For example, **file:/opt/WebSphere/AppServer/profiles/AppSrv01/properties/soap.client.props**.

java.com.ibm.CORBA.ConfigURL: Specify the full path to the ... For example, **file:/opt/WebSphere/AppServer/profiles/AppSrv01/properties/sas.client.props**.

java.naming.factory.initial: Specify the full path to the ... For example, **com.ibm.websphere.naming.WsnInitialContextFactory**.

Additional Properties

Name: Specify the Name and Value of any additional properties you want to use for monitoring your IBM WebSphere Servers.

Value: Enter the value for the property. You can enter multiple properties by entering the name and value and clicking the associated **Add** button. The added property then displays on the line below. Once entered, you can click the **X** next to the property name to remove them. By default, the icon sets the defined Value as secured once the connection is saved. Click this icon prior to clicking **Add** to make the defined Value visible when the connection is saved.

5. Click **SAVE** and SAVE your changes. The new connection is listed under **Connections**.

6. Repeat these instructions for each IBM WebSphere server to be monitored.

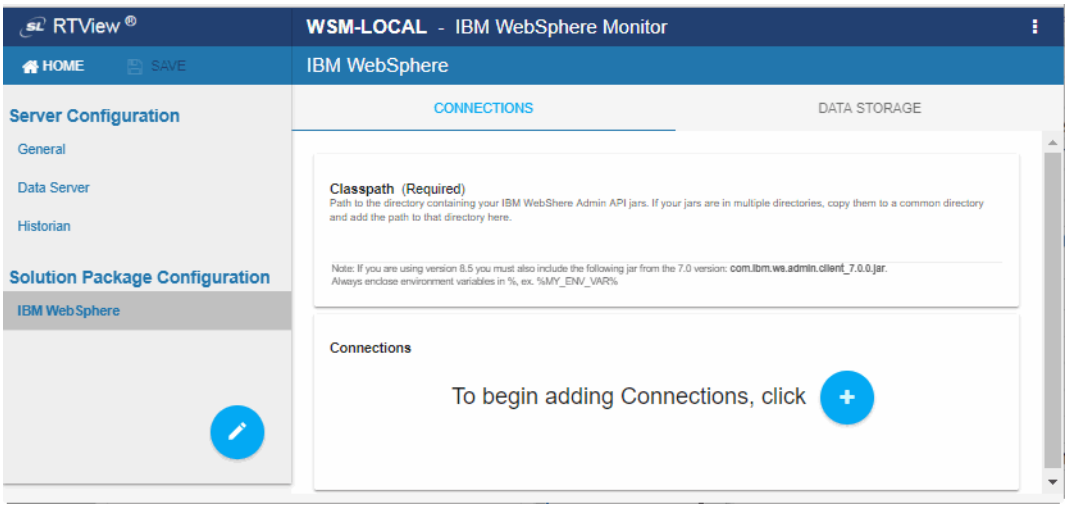
Proceed to "Configure DATA STORAGE," next (optionally, you can do this later).

Configure DATA STORAGE

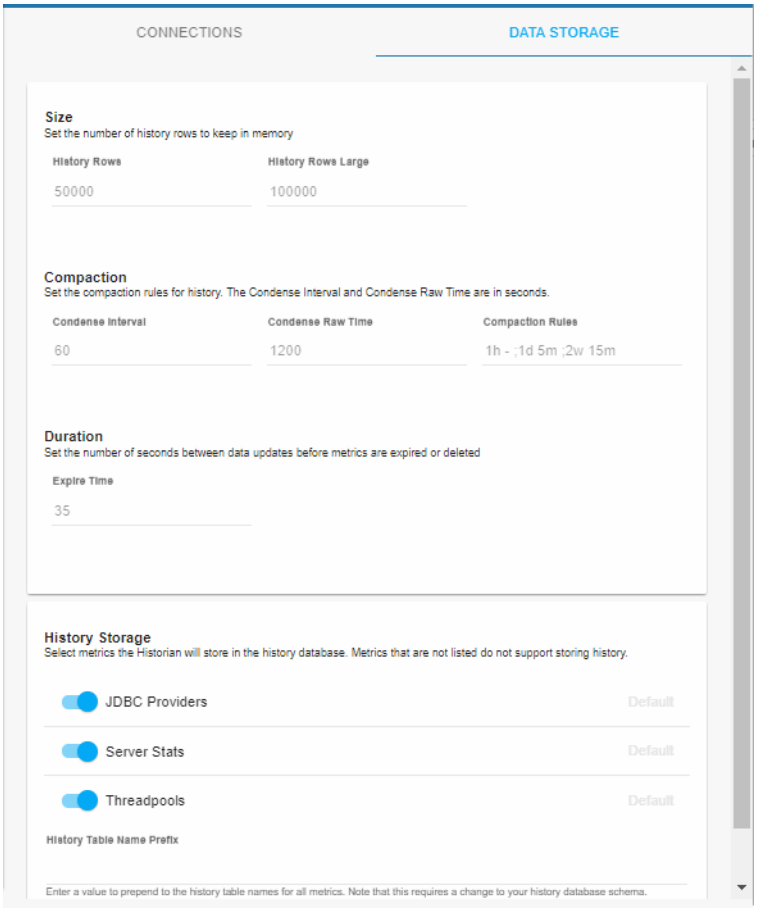
This step is optional. These instructions describe how to configure storage of your Solution Package for IBM WebSphere data. This includes both in-memory History data and on-disk History data. You can set size limits, storage duration (when to expire data) and data compaction intervals (rules for reducing/increasing the amount of data stored).

To configure data storage for the Solution Package for IBM WebSphere:

1. "Open the Solution Package Project" (the project name is **WSM--LOCAL**), then select **IBM DB2** from the navigation tree (left panel).



2. In the Configuration Utility, choose the **DATA COLLECTION** tab.



3. Under **Size**, make the following entries:

History Rows: The maximum number of table rows to keep in he History table. The default setting is **50,000**. If set to **0**, no History table is created. The caches impacted by this value are WasEjbStats, WasEjbTotalsByApp, WasEjbTotalsByModule, WasJspStats, WasJspTotalsByModule, WasJspTotalsByApp, WasJDBCProvider, WasThreadPool, WasJvmRuntime, WasSystemMetrics, WasServletTotalsByModule, WasServletTotalsByApp, WpsScaComponentStats, WpsScaMethodStats, WpsScaStats and WpsScaTotals.

History Rows Large: The maximum number of rows to store in the History table. If set to 0, no History table is created. The default setting is **100,000**. The caches impacted by this value are WasSessionTotalsByServer, WasServerStats, WasServletStats, WasSessionManager and WasSessionTotalsByApp.

4. Under **Compaction**, make the following entries:

   Condense Interval: The number of seconds to wait to condense cached history data. The caches impacted by this value are WasEjbStats, WasEjbTotalsByApp, WasEjbTotalsByModule, WasJspStats, WasJspTotalsByModule, WasJspTotalsByApp, WasJDBCProvider, WasThreadPool, WasJvmRuntime, WasSystemMetrics, WasSessionTotalsByServer, WasServerStats, WasServletStats, WasServletTotalsByModule, WasServletTotalsByApp, WasSessionManager andWasSessionTotalsByApp.

   Condense Raw Time: The number of seconds to wait to condense data in the cache history table. The caches impacted by this value are WasEjbStats, WasEjbTotalsByApp, WasEjbTotalsByModule, WasJspStats, WasJspTotalsByModule, WasJspTotalsByApp, WasJDBCProvider, WasThreadPool, WasJvmRuntime, WasSystemMetrics, WasSessionTotalsByServer, WasServerStats, WasServletStats, WasServletTotalsByModule, WasServletTotalsByApp, WasSessionManager and WasSessionTotalsByApp.

   Compaction Rules: Specifies the frequency for condensing data. The WasServerStats cache is impacted by this value.

5. Under **Duration**, make the following entry:

   Expire Time: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The caches impacted by this value are WasJvmRuntime, WasSystemMetrics, WasServerInfo, WasSessionTotalsByServer andWasServerStats.

6. Under **History Storage**, toggle to enable/disable the types of data you want the Historian to store for the Solution Package:

   JDBC Providers: This data is stored in the WasJDBCProvider cache.

   Server Stats: This data is stored in the WasServerStats cache.

   Threadpools: This data is stored in the WasThreadPool cache.

7. Under **History Table Name Prefix**: Enter a prefix that you will recognize to prepend to the history data table names for these metrics.

The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under RTVAPM_HOME/wsm/dbconfig and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

8. **Save** your settings (choose  if **SAVE** is not visible, or expand your browser width).

9. Repeat this step for each IBM WebSphere connection you wish to monitor.

Return to "Add Connections".

Troubleshoot

This section includes:

Historian Error

If you encounter this error (which is associated with the Historian and IBM WebSphere rather than the Solution Package):

MYSQL: SQLException: Can't call commit when autocommit=true

relax autocommit in the URL specified for your connection, as follows:

jdbc:mysql://MyHOST:3306/MyDB?relaxAutoCommit=true

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/wsm/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

IBM WebSphere Monitor Views/Displays

The following WebSphere Monitor Views (and their associated displays) can be found under **Components** tab **> Application/Web Servers> WebSphere** after the Solution Package for IBM® WebSphere is installed.

This section contains the following:

- "All WebSphere Servers View" on page 440: The displays in this View present high-level performance and utilization metrics for all of your IBM WebSphere servers.
- "Single Server View" on page 450: The displays in this View present high-level performance and utilization metrics for a single IBM WebSphere server.
- "All Applications View" on page 458: The displays in this View present high-level performance and utilization metrics for all of your web application sessions.
- "Single Application View" on page 465: The displays in this View present high-level performance and utilization metrics for a single web application.

All WebSphere Servers View

See performance and utilization metrics for all of your IBM WebSphere servers.

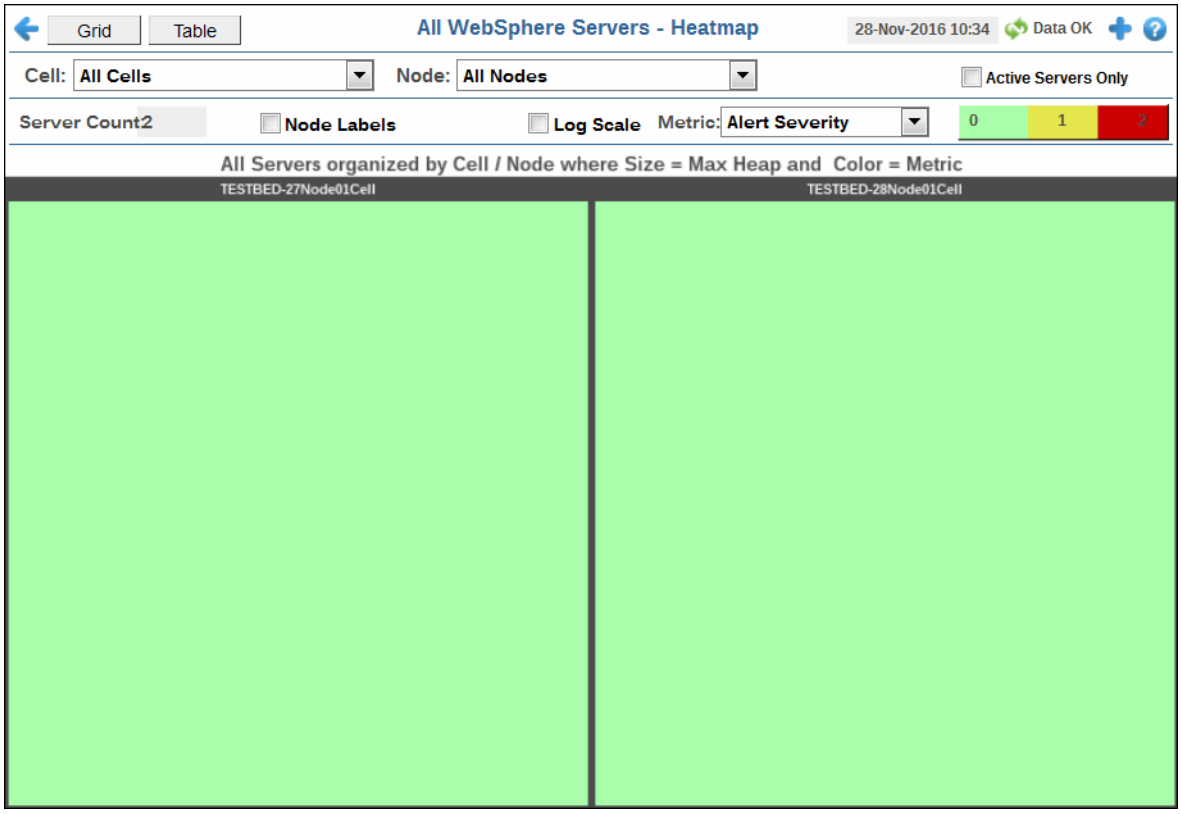
Displays in this View are:

- "All Servers Heatmap" on page 440
- "All Servers Table" on page 442
- "All Servers Grid" on page 444
- "All Servers Detail" on page 446

All Servers Heatmap

This heatmap shows the current status and utilization metrics for all WebSphere servers. Choose a cell and node from the drop-down menus. Use this display to see metrics for **Alert Count, Live Session Count, WAS CPU %, Host CPU %** and **Memory Used %**. By default, this display shows the heatmap based on the **Alert Severity** metric.

Each rectangle is a different WebSphere server. Use the **Node Labels** check-box ☑ to include or exclude labels in the heatmap, and mouse over a rectangle to see additional metrics for a server. Click a rectangle to drill down to the "Server Summary" display, which shows additional details about the server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

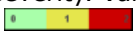
Cell:	Choose a cell or **All Cells** to see metrics for.
Node:	Choose a node or **All Nodes** to see metrics for.

Fields and Data:

Active Servers Only	Choose this check box to only include active servers in the display.
Server Count	The number of servers in the display.
Node Labels	Select to include node labels in the display.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

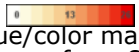
Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

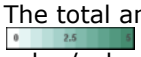
Alert Count The total number of critical and warning unacknowledged alerts. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Used% The percent CPU used. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **ProcessCpuLoadPercent**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

V Memory Used% The percent virtual memory used. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SystemCpuLoadPercent**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

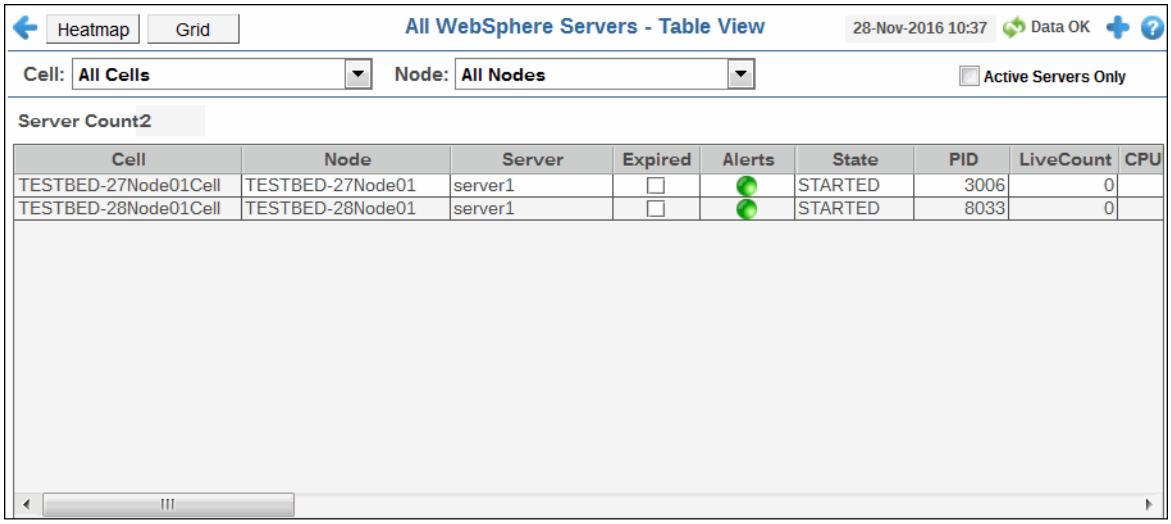
Free Memory The total amount of available memory. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount of available memory. The middle value in the gradient bar indicates the average amount.

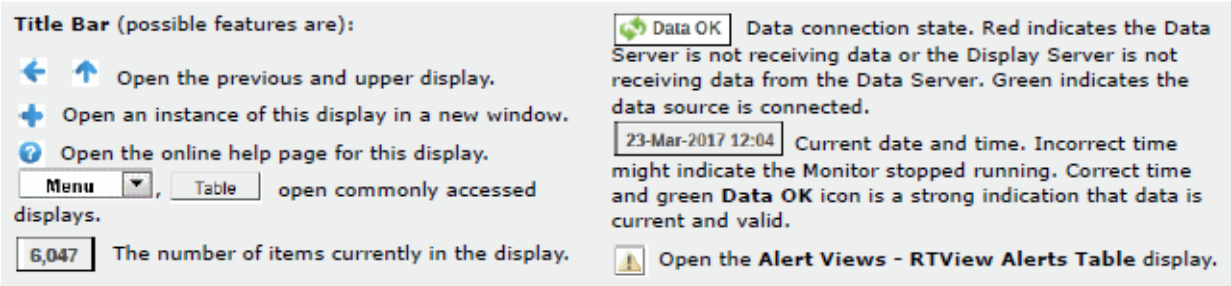
The **Auto** flag does not have any impact on this metric.

All Servers Table

View WebSphere server utilization details, including memory, CPU and heap size. Choose a cell and node from the drop-down menus. Each row in the table is a different server. The row color for inactive servers is dark red.

Drill-down and investigate by clicking a row in the table to view details for the selected connection in the "Server Summary" display.





Filter By:

Cell:	Choose a cell or **All Cells** to see metrics for.
Node:	Choose a node or **All Nodes** to see metrics for.

Fields and Data
This display includes:

Active Servers Only	Select to only include active servers in the display.
Server Count	The number of servers in the display.

Table
Each table row is a different server. Table column values describe the cell on the server.

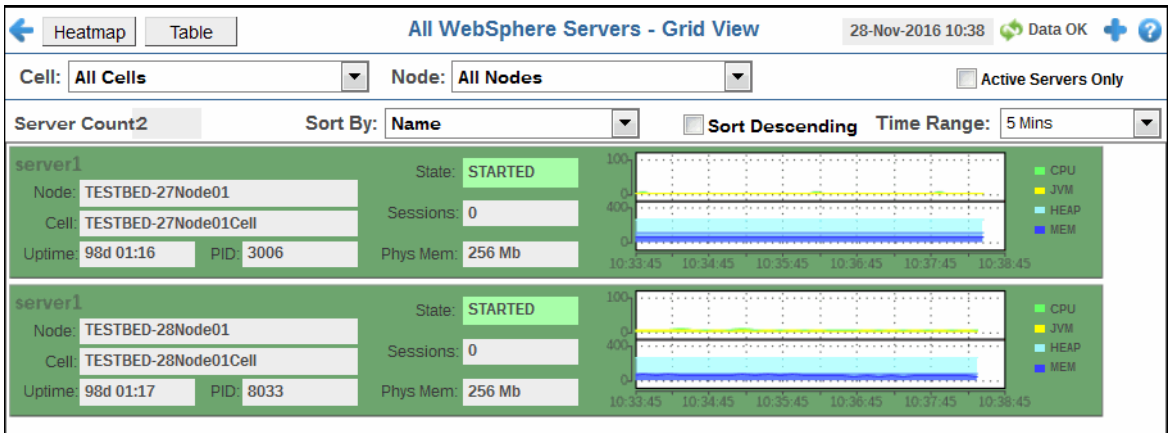
Cell	The name of the cell.
Node	The name of the node.
Server	The name of the server.
Expired	When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.

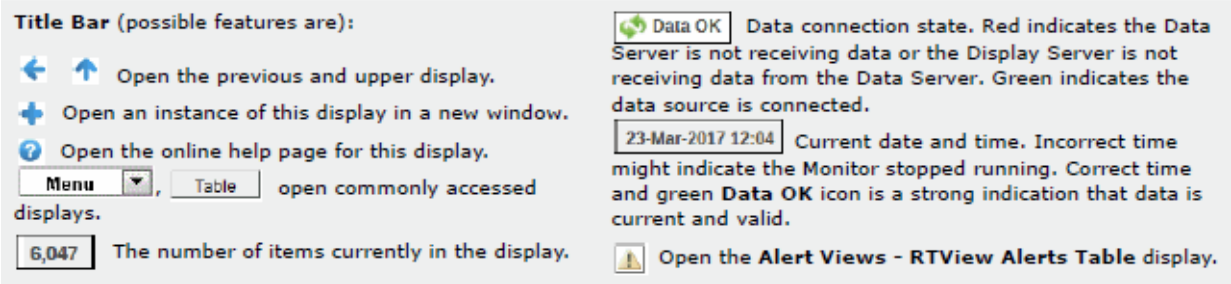
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
State	The WebSphere server current state: • STARTED • STOPPED
PID	The WebSphere server process identifier.
LiveCount	The total number of currently active sessions.
CPUUsageSinceLastMeasurement	The amount of CPU usage, in megabytes, since the last data update.
CPUUsageSinceServerStarted	The amount of CPU usage, in megabytes, since the server was started.
ProcessCpuUsage	The amount of process CPU usage, in megabytes, since the server was started.
UpTime	The amount of time, in milliseconds, since the server was started.
maxMemory	The maximum amount of memory used since the server was started.
heapSize	The heap size, in kilobytes.
usedMemory	The amount of used memory, in kilobytes.
freeMemory	The amount of free memory, in kilobytes.
usedMemoryPercent	The amount of used memory, in percent.
HeapSize	The heap size, in megabytes.
UsedMemory	The amount of used memory, in megabytes.
FreeMemory	The amount of free memory, in megabytes.
maxHeapDumpsOnDisk	The maximum amount of heap dumps on disk that have been performed since the last restart.
maxSystemDumpsOnDisk	The maximum amount of system dumps on disk that have been performed since the last restart.
javaVendor	The name of the Java software vendor.
javaVersion	The Java software version.
TIME_STAMP	The date and time of the last data update.

All Servers Grid

View WebSphere server utilization details, including memory, CPU and heap size, in a grid format. Choose a cell and node from the drop-down menus.

Drill-down and investigate by clicking a row in the table to view details for the selected connection in the "Server Summary" display.





Filter By:

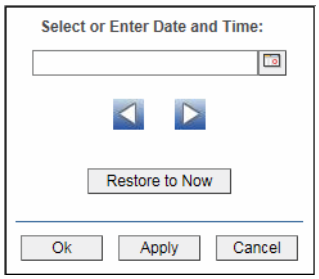
Cell:	Choose a cell or **All Cells** to see metrics for.
Node:	Choose a node or **All Nodes** to see metrics for.

Fields and Data
This display includes:

Active Servers Only	Select to only include active servers in the display.
Server Count	The number of servers in the display.
Sort By:	Options are to sort servers in the grid by **Name**, **Live Sessions**, **JVM CPU %**, **Up Time** or **Max Memory**.
Sort Descending	Select to organize display elements in descending order.

Grid

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Node The name of the node.

Cell The name of the cell.

UpTime The amount of time, in milliseconds, since the server was started.

PID The WebSphere server process identifier.

State The WebSphere server current state:

- STARTED
- STOPPED

Sessions The current number of sessions.

Phys Mem The current amount of disk space, in megabytes.

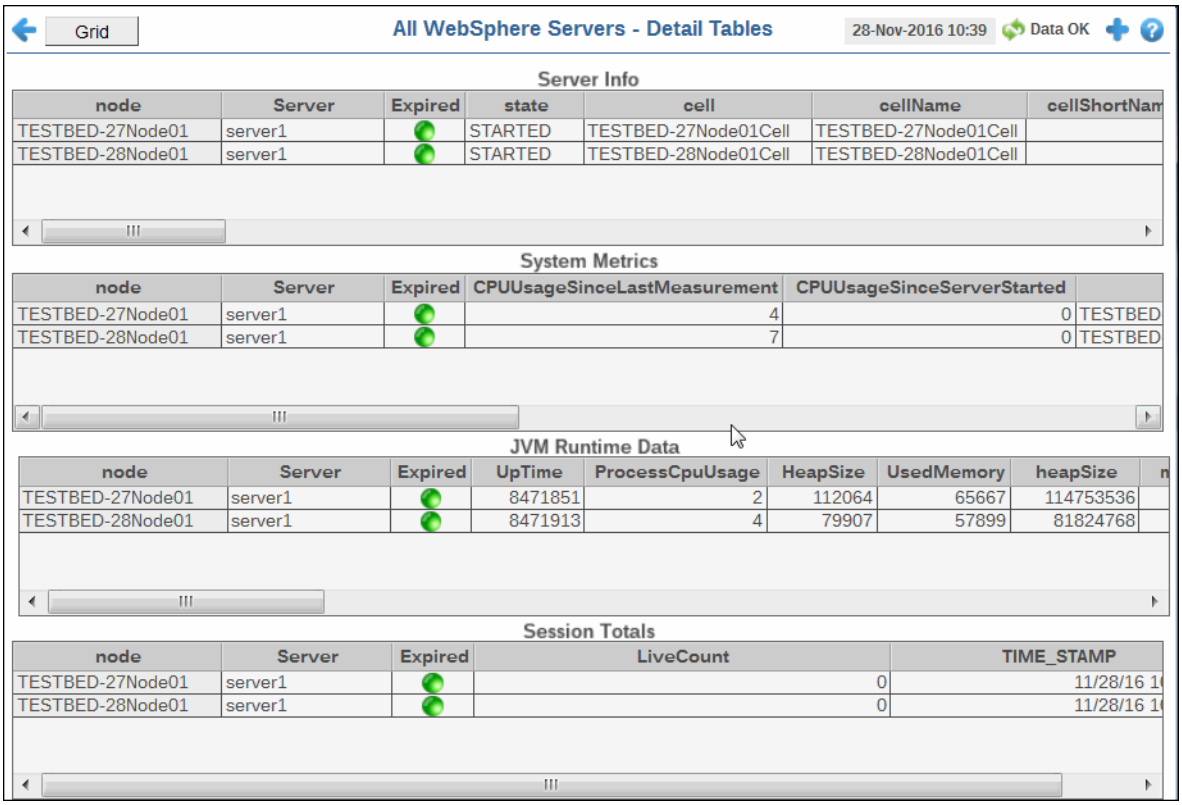
Trend Chart

- **CPU** Traces the amount of server CPU utilization.
- **JVM** Traces the amount of server CPU utilization.
- **HEAP** Traces the amount of server heap memory utilization.
- **MEM** Traces the amount of server memory utilization.

All Servers Detail

View detailed data for all your WebSphere servers in a tabular format, including system metrics, JVM runtime data and session totals.

Drill-down and investigate by clicking a row in the table to view details for a server in the "Server Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Server Info Table
Each table row is a different server. Table column values describe the server.

Node	The name of the node.
Server	The name of the server.
Expired	Red indicates that the server is expired. Green indicates that the server is online.
State	The WebSphere server current state: • STARTED • STOPPED
cell	The name of the cell.

cellName	The full name of the cell.
cellShortName	The short name for the cell.
deployedObjects	A list of deployed objects on the server.
eventTypes	A list of events that occurred on the server.
internalClassAccessMode	Describes the internal class access mode. Refer to vendor documentation for details.
j2eeType	The J2EE type.
javaVMs	A list of Java virtual machines.
mbeanIdentifier	The MBean id.
name	Refer to vendor documentation for details.
nodeName	The full name of the node.
nodeShortName	The short name for the node.
pid	The WebSphere server process identifier.
platform	The platform type.
platformName	The name of the platform.
platformVersion	The software version on the platform.
processType	The platform type (e.g. UnManagedProcess).
resources	Refer to vendor documentation for details.
serverVendor	The name of the server vendor.
shortName	Refer to vendor documentation for details.
spec	Refer to vendor documentation for details.
statisticsProvider	Refer to vendor documentation for details.
threadMonitorAdjustmentThreshold	Describes thread monitor settings. Refer to vendor documentation for details.
threadMonitorInterval	Describes thread monitor settings. Refer to vendor documentation for details.
threadMonitorThreshold	Describes thread monitor settings. Refer to vendor documentation for details.
type	Refer to vendor documentation for details.
version	Refer to vendor documentation for details.
Connection	The name of the connection.
TIME_STAMP	The date and time of the last data update.

System Metrics Table
Each table row is a different server. Table column values describe the server.

Node	The name of the node.
Server	The name of the server.
Expired	Red indicates that the server is expired. Yellow indicates Green indicates that the server is online.
CPUUsageSinceLastMeasurement	The amount of CPU usage, in megabytes, since the last data update.
CPUUsageSinceServerStarted	The amount of CPU usage, in megabytes, since the server was started.
cell	The name of the cell.
hasStats	Refer to vendor documentation for details.
mbeanIdentier	The MBean id.
name	Refer to vendor documentation for details.
platform	Refer to vendor documentation for details.
spec	Refer to vendor documentation for details.
type	Refer to vendor documentation for details.
Connection	The name of the connection.
TIME_STAMP	The date and time of the last data update.

JVM Runtime Data Table
Each table row is a different server. Table column values describe the server.

Node	The name of the node.
Server	The name of the server.
Expired	Red indicates that the server is expired. Green indicates that the server is online.
UpTime	The amount of time, in milliseconds, since the server was started.
ProcessCpuUsage	The amount of process CPU usage, in megabytes, since the server was started.
HeapSize	The current heap size, in kilobytes.
UsedMemory	The current amount of memory used, in kilobytes.
heapSize	The current heap size, in kilobytes.
maxMemory	The maximum amount of memory used since the server was started.
freeMemory	The current amount of free memory, in kilobytes.
usedMemory	The current amount of used memory, in kilobytes.
J2EEServer	The name of the J2EE server.

cell	The name of the cell.
hasStats	Refer to vendor documentation for details.
j2eeType	The J2EE type.
Java Vendor	The name of the Java vendor.
Java Version	The Java software version.
maxHeapDumpsOnDisk	The maximum amount of heap dumps on disk that have been performed since the last restart.
maxSystemDumpsOnDisk	The maximum amount of system dumps on disk that have been performed since the last restart.
mbeanIdentier	The MBean id.
statisticsProvider	Refer to vendor documentation for details.
version	Refer to vendor documentation for details.
Connection	The name of the connection.
spec	Refer to vendor documentation for details.
platform	Refer to vendor documentation for details.
TIME_STAMP	The date and time of the last data update.

Session Totals Table
Each table row is a different server. Table column values describe the server.

Node	The name of the node.
Server	The name of the server.
Expired	Red indicates that the server is expired. Yellow indicates Green indicates that the server is online.
LiveCount	The total number of currently active sessions.
TIME_STAMP	The date and time of the last data update.

Single Server View

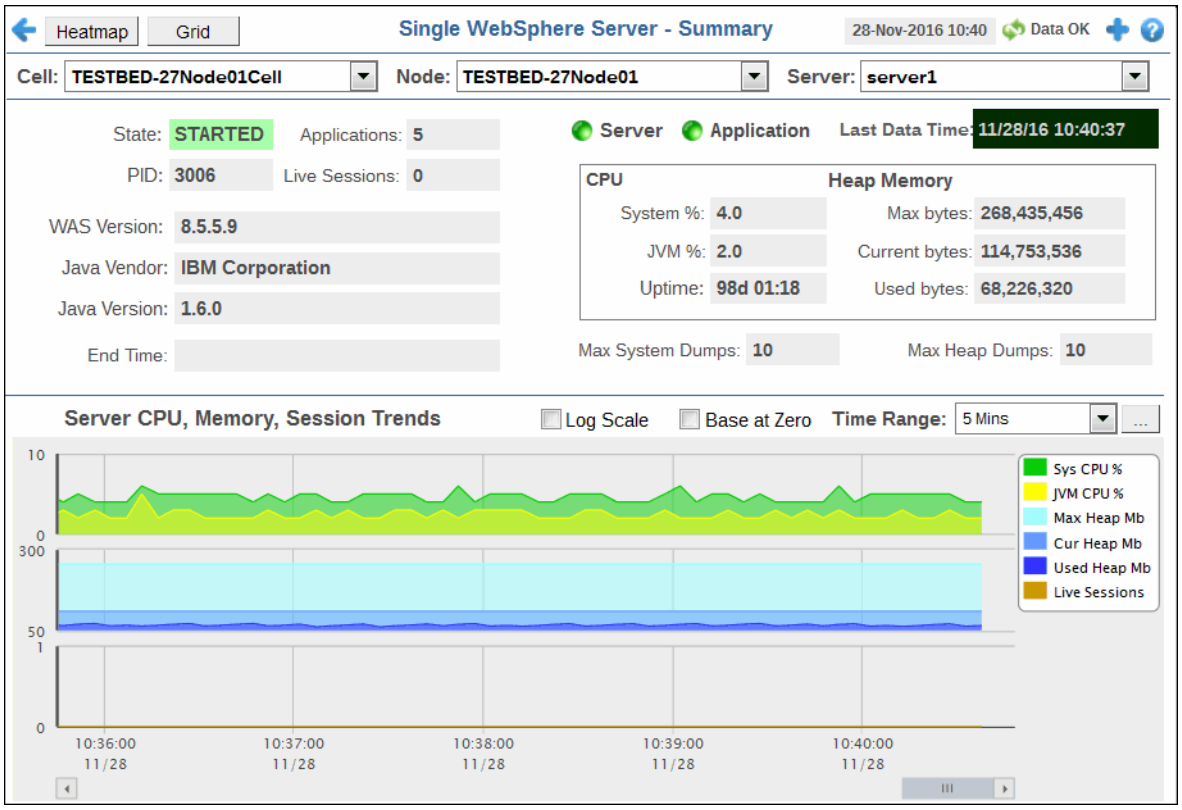
See performance and utilization metrics for a single IBM WebSphere server.

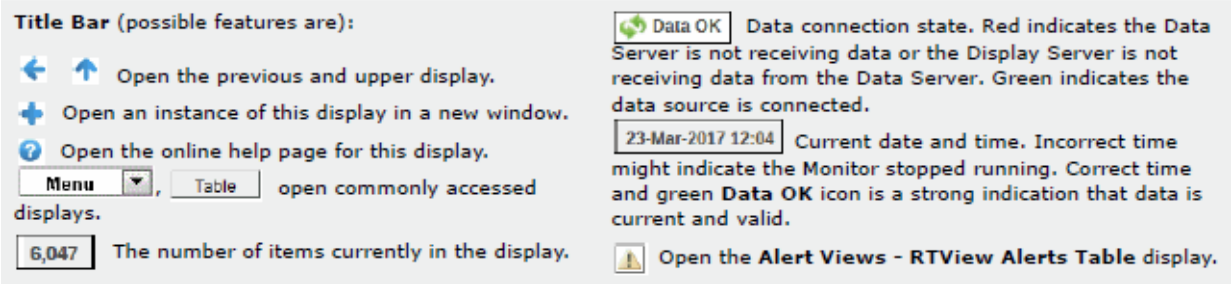
Displays in this View are:

- "Server Summary" on page 451
- "JDBC Providers" on page 454
- "Thread Pool" on page 457

Server Summary

Track current and historical performance of web applications on one server. Choose a cell, node and server from the drop-down menus. Mouse over the trend graph to see metrics.





Filter By:

Cell: Choose a cell or **All Cells** to see metrics for.

Node: Choose a node or **All Nodes** to see metrics for.

Server: Choose the server for which you want to show data.

Fields and Data
This display includes:

State	The WebSphere server current state: • STARTED • STOPPED
Applications	The number of applications running on the server.
PID	The WebSphere server process identifier.
Live Sessions	The current number of active sessions.
WAS Version	The WebSphere Application Server software version.
Java Vendor	The Java vendor name.
Java Version	The Java software version.
End Time	Refer to vendor documentation for details.
Server	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Application	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Last Data Time	The date and time of the last data update.
CPU	
System %	The current amount of CPU used by the system, in percent.
JVM %	The current amount of CPU used by the JVM, in percent.
Uptime	The number of days, hours and minutes since the server was last started.
Heap Memory	
Max bytes	The maximum size of heap memory, in bytes.
Current bytes	The current size of heap memory, in bytes.
Used bytes	The size of heap memory being used, in bytes.
Max System Dumps	The maximum number of system dumps that are allowed to be performed.
Max Heap Dumps	The maximum number of heap dumps that are allowed to be performed.

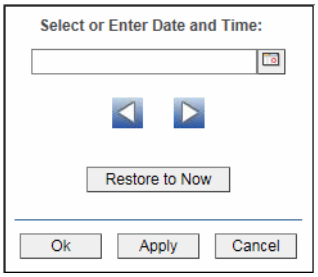
Server CPU, Memory, Session Trends
The trend graph traces the following for the selected server:

- **Sys CPU%** The percent of system CPU used.
- **JVM CPU%** The percent of JVM CPU used.
- **Max Heap Mb** The maximum amount of heap memory ever used, in megabytes.
- **Cur Heap Mb** The current amount of heap memory available, in megabytes.
- **Used Heap Mb** The current amount of heap memory used, in megabytes.
- **Live Sessions** The current number of active sessions.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



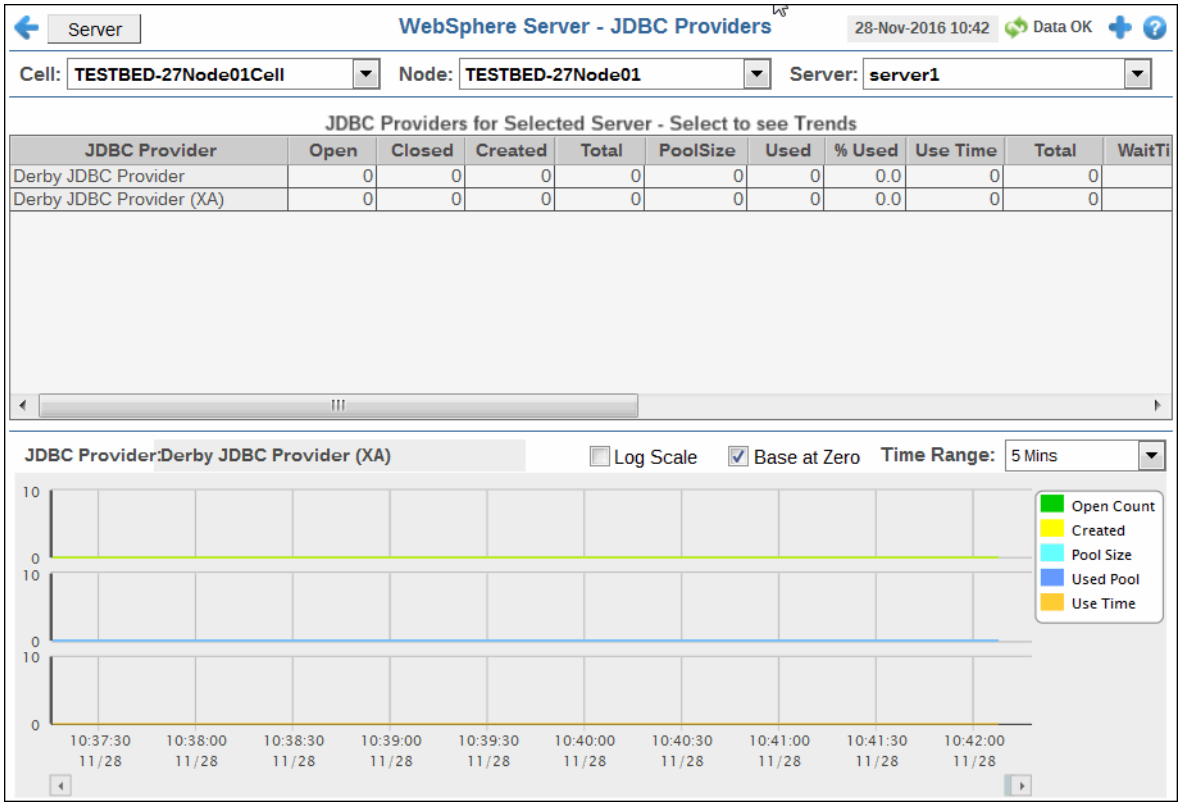
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

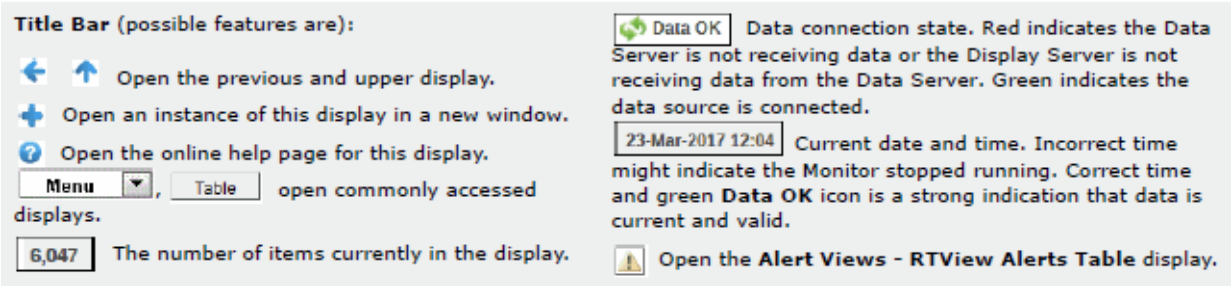
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

JDBC Providers

Track current and historical performance of all JDBC Providers on a server. Choose a cell, node and server from the drop-down menus. Each table row is a different JDBC Provider. Select a row to populate the trend graph with JDBC Provider performance metrics. Mouse over the trend graph to see metrics.





Filter By:

Cell: Choose the cell for which you want to show data.

Node: Choose the node for which you want to show data.

Server: Choose the server for which you want to show data.

JDBC Providers Table
Each table row is a different JDBC Provider.

JDBC Provider	The name of the JDBC Provider.
Open	The number of currently open connections.
Closed	The number of currently closed connections.
Created	The number of connections created since the server was last started.
Total	Refer to vendor documentation for details.
PoolSize	The number of connections in the pool.
Used	The number of used connections in the pool.
% Used	The percent of connections used in the pool.
Use Time	The average connection duration, in seconds.
Total	Refer to vendor documentation for details.
WaitTime	The average amount of time to establish a connection, in seconds.
WaitingThreadCount	The current number of threads waiting to establish a connection, in seconds.
description	Describes the JDBC provider.
TIME_STAMP	The date and time of the last data update.

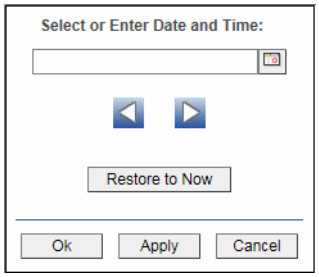
JDBC Provider Trend Graph
The trend graph traces the following for the JDBC Provider on the selected server:

- **Open Count** The number of currently open connections.
- **Created** The number of connections created.
- **Pool Size** The number of connections in the pool.
- **Used Pool** The number of connections in the pool that are being used.
- **Use Time** The average length of time of connections, in seconds.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



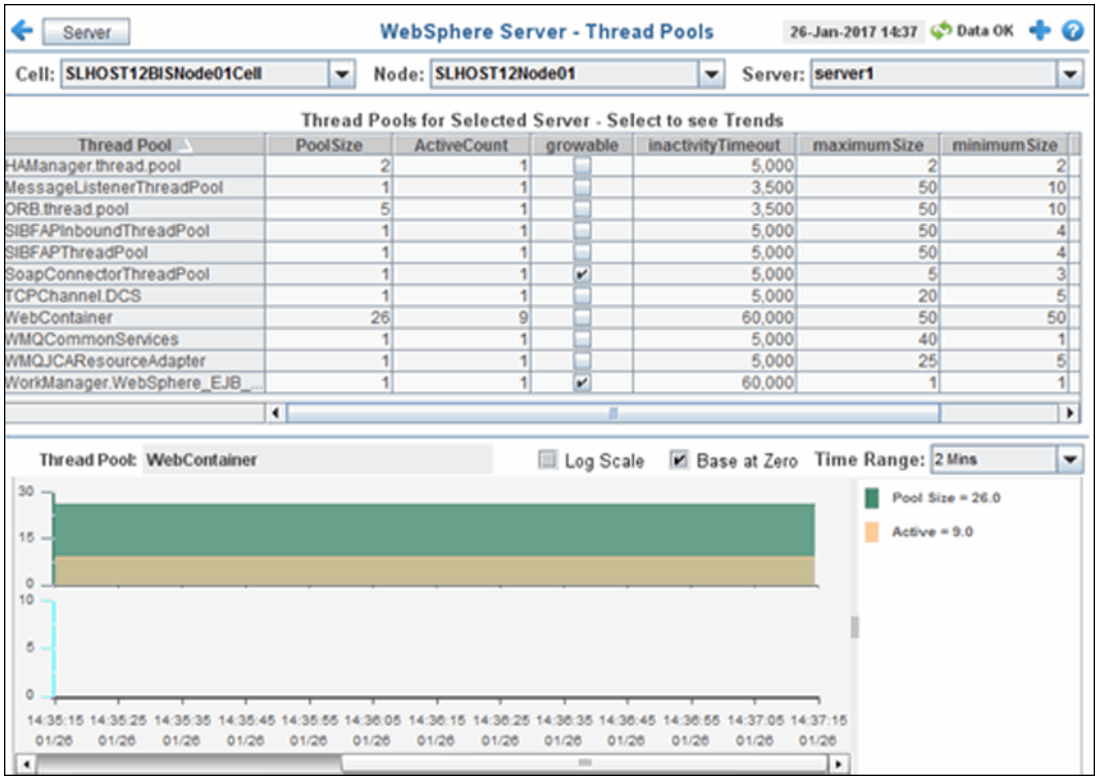
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

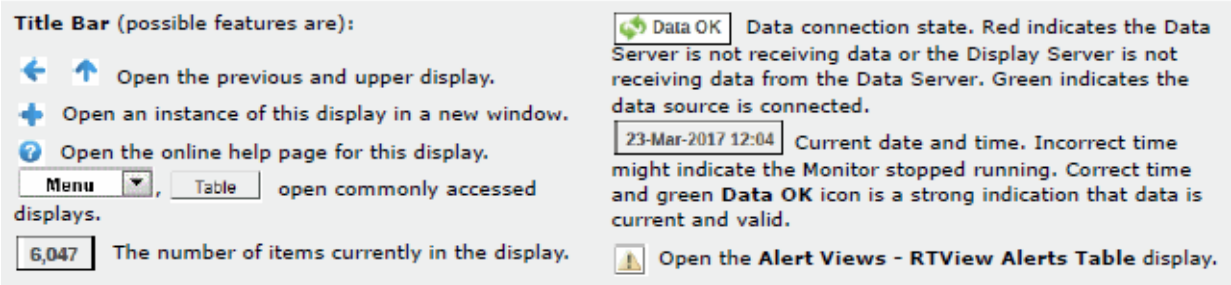
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Thread Pool

Track current and historical performance of thread pools for web applications on one server. Choose a cell, node and server from the drop-down menus. Each table row is a different thread pool. Select a row to populate the trend graph with thread pool performance metrics. Mouse over the trend graph to see metrics.





Filter By:

Cell: Choose the cell for which you want to show data.

Node: Choose the node for which you want to show data.

Server: Choose the server for which you want to show data.

Thread Pools Table
Each table row is a different thread pool.

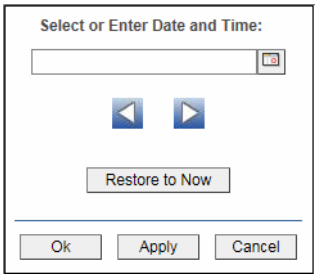
Thread Pool The name of the thread pool.

PoolSize	The number of threads in the pool.
ActiveCount	The number of currently active threads.
growable	When checked, the connection pool is growable. Refer to vendor documentation for details.
InactivityTimeout	Refer to vendor documentation for details.
maximumSize	Refer to vendor documentation for details.
minimumSize	Refer to vendor documentation for details.
TIME_STAMP	The date and time of the last data update.

Thread Pool Trend Graph
The trend graph traces the following for the thread pool on the selected server:

- **Pool Size** The number of connections in the pool.
- **Active** The number of currently active connections in the pool.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Use zero as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

All Applications View

See high-level performance and utilization metrics for all of your web application sessions.

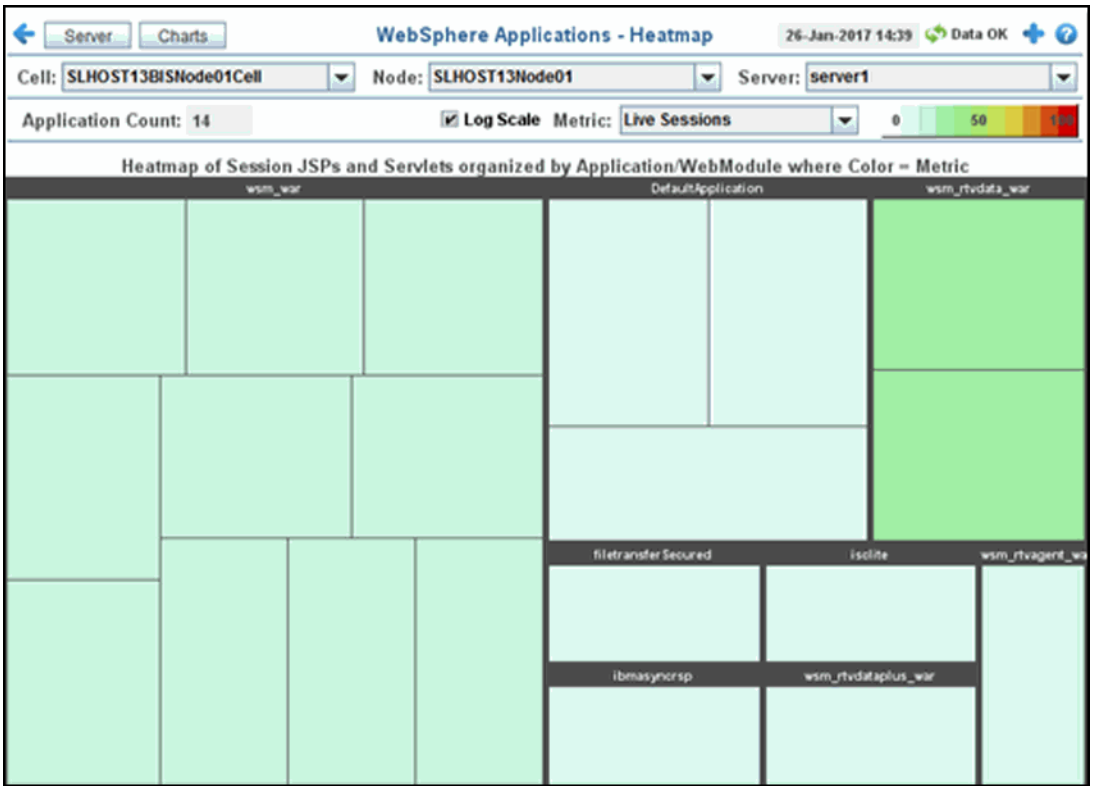
Displays in this View are:

- "All Sessions Heatmap" on page 459
- "Session Charts By App" on page 460
- "Session Detail By App" on page 462
- "All Applications Detail" on page 464

All Sessions Heatmap

This heatmap shows activity metrics for all web application sessions on a selected server. Use this display to see metrics for **Live Sessions, Current Requests, Total Requests** and **Response Time** for all web application sessions on a server. By default, this display shows the heatmap based on the **Live Sessions** metric.

Each rectangle is a different web application on the server. Choose a **Cell**, **Node** and **Server** from the drop-down menus. Mouse over a rectangle to see additional metrics. Click a rectangle to drill down to the "Application Summary" display, which shows additional details about the application.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

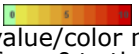
Cell:	Choose the cell for which you want to show data.
Node:	Choose the node for which you want to show data.
Server:	Choose the server for which you want to show data.

Fields and Data:

Application Count The number of web applications in the display.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

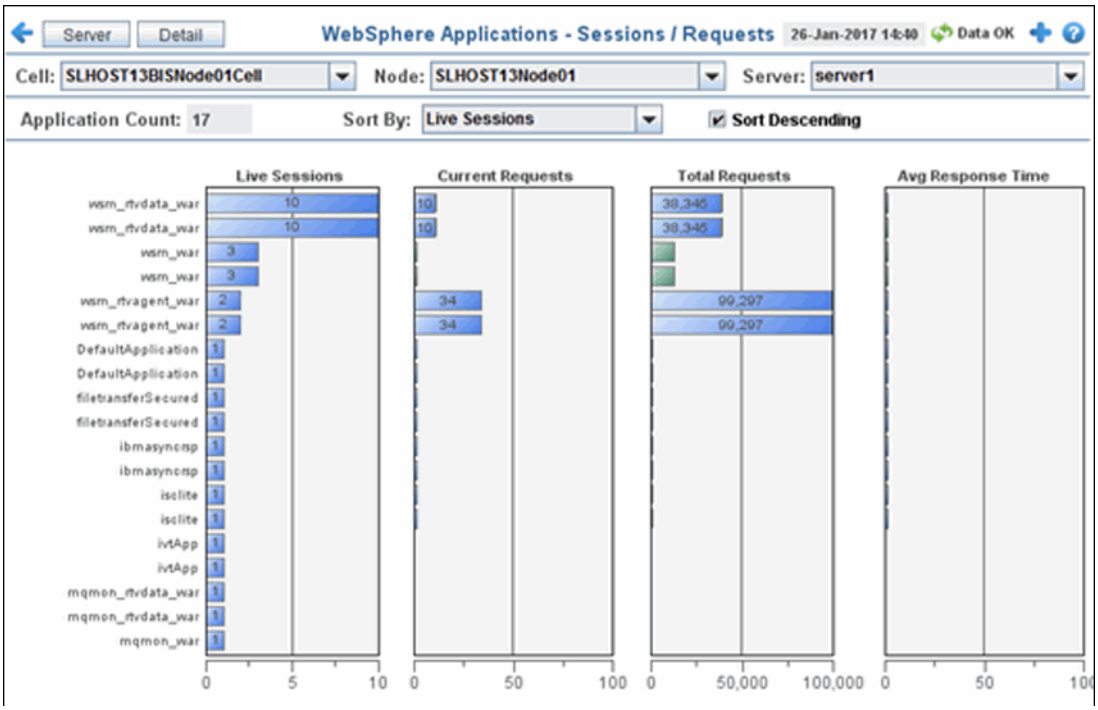
Metric Choose a metric to view in the display.

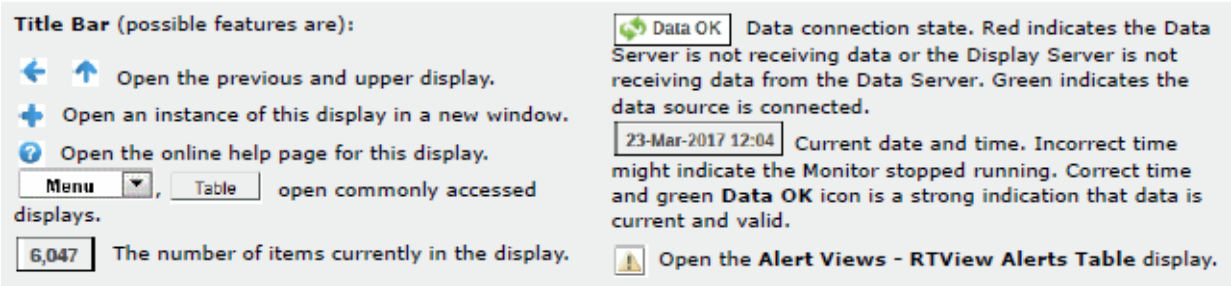
- **Live Sessions** The current number of live sessions. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **WasLiveSessionCountHigh**. The middle value in the gradient bar indicates the middle value of the range.
- **Current Requests** The number of current requests. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **WasServletRequestRateHigh** and **WasJspRequestRateHigh**. The middle value in the gradient bar indicates the middle value of the range.
- **Total Requests** The total number of requests. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum number of requests. The middle value in the gradient bar indicates the average amount.
- **Response Time** The average response time. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **WasServletResponseTimeHigh** and **WasJspResponseTimeHigh**. The middle value in the gradient bar indicates the middle value of the range.

Session Charts By App

This display shows activity metrics for all web application sessions on a selected server. Choose a cell, node and server from the drop-down menus. Use this display to see metrics for **Live Sessions, Current Servlet Requests, Total Servlet Requests** and **Total JSP Requests, Current JSP Requests** and average response times for all web application sessions on a server. By default, this display shows the **Live Sessions** metric.

Click on an object to drill down to details.





Filter By:

Cell:	Choose the cell for which you want to show data.
Node:	Choose the node for which you want to show data.
Server:	Choose the server for which you want to show data.

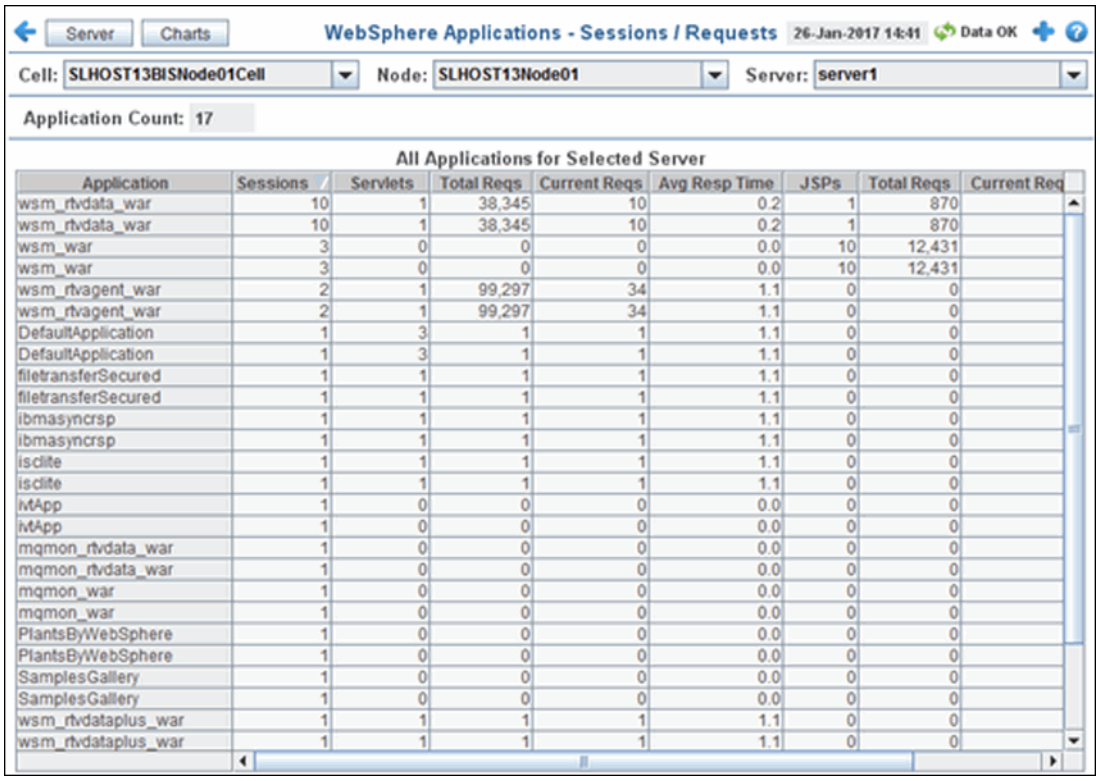
Fields and Data:

Application Count	The number of web applications in the display.
Sort By:	Choose a value to sort data in the display:
Name	The name of the item.
Live Sessions	The current number of active sessions.
Total Servlet Requests	The number of servlet requests since the server was started.

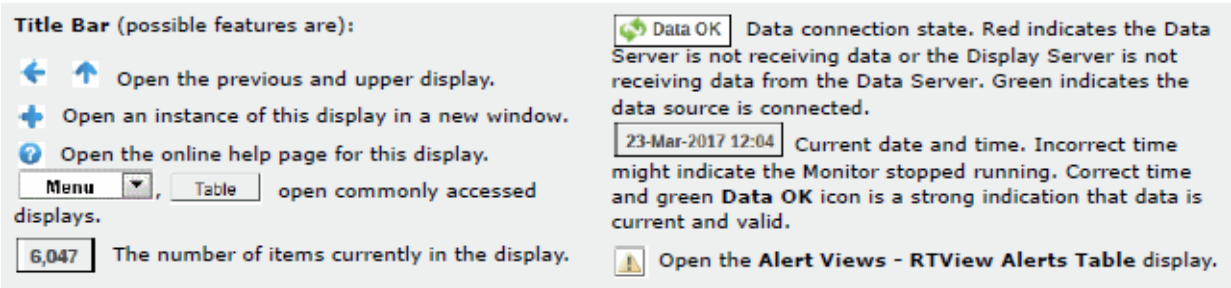
Current Servlet Requests	The current number of servlet requests.
Total JSP Requests	The number of JSP requests since the server was started.
Current JSP Requests	The current number of JSP requests.
Servlet Avg Response Time	The average amount of time for the servlet to respond.
JSP Avg Response Time	The average amount of time for the JSP to respond.
Sort Descending	Select to sort data in descending order.

Session Detail By App

This display shows activity metrics for all web applications on a selected server. Choose a cell, node and server from the drop-down menus. Each row in the table is a different application.



Application	Sessions	Servlets	Total Reqs	Current Reqs	Avg Resp Time	JSPs	Total Reqs	Current Req
wsm_rtvdata_war	10	1	38,345	10	0.2	1	870	
wsm_rtvdata_war	10	1	38,345	10	0.2	1	870	
wsm_war	3	0	0	0	0.0	10	12,431	
wsm_war	3	0	0	0	0.0	10	12,431	
wsm_rtvagent_war	2	1	99,297	34	1.1	0	0	
wsm_rtvagent_war	2	1	99,297	34	1.1	0	0	
DefaultApplication	1	3	1	1	1.1	0	0	
DefaultApplication	1	3	1	1	1.1	0	0	
filetransferSecured	1	1	1	1	1.1	0	0	
filetransferSecured	1	1	1	1	1.1	0	0	
ibmasyncrsp	1	1	1	1	1.1	0	0	
ibmasyncrsp	1	1	1	1	1.1	0	0	
isclite	1	1	1	1	1.1	0	0	
isclite	1	1	1	1	1.1	0	0	
ivtApp	1	0	0	0	0.0	0	0	
ivtApp	1	0	0	0	0.0	0	0	
mqmon_rtvdata_war	1	0	0	0	0.0	0	0	
mqmon_rtvdata_war	1	0	0	0	0.0	0	0	
mqmon_war	1	0	0	0	0.0	0	0	
mqmon_war	1	0	0	0	0.0	0	0	
PlantsByWebSphere	1	0	0	0	0.0	0	0	
PlantsByWebSphere	1	0	0	0	0.0	0	0	
SamplesGallery	1	0	0	0	0.0	0	0	
SamplesGallery	1	0	0	0	0.0	0	0	
wsm_rtvdataplus_war	1	1	1	1	1.1	0	0	
wsm_rtvdataplus_war	1	1	1	1	1.1	0	0	



Filter By:

Cell:	Choose the cell for which you want to show data.
Node:	Choose the node for which you want to show data.
Server:	Choose the server for which you want to show data.

Fields and Data:

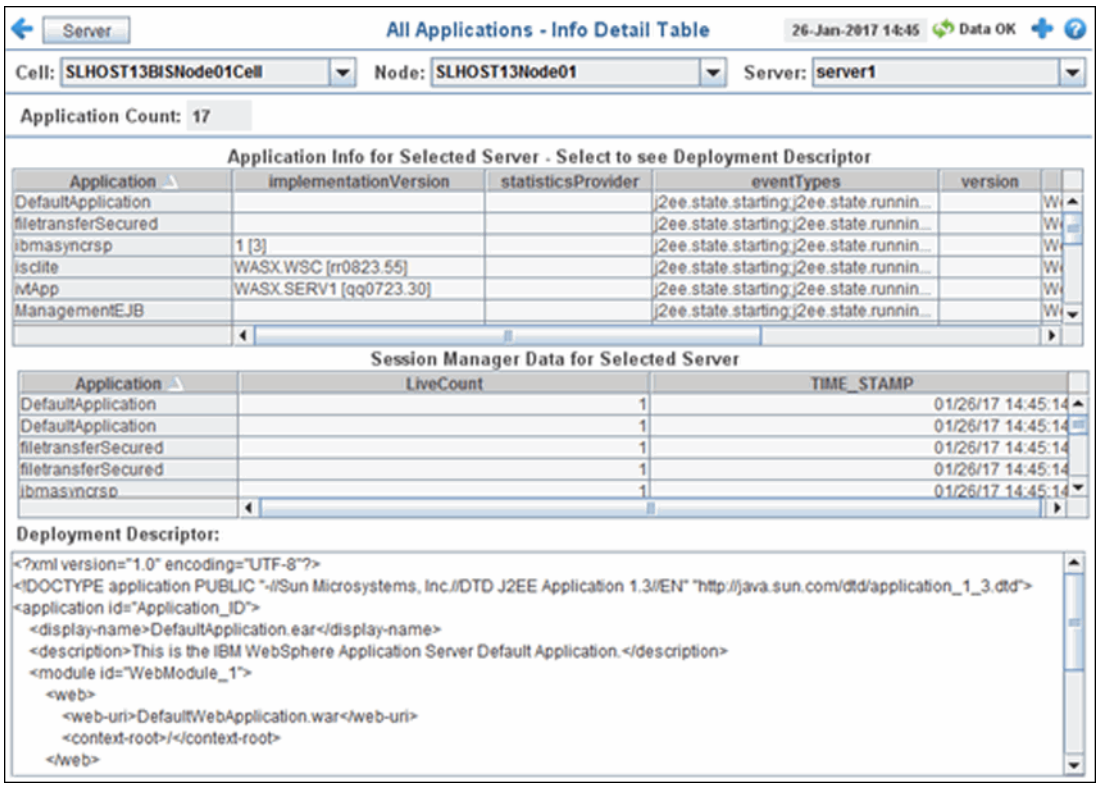
Application Count	The number of web applications in the display.

All Applications Table
Column values describe the application.

Application	The name of the application.
Sessions	The number of current sessions.
Servlets	The number of servlets.
Total Reqs	The number of requests since the application was started.
Current Reqs	The number of current requests.
Avg Resp Time	The average response time, in seconds.
JSPs	The number of JSPs.
Total Reqs	The number of requests since the application was started.
Current Reqs	The number of current requests.
Total Reqs	The number of requests since the application was started.
Current Reqs	The number of current requests.
Avg Resp Time	The average response time, in seconds.

All Applications Detail

This display shows detailed application information and deployment descriptors for all web application sessions on a selected server. Choose a cell, node and server from the drop-down menus. Select an application in the upper table to see the deployment descriptor in the lower portion of the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cell:	Choose the cell for which you want to show data.
Node:	Choose the node for which you want to show data.
Server:	Choose the server for which you want to show data.

Fields and Data:

Application Count	The number of web applications in the display.

Application Info Table
Each table row is a different application. Click a row to see data in the **Deployment Descriptor** table.

Application	The name of the application.
implementationVersion	The application version.
statisticsProvider	The name of the statistics provider.
eventTypes	A list of application events.
version	The application version.
modules	A list of application modules.
TIME_STAMP	The date and time of the last data update.

Session Manager Data Table
Each table row is a different application.

Application	The name of the application.
LiveCount	The number of connections for the application.
TIME_STAMP	The date and time of the last data update.

Deployment Descriptor:
Provides details about the application deployment.

Single Application View

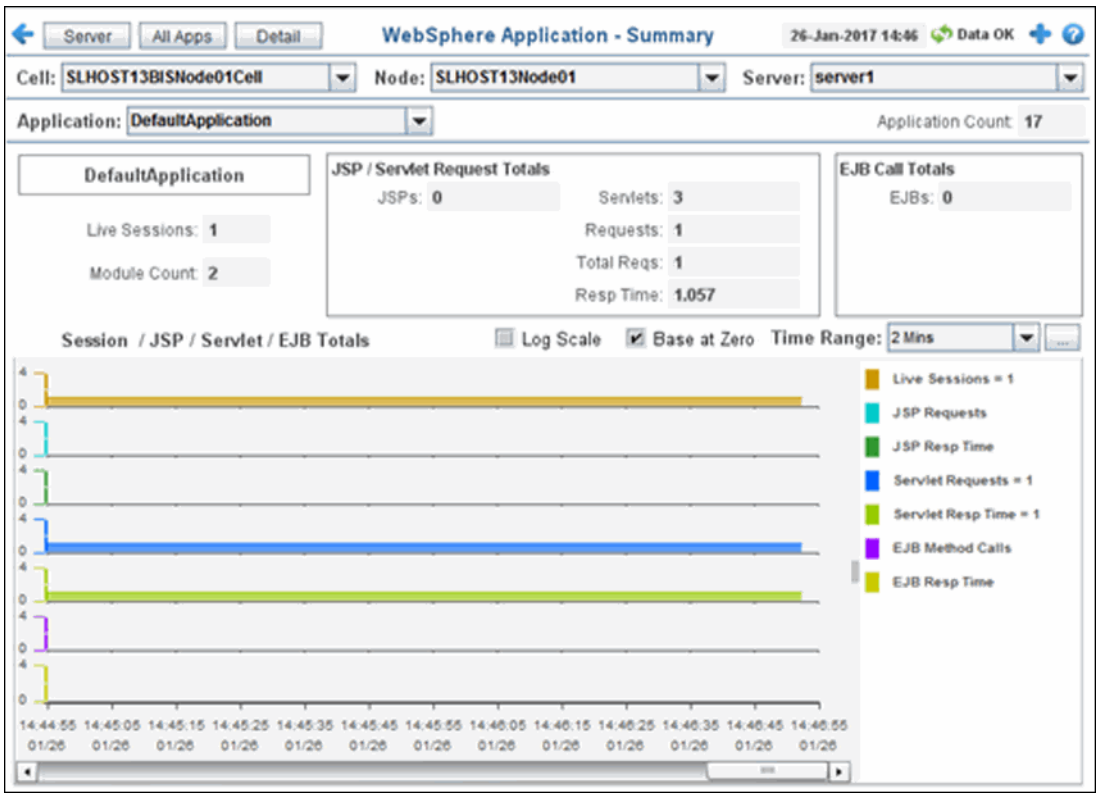
See performance and utilization metrics for a single web application.

Displays in this View are:

- "Application Summary" on page 466
- "Component Detail" on page 468
- "Module Totals - Charts" on page 470
- "Module Totals - Tables" on page 472

Application Summary

View performance metrics for a web application on one server. Choose a cell, node, server and application from the drop-down menus.



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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cell: Choose the cell for which you want to show data.

Node: Choose the node for which you want to show data.

Server: Choose the server for which you want to show data.

Application: Choose the application for which you want to show data.

Fields and Data
This display includes:

Application Count The number of applications in the display.

Live Sessions The current number of active sessions.

Module Count The current number of modules.

JSP/Servlet Request Totals

JSPs The current number of JSP requests.

Servlets The current number of servlet requests.

EJB Call Totals

EJBs The current number of EJB (Enterprise JavaBean) requests.

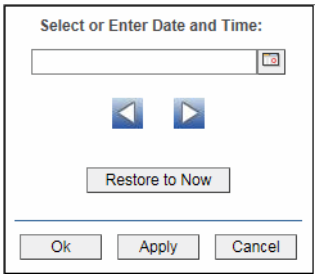
Session/JSP/Servlet/EJB Totals Trend Graph
The trend graph traces the following for the selected application:

- **Live Sessions** The current number of active sessions.
- **JSP Requests** The current number of JSP requests.
- **JSP Resp Time** The current average JSP response time, in seconds.
- **Servlet Requests** The current number of servlet requests.
- **Servlet Resp Time** The current average servlet response time, in seconds.
- **EJB Method Calls** The current number of EJB requests.
- **EJB Resp Time** The current average EJB response time, in seconds.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



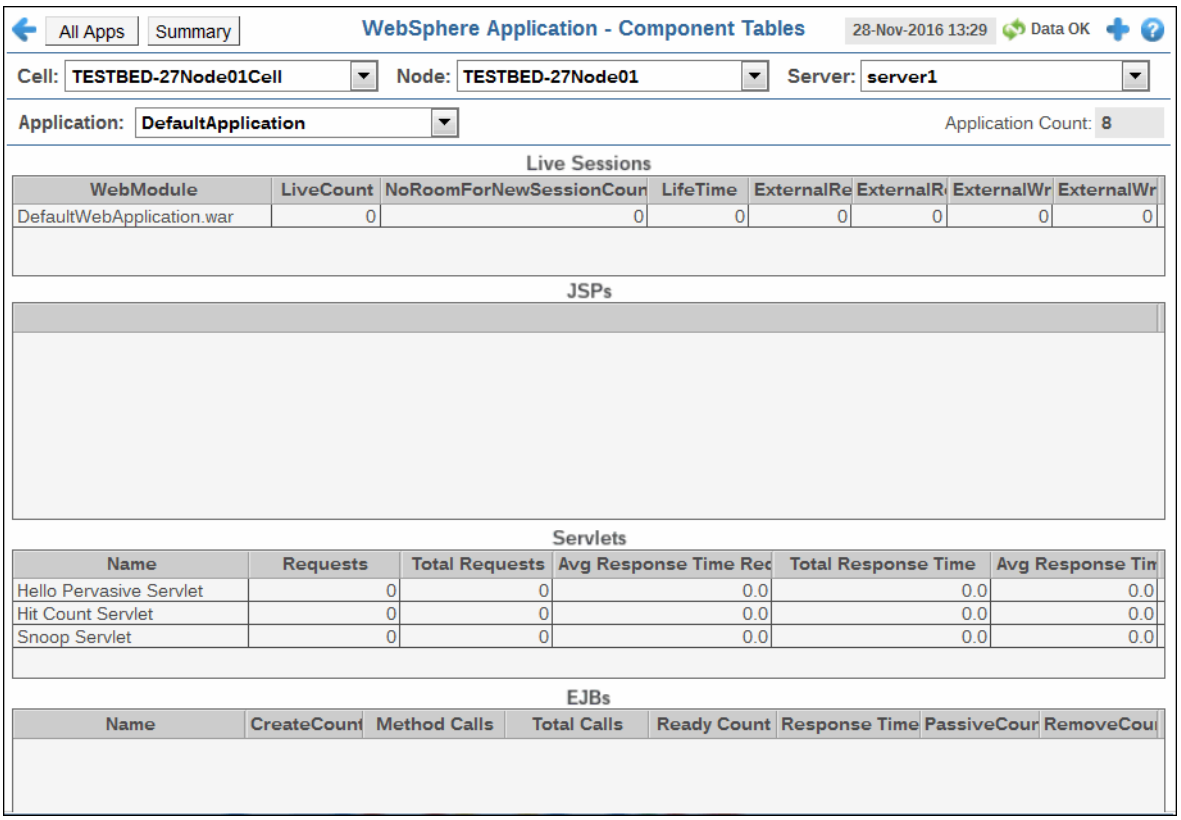
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

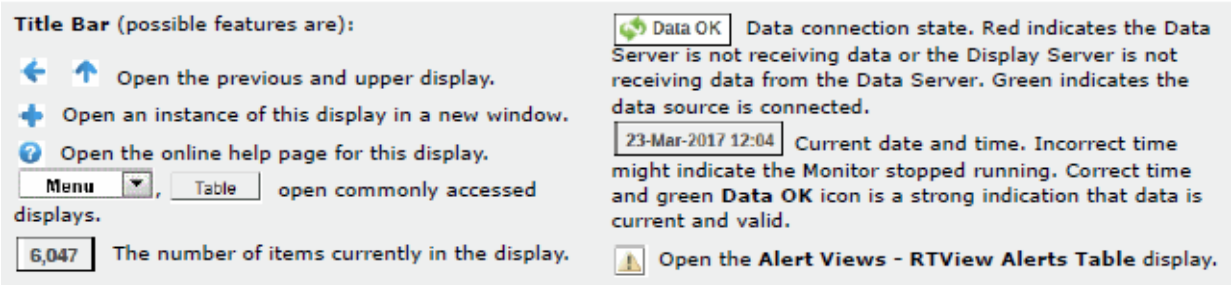
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Component Detail

View performance metrics for a web application on one server. Choose a cell, node, server and application from the drop-down menus.





Filter By:

Cell: Choose the cell for which you want to show data.

Node: Choose the node for which you want to show data.

Server: Choose the server for which you want to show data.

Application: Choose the application for which you want to show data.

Fields and Data:

Application Count	The number of applications in the display.

Live Sessions Table
Each table row is a different web module. Table columns describe the module.

WebModule	The name of the web module.
LiveCount	The current number of sessions.
NoRoomForNewSessionCount	The number of times the module had no sessions available.
Life Time	Refer to vendor documentation for details.
ExternalRead Size	Refer to vendor documentation for details.
ExternalWrite Size	Refer to vendor documentation for details.
ExternalWrite Time	Refer to vendor documentation for details.

JSPs Table
Each table row is a different JSP. Table columns describe the JSP.
Refer to vendor documentation for details.

Servlets Table
Each table row is a different servlet. Table columns describe the servlet.

Name	The name of the servlet.
Requests	The current number of requests.
Total Requests	The total number of requests since the servlet was started.
Avg Response Time Recent	The current average amount of time for the servlet to respond.
Total Response Time	The total response time, in seconds, since the servlet was started.
Avg Response Time	The average amount of time for the servlet to respond since the servlet was started.

EJBs Table
Each table row is a different EJB. Table columns describe the EJB.

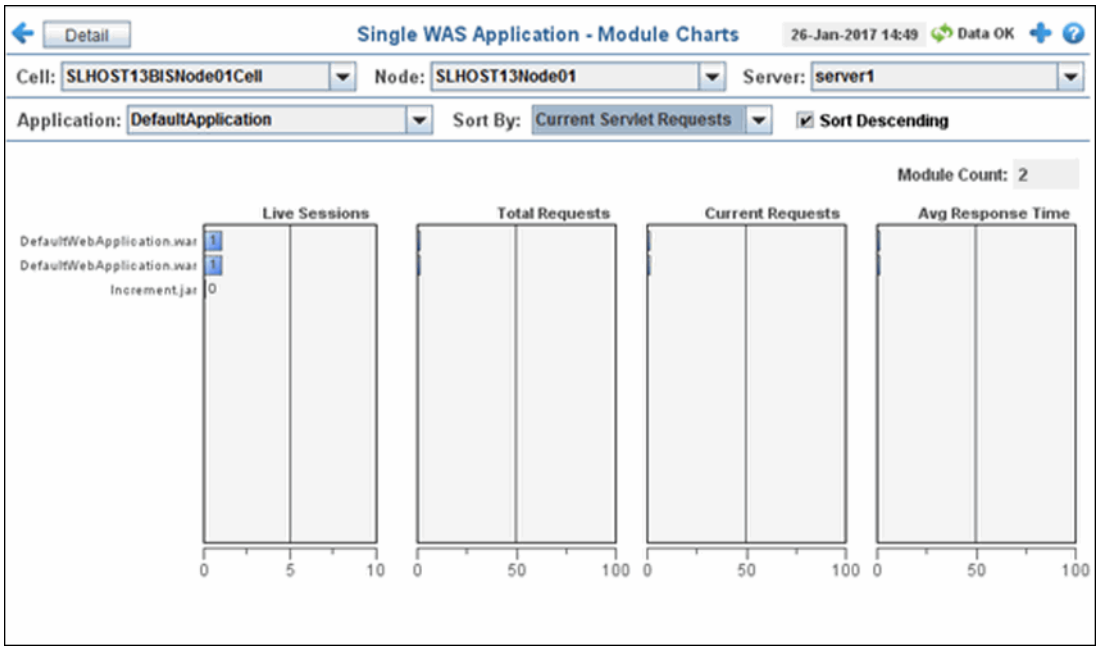
Name	The name of the EJB.
CreateCount	The number of requests.
MethodCalls	The total number of requests since the servlet was started.
Total Calls	The current average amount of time for the servlet to respond.
Ready Count	Refer to vendor documentation for details.
Response Time	The average amount of time for the EJB to respond.

PassiveCount Refer to vendor documentation for details.

RemoveCount Refer to vendor documentation for details.

Module Totals - Charts

View performance metrics for a WAS application on one server. Choose a cell, node, server and application from the drop-down menus.



Title Bar (possible features are):

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Open an instance of this display in a new window.

Open the online help page for this display.

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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cell: Choose the cell for which you want to show data.

Node: Choose the node for which you want to show data.

Server: Choose the server for which you want to show data.

Application: Choose the application for which you want to show data.

Sort By:

- **Name**
- **Live Sessions**
- **Total Servlet Requests**
- **Current Servlet Requests**
- **Total JSP Requests**
- **Current JSP Requests**
- **Servlet Avg Resp Time**
- **JSP Avg Resp Time**

Fields and Data:

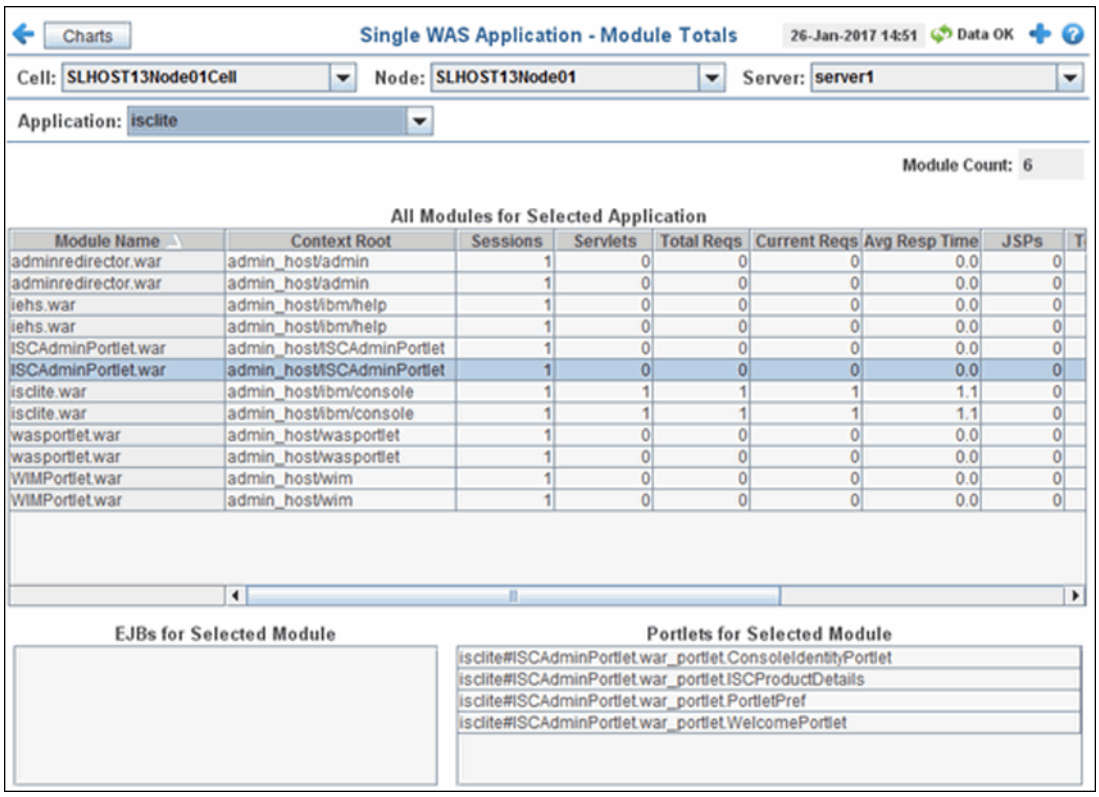
Sort Descending	Select to organize display elements in descending order.
Module Count	The number of modules in the display.

Graphs
Refer to vendor documentation for details.

Live Sessions Graph	Shows performance metrics for current sessions.
Total Requests Graph	Shows performance metrics for total requests.
Current Requests Graph	Shows performance metrics for current requests.
Avg Response Time Graph	Shows performance metrics for average response time.

Module Totals - Tables

View performance metrics for a web application on one server. Choose a cell, node, server and application from the drop-down menus. Each row in the upper table is a different module for the selected application. Select a row to populate the lower tables.



Title Bar (possible features are):

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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cell: Choose the cell for which you want to show data.

Node: Choose the node for which you want to show data.

Server: Choose the server for which you want to show data.

Application: Choose the application for which you want to show data.

Fields and Data:

Module Count	The number of modules in the display.

All Modules Table
Each table row is a different module. Column values describe the module. Select a module to see EJBs and Portlets for the module in the lower tables.

Module Name	The name of the module.
Context Root	**The context root.**
Sessions	The current number of sessions.
Servlets	The current number of servlets.
Total Requests	The total number of requests since the servlet was started.
Current Requests	The current number of requests.
Avg Response Time	The average amount of time to respond, in seconds.
JSPs	The current number of JSPs.
Total Response Time	The total response time, in seconds, since the servlet was started.
Avg Response Time	The average amount of time for the servlet to respond since the servlet was started.
Total Requests	The total number of requests since the servlet was started.
Current Requests	The current number of requests.
Avg Response Time	The average amount of time to respond, in seconds.

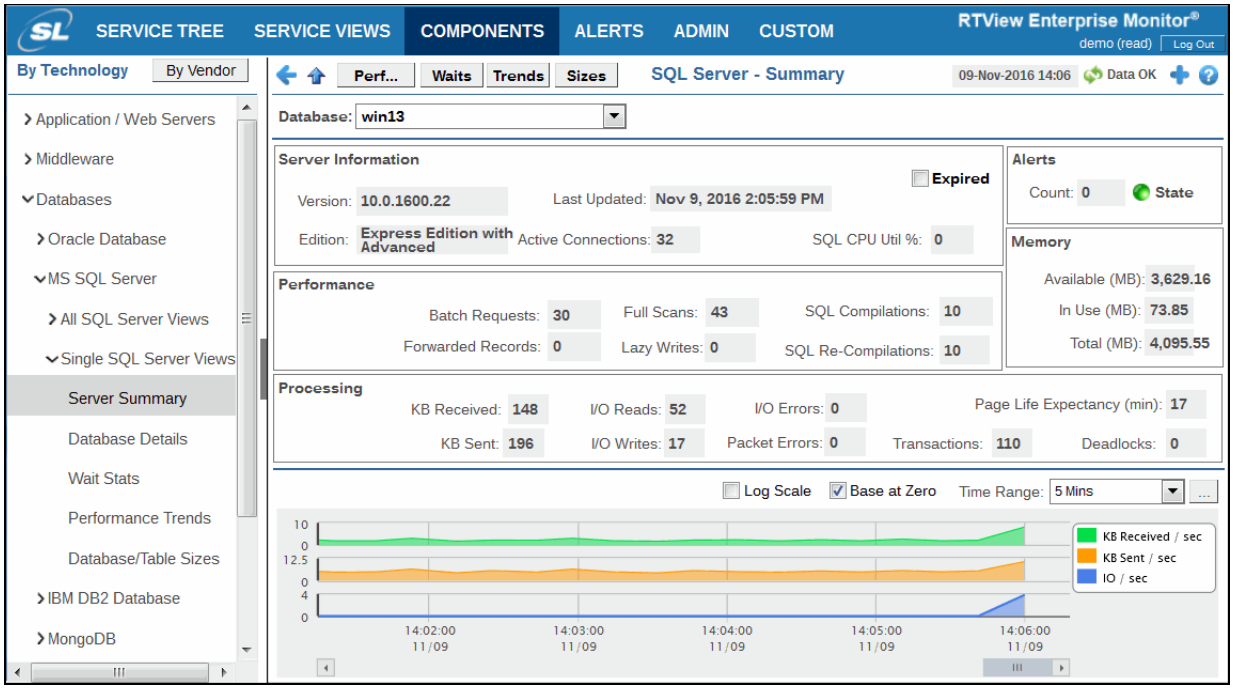
EJBs for Selected Module
List of EJBs for the selected module.

Portlets for Selected Module
List of portlets for the selected module.

CHAPTER 13 Solution Package for Microsoft® SQL Server®

RTView Enterprise Monitor® uses Solution Packages to gather and process performance metrics from a wide variety of different technologies, including Microsoft SQL Server.

The Solution Package for Microsoft® SQL Server® includes high level heatmap and tabular displays as well as drilldown views to access real-time and historical performance metrics for each Microsoft SQL Server in your monitored services and applications.



With the Solution Package for Microsoft® SQL Server®, you are able to drill down from a high level alert at a business service or application health level into the supporting database infrastructure, to determine what is causing the alert and to take corrective action. This service-centric approach makes it easy for application support teams and Microsoft DBAs to prioritize incidents based on the impact to the business.

Solution Packages include a data adapter, real-time memory cache, alert rule engine, pre-configured displays, and a data historian for persisting of real-time performance metrics.

This section includes:

Configuration Parameters You Need

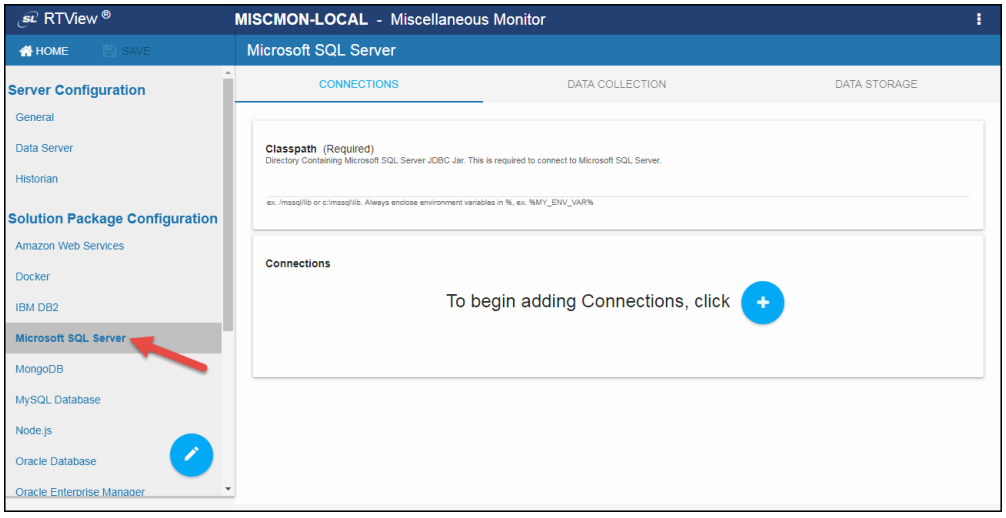
To configure the Solution Package for Microsoft® SQL Server® make a note of the following values:

- **PackageName=mssqlmon**
- **ServerDirectory=miscmon**
- **AlertPrefix=Mssql**

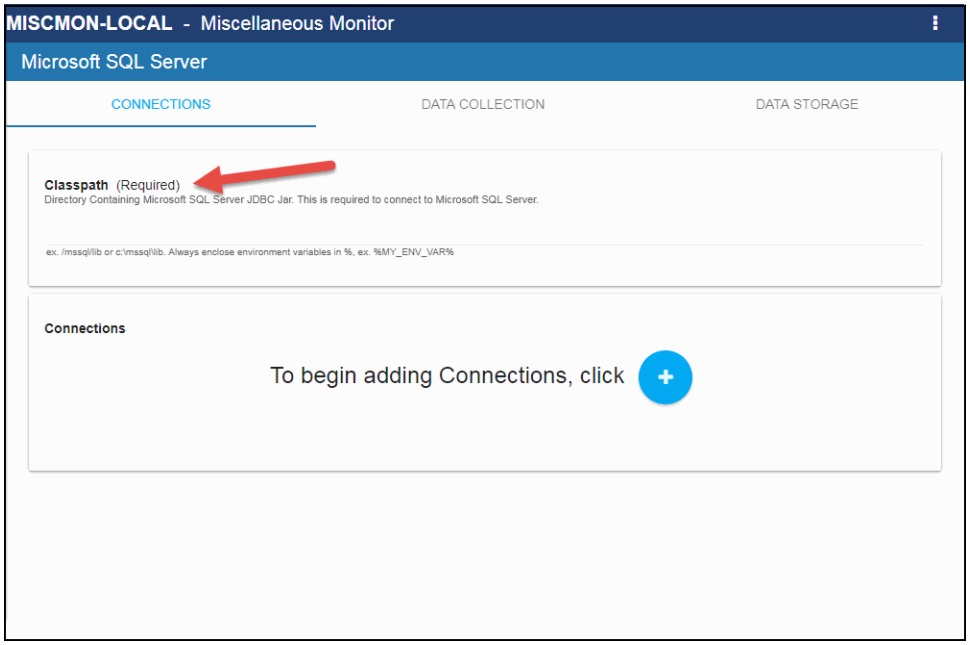
Configure Data Collection

Use the RTView Configuration Application to configure your data collection.

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Microsoft SQL Server** from the list.

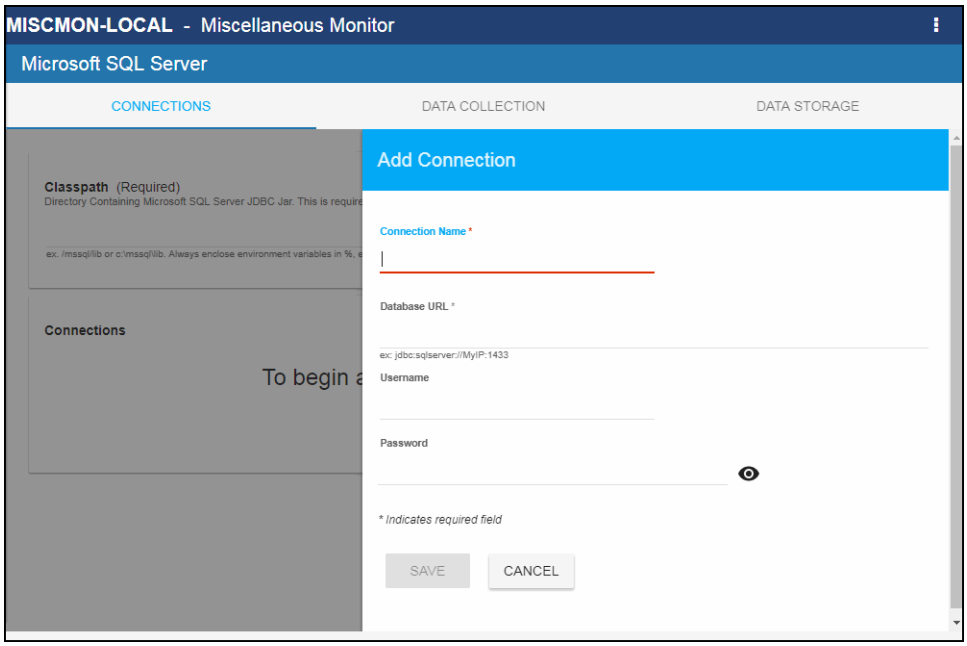


2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the SQL Server JDBC jar file in the **Classpath** field.



3. In the **Connections** section, click the + icon.

The **Add Connection** dialog displays.



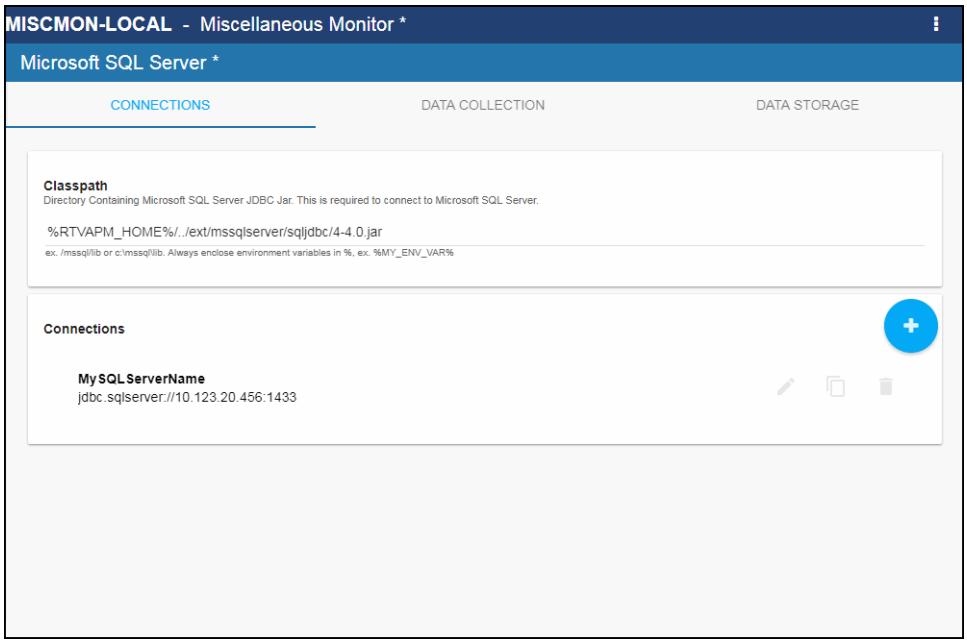
4. Specify the connection information and click **Save** where:

URL: Enter the complete URL for the SQL Server.

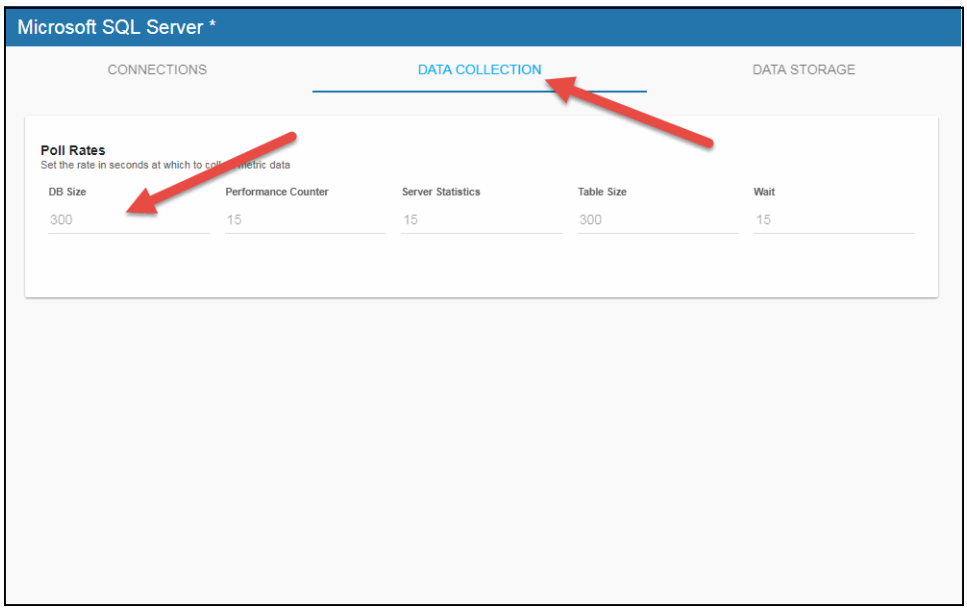
Username: The username is used when creating the connection to the SQL Server. This field is optional.

Password: This password is used when creating the connection to the SQL Server. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

The newly created connection displays in the **Connections** section.



5. You can optionally modify the **Poll Rates** (query interval, in seconds) that will be used to collect the metric data for the **DB Size** (MssqlServerDatabaseSizes cache), **Performance Counter** (MssqlPerfCounters cache), **Server Statistics** (MssqlServerStats cache), **Table Size** (MssqlServerTableSizes cache), and **Wait** (MssqlWaitStats cache) caches by clicking on the **DATA COLLECTION** tab and entering the desired polling rate for each cache.



Additional Configurations

This section describes the additional optional Microsoft® SQL Server® Monitor configurations:

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

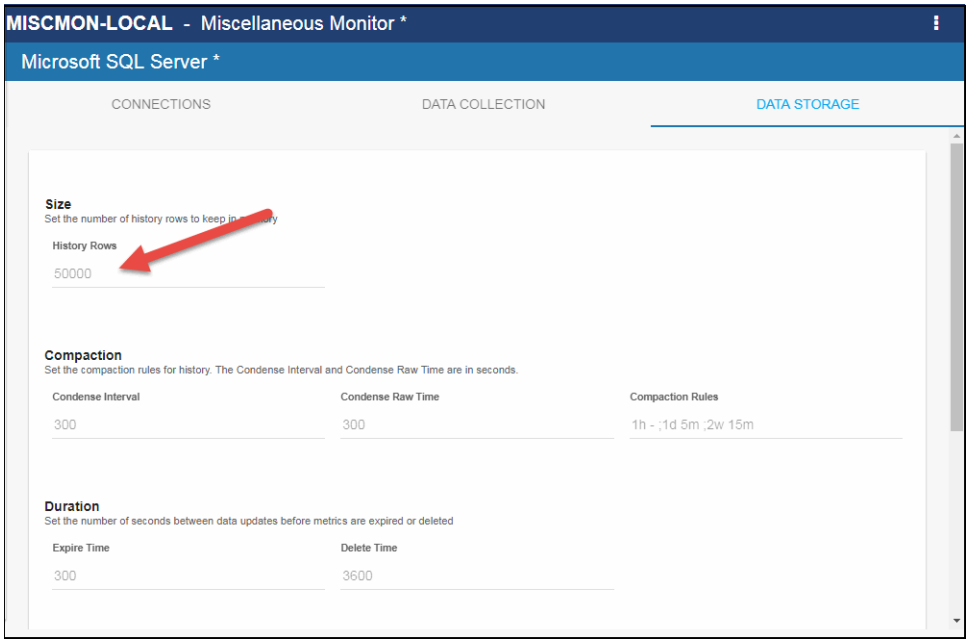
- "Defining the Storage of In-Memory History for MSSQLMON"
- "Defining MSSQLMON Compaction Rules"
- "Defining Expiration and Deletion Duration for MSSQLMON Metrics"
- "Enabling/Disabling Storage of MSSQLMON Historical Data"
- "Defining a Prefix for All History Table Names for MSSQLMON Metrics"

Defining the Storage of In-Memory History for MSSQLMON

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the MssqlServerStats and MssqlPerfCounters caches. The default settings for **History Rows** is 50,000. To update the default setting:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining MSSQLMON Compaction Rules

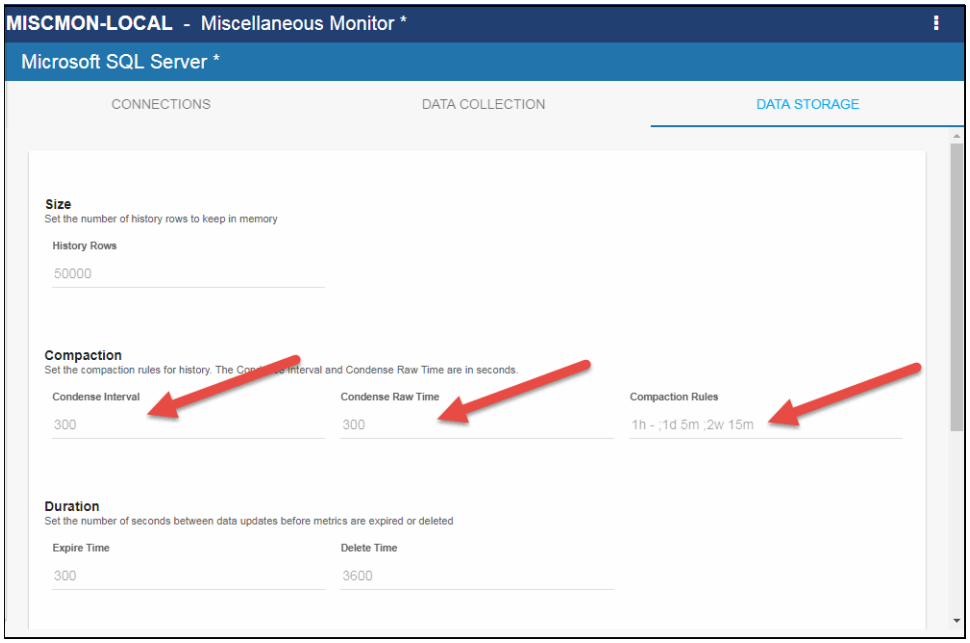
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: MssqlServerStats and MssqlPerfCounters. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: MssqlServerStats and MssqlPerfCounters. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: MssqlServerStats and MssqlPerfCounters. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



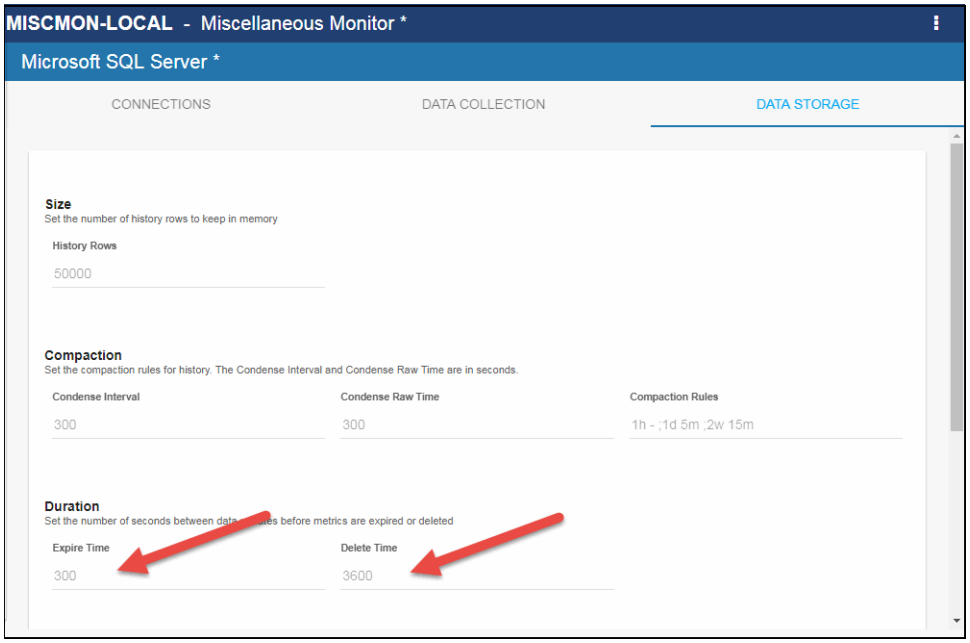
Defining Expiration and Deletion Duration for MSSQLMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The following caches are impacted by settings in the **Expire Time** and **Delete Time** fields: MssqlServerStats, MssqlServerDatabaseSizes, MssqlServerTableSizes, MssqlPerfCounters, and MssqlWaitStats. To modify these defaults:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

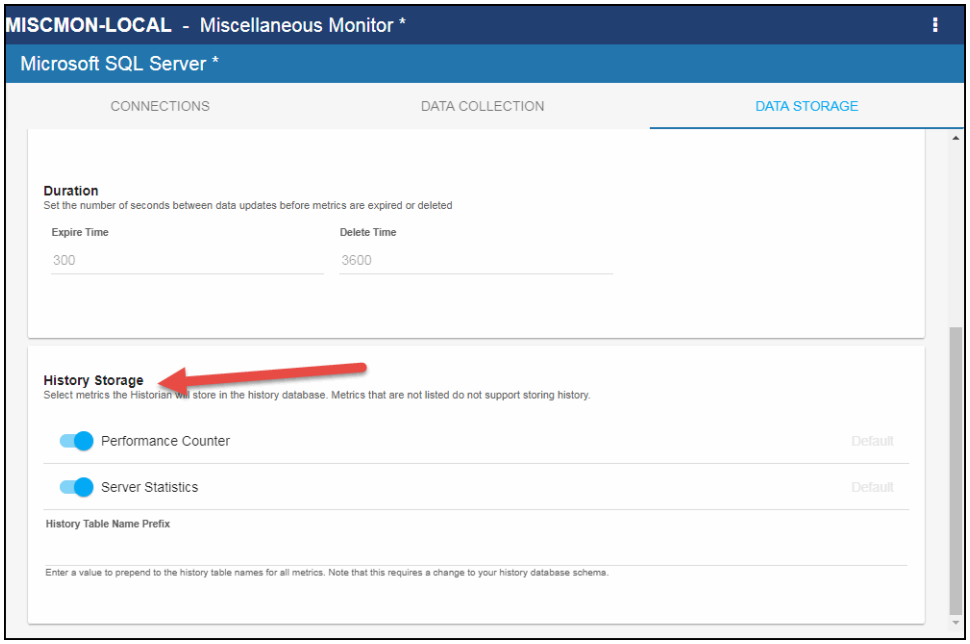


Enabling/Disabling Storage of MSSQLMON Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical Server Statistics (MssqlServerStats cache) and Performance Counters (MssqlPerfCounters cache) are saved to the database. To disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab.

2. In the **History Storage** region, deselect the toggles for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for MSSQLMON Metrics

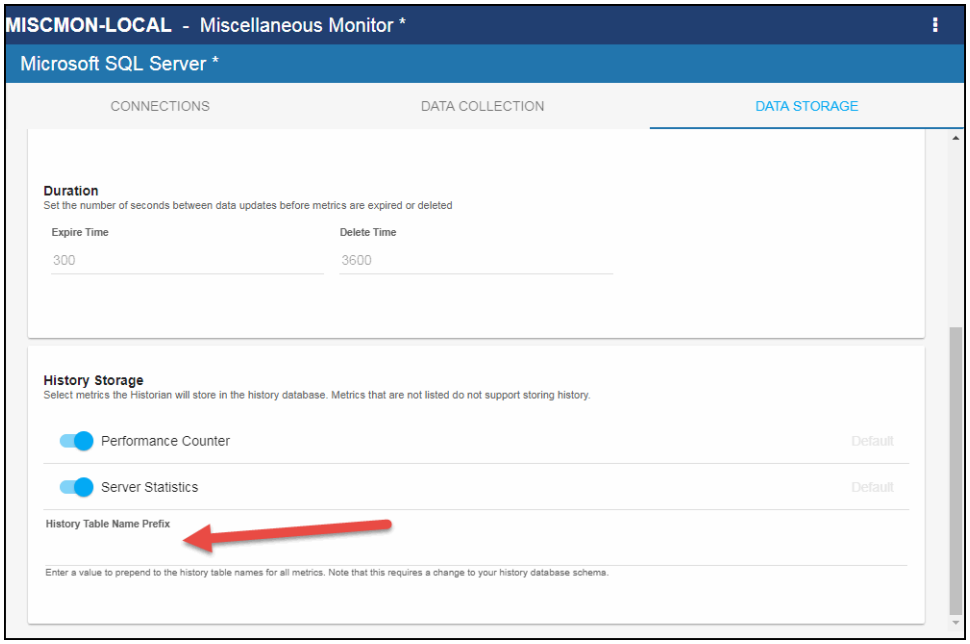
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**mssqlmon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

- "Historian Error"
- "Log Files"
- "JAVA_HOME"
- "Permissions"
- "Network/DNS"
- "Verify Data Received from Data Server"
- "Verify Port Assignments"

Historian Error

You might encounter this error while using Microsoft SQL Server:

```
MSSQL: SQLException: commit() should not be called while in auto-commit mode.
```

This error is benign and does not indicate any loss of data. For the sake of clean logs, it can be addressed by using the current drivers provided by Microsoft (**sqljdbc42.jar**, for example).

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Mssql." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Microsoft SQL Server Monitor Views/Displays

This section contains the following:

- "All Servers View": The displays in this View allow you to view the current and historical metrics for all servers in a heatmap or tabular format.
- "Single SQL Server View": The displays in this View allow you to view the metrics for a particular SQL database server.

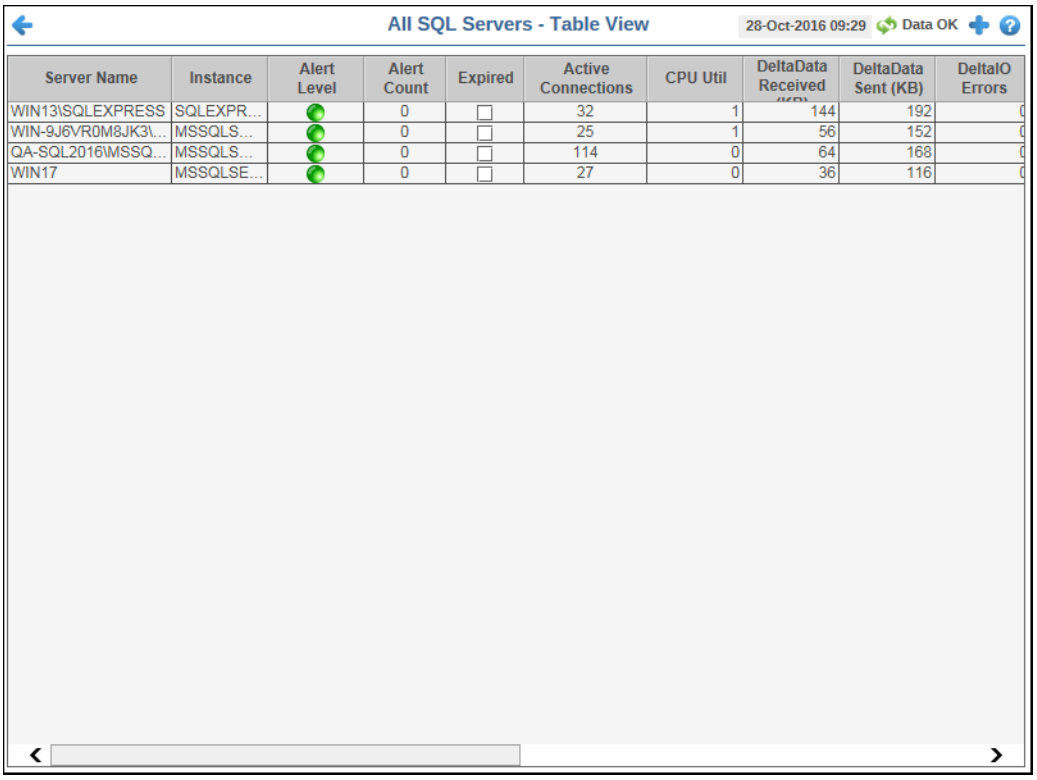
All Servers View

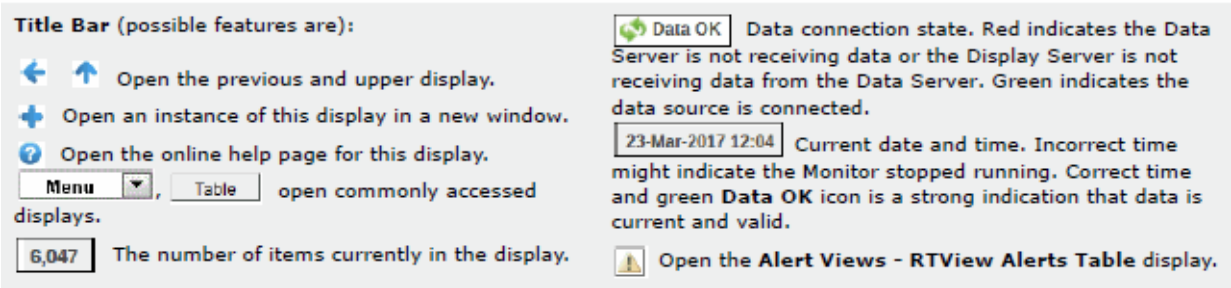
These displays provide detailed data for all servers in a heatmap and tabular view. Displays in this View are:

- "All Servers": A tabular view of your servers and their associated metrics.
- "All Servers Heatmap": A heatmap view of all servers and their associated metrics.

All Servers

This table provides a view of all of your servers and their associated metric data including instance, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected server in the "Server Summary" display





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the server. Refer to Microsoft SQL Server documentation for more information regarding these fields.

All SQL Servers Table

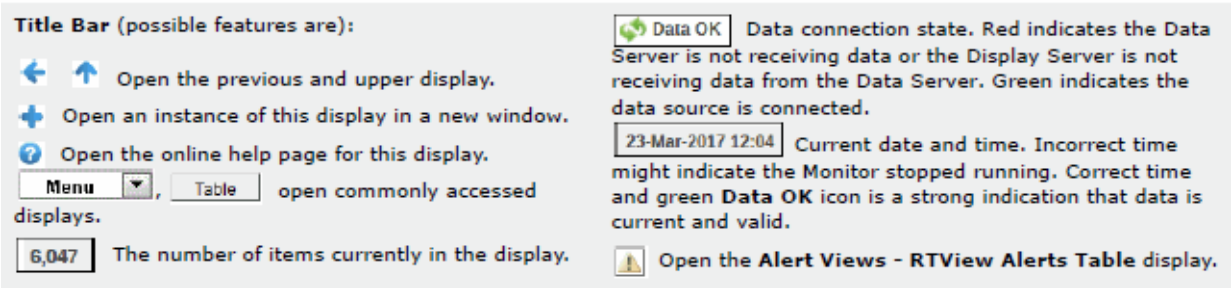
Server Name	The name of the server.
Instance	The name of the instance.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Active Connections	The number of currently active connections.
CPU Util	The CPU utilization percentage.*
Delta Data Received (KB)	The increase in the amount of data being received (from the previous polling period to the current polling period), in kilobytes.
Delta Data Sent (KB)	The increase in the amount of data being sent (from the previous polling period to the current polling period), in kilobytes.
Delta IO Errors	The increase in the amount of input/output errors (from the previous polling period to the current polling period).
Delta IO Reads	The increase in the amount of input/output reads operations (from the previous polling period to the current polling period).
Delta IO Writes	The increase in the amount of input/output write operations (from the previous polling period to the current polling period).
Delta Packet Errors	The increase in the amount of packet errors (from the previous polling period to the current polling period).
IO Busy (ms)	The time, in milliseconds, that the system has been busy due to Input/Output operations.*

Memory Used (%)	The percentage of memory used on the server.*
Memory Remaining (%)	The percentage of memory remaining on the server.*
Total DB Size (MB)	The size of the database, in megabytes.*
Server Edition	The version of the server.*
Product Level	The product level of the server.*
Product Version	The product's version number.*

All Servers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your servers for each available metric. You can view the servers in the heatmap based on the following metrics: the current alert severity, the current alert count, and the percentage of CPU used. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Instance Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for an engine. Clicking one of the rectangles in the heatmap opens the "Server Summary" display, which allows you to see additional details for the selected server.



Fields and Data:

Instance Names Select this check box to display the names of the instances at the top of each rectangle in the heatmap.

Log Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

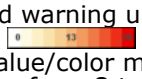
Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts in the engine. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

SQL CPU Utilization (%) The percentage of CPU used by the instance. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **MssqlInstanceSqlCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

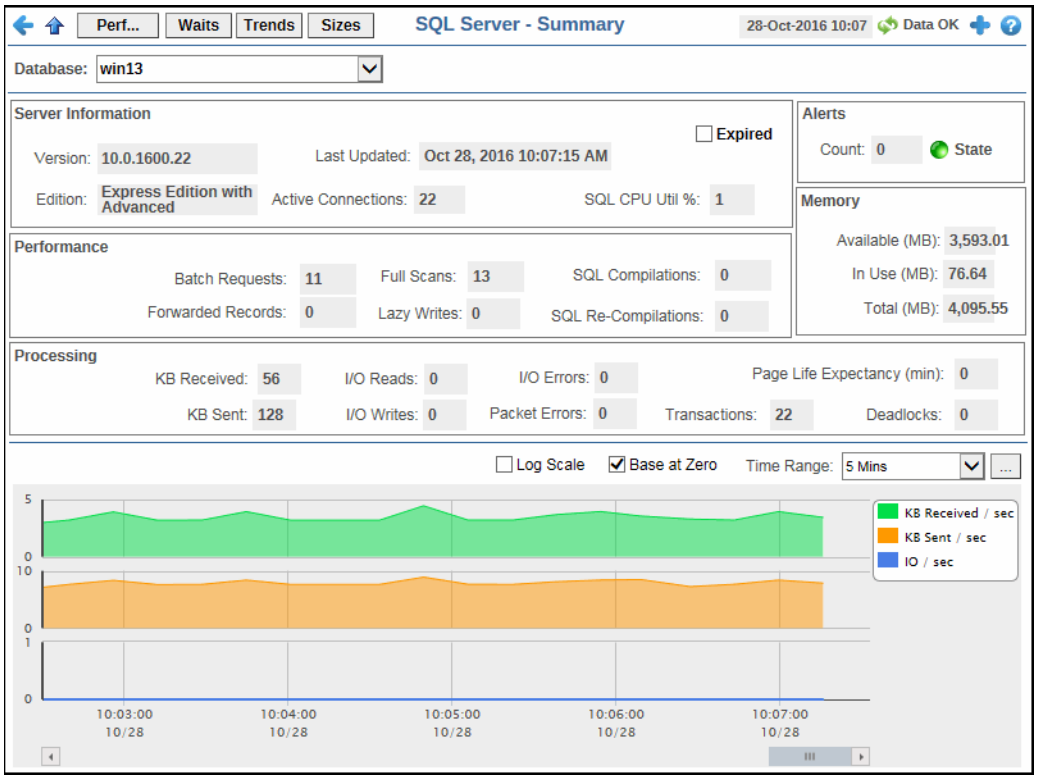
Single SQL Server View

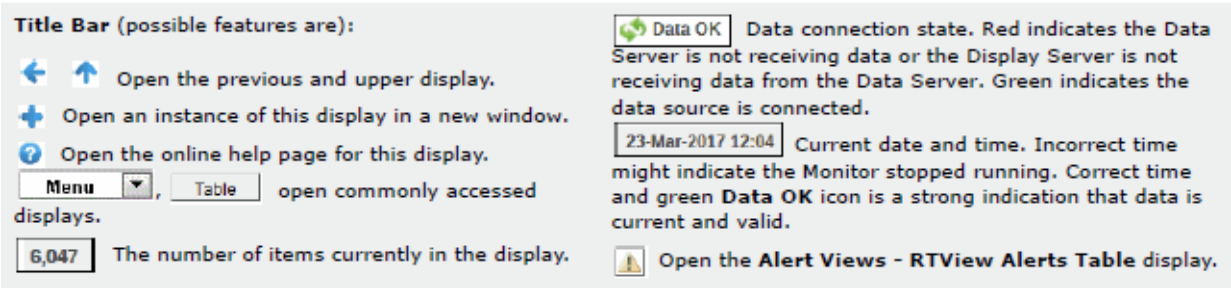
Displays in this View are:

- "Server Summary": Displays performance, processing, alerts, memory, and trend data for a particular database server.
- "Database Details": Displays various database details as well as trending data for the page life expectancy.
- "Wait Stats": Displays server wait time details in a table format for a particular database server.
- "Performance Trends": This display allows you to view performance trend data for a particular SQL database server.
- "Database/Table Sizes": Displays database and table sizes for a particular database server.

Server Summary

This display allows you to view connection and CPU utilization details, memory statistics, various performance and processing metrics, and trending data for the number of kilobytes received and sent as well as input/output details per second for a particular SQL database server.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected server. Refer to Microsoft SQL Server documentation for more information regarding these fields.

Note: The **Perf** button takes you to "Database Details". The **Waits** button takes you to "Wait Stats". The **Trends** button takes you to "Performance Trends". The **Sizes** button takes you to "Database/Table Sizes".

Filter By:

Database Select the database for which you want to show data in the display.

Fields and Data:

Server Information

Version	The server's version number
Last Updated	The date and time of the last data update.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Edition	The SQL Server's edition.*
Active Connections	The number of active connections on the server.*
SQL CPU Util %	The percentage of CPU used by the server.*

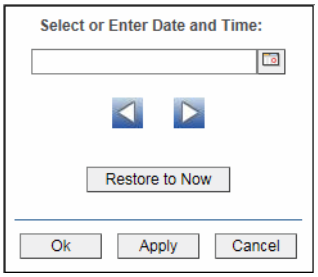
Alerts

Count	The total number of current alerts.

	State	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Memory		
	Available (MB)	The amount of memory currently available, in megabytes.*
	In Use (MB)	The amount of memory currently in use, in megabytes.*
	Total (MB)	The total amount of memory, in megabytes.*
Processing		
	KB Received	The number of kilobytes received.*
	KB Sent	The number of kilobytes sent.*
	I/O Reads	The number of input/output reads.*
	I/O Writes	The number of input/output writes.*
	I/O Errors	The number of input/output errors.*
	Packet Errors	The number of errors involving incoming/outgoing packets.*
	Page Life Expectancy (min)	The average number of minutes a page stays in the cache.*
	Transactions	The number of transactions.*
	Deadlocks	The number of deadlocks.*
Performance Trends Graph	Traces the following: **KB Received/sec** -- traces the amount of kilobytes received per second. **KB Sent/sec** -- traces the amount of kilobytes sent per second. **I/O /sec**-- traces the average number of input/output operations per second.	
	Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



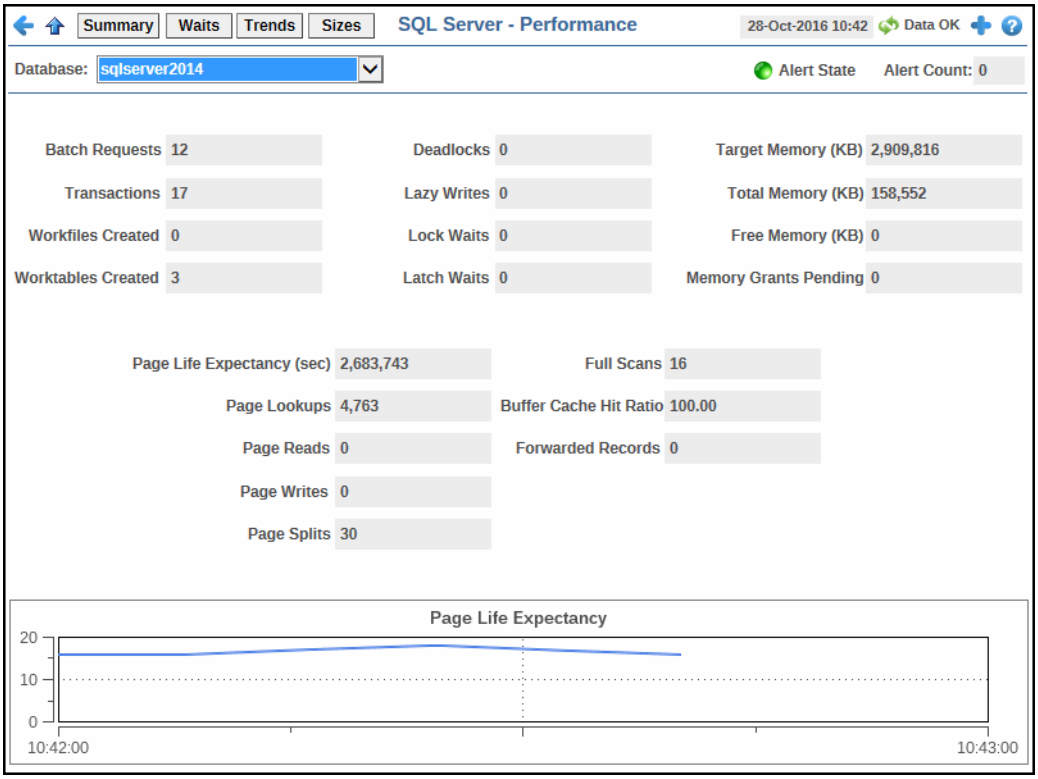
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Database Details

This display allows you to view various database details as well as trending data for the page life expectancy.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected server. Refer to Microsoft SQL Server documentation for more information regarding these fields.

Note: The **Summary** button takes you to "Server Summary". The **Waits** button takes you to "Wait Stats". The **Trends** button takes you to "Performance Trends". The **Sizes** button takes you to "Database/Table Sizes".

Filter By:

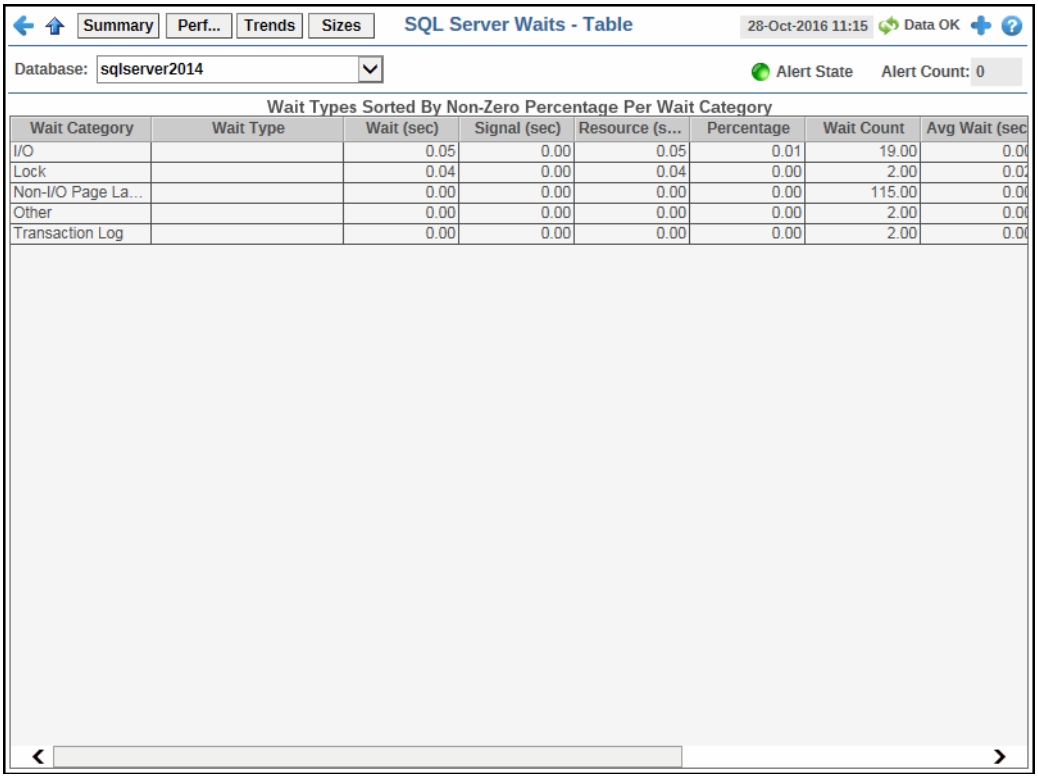
Database	Select the database for which you want to show data in the display.

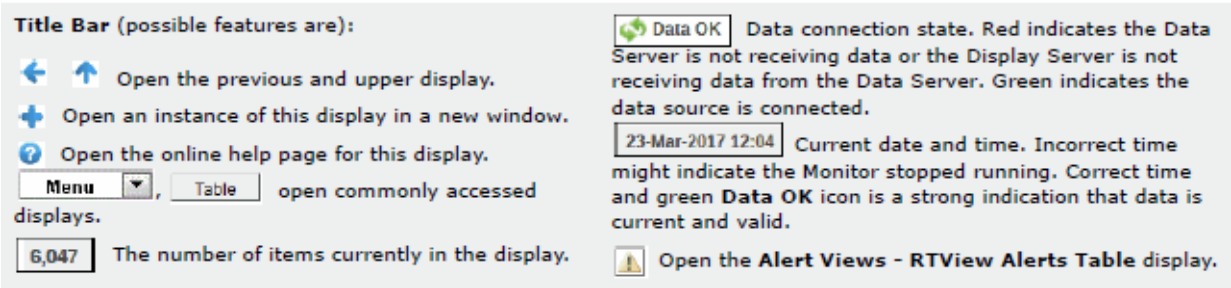
Fields and Data:

Alert State	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Batch Requests	The current number of batch requests.*
Transactions	The current number of transactions.*
Workfiles Created	The number of work files created.*
Worktables Created	The number of worktables created.*
Deadlocks	The current number of deadlocks occurring in the database.*
Lazy Writes	The number of times per second SQL Server relocates dirty pages from buffer pool (memory) to disk.*
Lock Waits	The number of lock requests that required the caller to wait.*
Latch Waits	The number of latch requests that required the caller to wait.*
Target Memory (KB)	The defined target server memory, which is the ideal amount of memory the server can consume, in kilobytes.*
Total Memory (KB)	The total amount of memory the server has committed using the memory manager, in kilobytes.*
Free Memory (KB)	The total amount of free memory, in kilobytes.*
Memory Grants Pending	The current number of processes waiting for a workspace memory grant.*
Page Life Expectancy (sec)	The average number of seconds a page stays in the cache.*
Page Lookups	The number of page lookups.*
Page Reads	The number of database pages read per second.*
Page Writes	The number of database pages written per second.*
Page Splits	The number of page splits that occur as a result of overflowing index pages.*
Full Scans	The number of full database scans.*
Buffer Cache Hit Ratio	The current buffer cache hit ratio, which is the total number of cache hits divided by the total number of cache lookups.*
Forwarded Records	The number of records fetched through forward record pointers.*
Page Life Expectancy Trend Graph	Traces the average length of time a page stays in the cache.*

Wait Stats

This display allows you to view server wait time details in a table format for a particular database server. You can drill-down and view the details for a particular container in the "Server Summary" display by clicking on a row in the resulting table.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected server. Refer to Microsoft SQL Server documentation for more information regarding these fields.

Note: The **Summary** button takes you to "Server Summary". The **Perfs** button takes you to "Database Details". The **Trends** button takes you to "Performance Trends". The **Sizes** button takes you to "Database/Table Sizes".

Filter By:

The display includes these filtering options:

Database	Select the database for which you want to show data in the display.
Alert State	The current alert status. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Total number of alerts for the process.

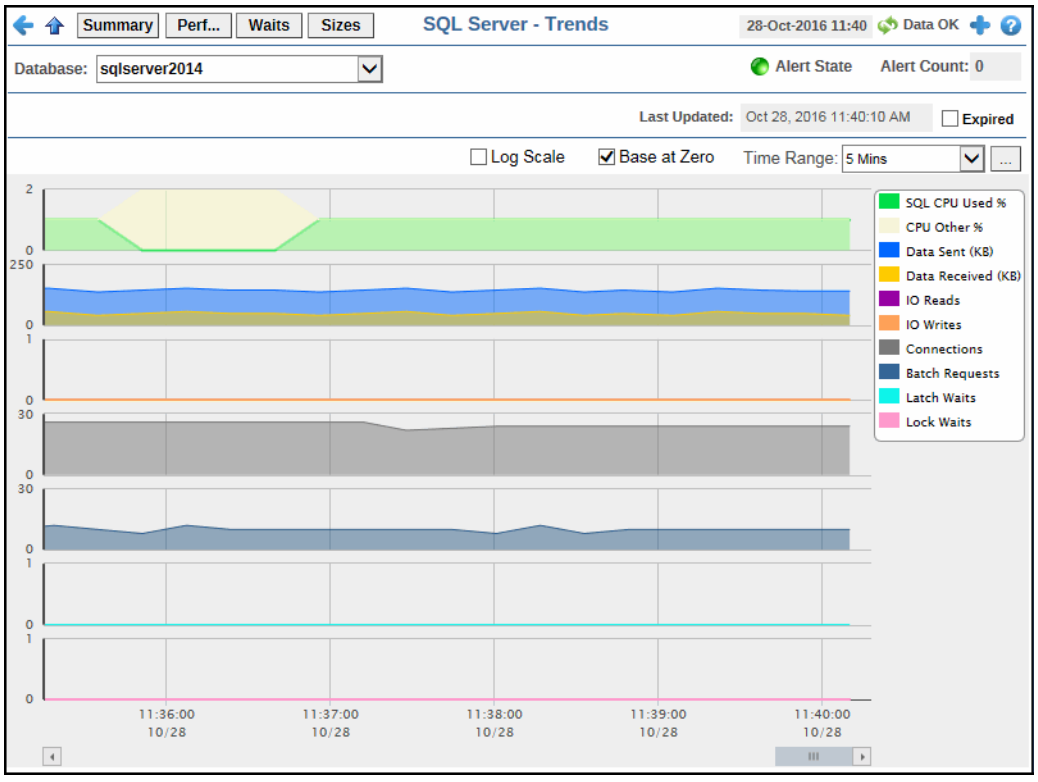
Wait Types Sorted By Non-Zero Percentage Per Wait Category Table

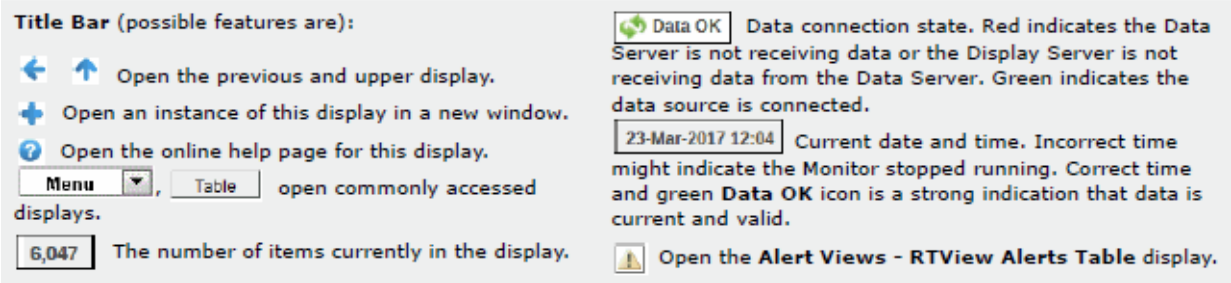
Wait Category	The name of the wait category.*
Wait Type	The name of the wait type.*
Wait (sec)	The average length of the wait time, in seconds.*
Signal (sec)	When the thread is marked as runnable, this field displays the wait time, in seconds, that it takes to get into the running state.*
Resource (sec)	The length of time the thread spent in a suspended state waiting to acquire a resource, in seconds.*
Percentage	The percentage of time the thread spent in a wait state for this wait type.*
Wait Count	The number of lock requests that required the caller to wait.*
Avg Wait (sec)	The average wait time, in seconds.*
Avg Signal (sec)	The average wait signal time, in seconds.*

Avg Resource (sec)	The average length of time taken to acquire a resource, in seconds.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Performance Trends

This display traces the current and historical percentage of CPU used by the MS SQL Server, the remainder CPU used in other operations, the amount of data sent, the amount of data received, the number of input/output operation reads, the number of input/output operation writes, the number of connections, the number of batch requests, the number of latch waits, and the number of lock waits for a particular SQL database server.





Note: The **Summary** button takes you to "Server Summary".The **Perf** button takes you to "Database Details". The **Waits** button takes you to "Wait Stats". The **Sizes** button takes you to "Database/Table Sizes".

Filter By:

The display might include these filtering options:

Database Select the database for which you want to show data in the display.

Alert State The current alert status.
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count Total number of alerts for the process.

Last Updated The date and time the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Performance Trends Graph Traces the following:

SQL CPU Used % -- traces percentage of CPU used by the MS SQL Server.

CPU Other % -- traces the percentage of CPU used in other operations by the MS SQL Server.

Data Sent (KB) -- traces the amount of data sent, in kilobytes.

Data Received (KB) -- traces the amount of data received, in kilobytes.

IO Reads -- traces the number of input/output operation reads.

IO Writes -- traces the number of input/output operation writes.

Connections -- traces the number of connections.

Batch Requests -- traces the number of batch requests.

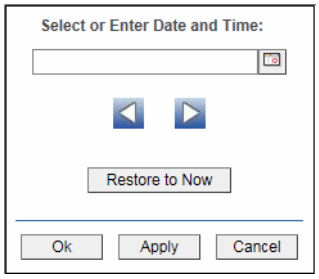
Latch Waits -- traces the number of latch waits.

Lock Waits -- traces the number of lock waits.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



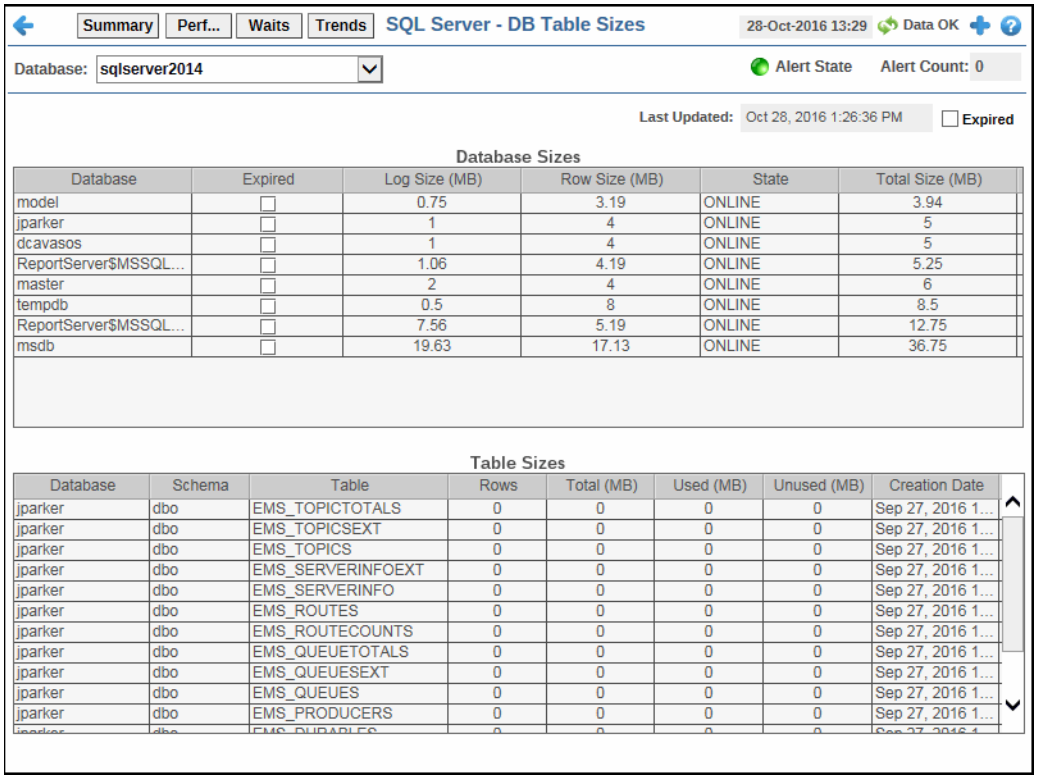
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Database/Table Sizes

This display provides database and table size data for a particular SQL database server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected server. Refer to Microsoft SQL Server documentation for more information regarding these fields.

Note: The **Summary** button takes you to "Server Summary".The **Perf** button takes you to "Database Details". The **Waits** button takes you to "Wait Stats". The **Trends** button takes you to "Performance Trends".

Filter By:

The display includes these filtering options:

Database	Select the database for which you want to show data in the display.
Alert State	The current alert status. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Total number of alerts for the process.
Last Updated	The date and time the data in the display was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Database Sizes Table

Database	The name of the database.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Microsoft SQL Server** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Log Size (MB)	The size of the log, in megabytes.*
Row Size (MB)	The row size, in megabytes.*
State	The current state of the database.*
Total Size (MB)	The total size of the database, in megabytes.*

Table Sizes

Database	The name of the database.*
Schema	The name of the schema.*
Table	The name of the table.*
Rows	The number of rows in the table.*
Total (MB)	The total, in megabytes, available in the table.*
Used (MB)	The total number of used megabytes in the table.*
Unused (MB)	The total number unused megabytes in the table.*
Creation Date	The date and time the table was created.*

CHAPTER 14 Solution Package for MongoDB

The Solution Package for MongoDB is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your MongoDB instances, databases, and collections.

The Monitor enables MongoDB users to continually assess and analyze the health and performance of their infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their messaging system. It does so by aggregating and analyzing key performance metrics across all instances, databases, and collections, and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

Most of the setup in this chapter is done in the RTView Configuration Application. See "RTView Configuration Application" for more information on accessing and using the RTView Configuration Application.

This section includes:

Configuration Parameters You Need

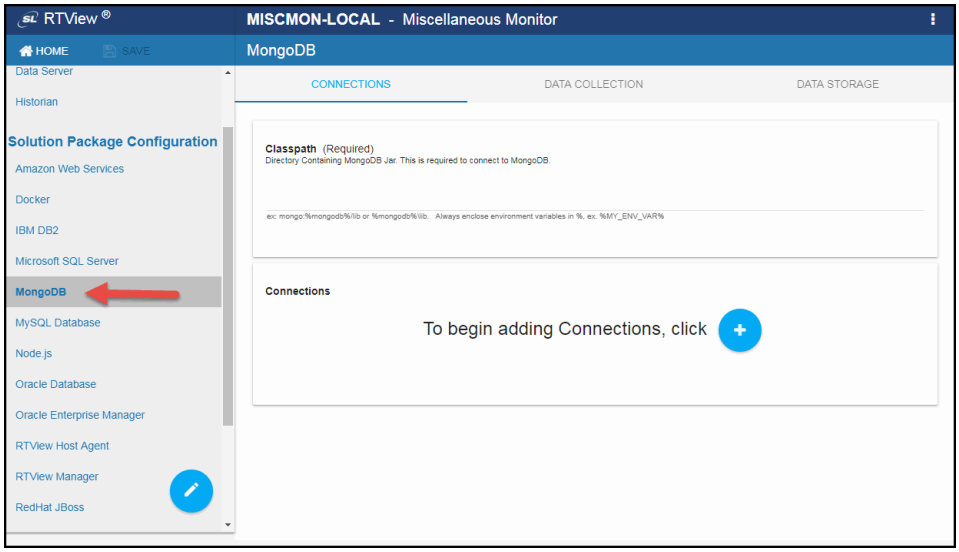
To configure the Solution Package for MongoDB make a note of the following values:

- **PackageName=mongomon**
- **ServerDirectory=miscmon**
- **AlertPrefix=Mongo**

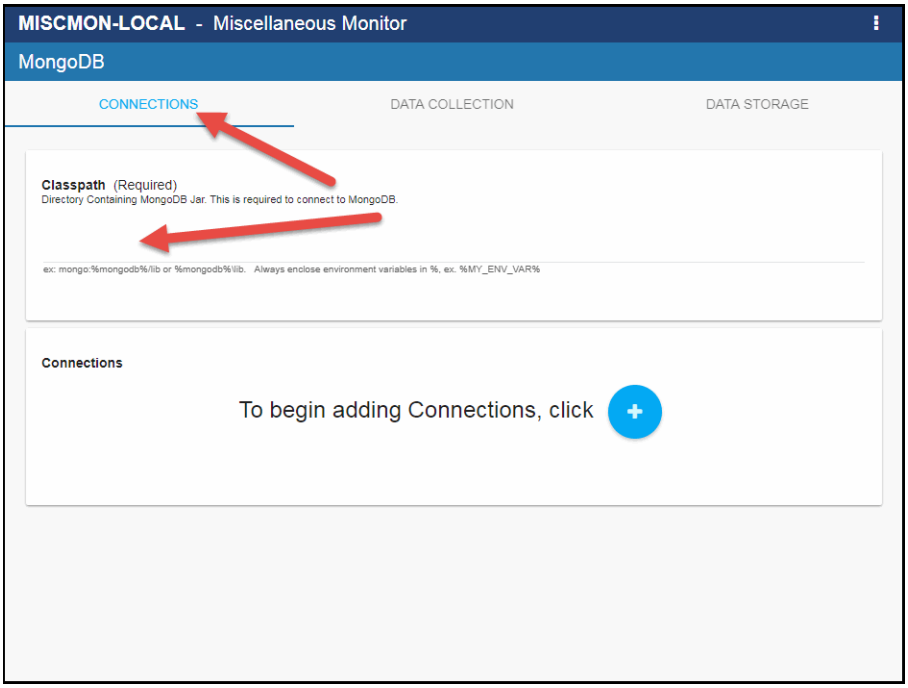
Configure Data Collection

Use the "RTView Configuration Application" to configure your data collection.

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **MongoDB** from the list.

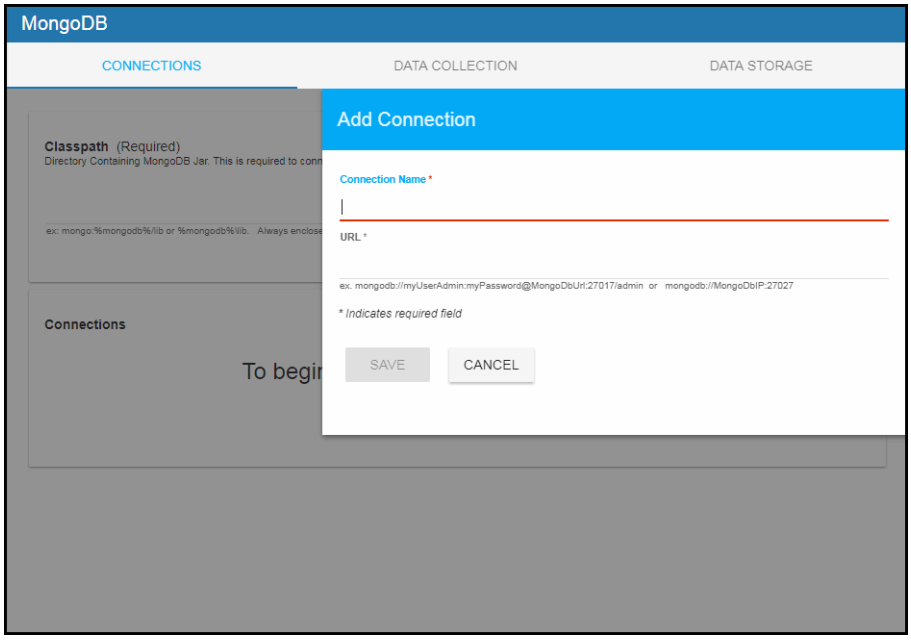


2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the Mongo DB jar file in the **Classpath** field.



3. In the **Connections** section, click the icon.

The **Add Connection** dialog displays.



4. Specify the connection information and click **SAVE** where:

Connection Name: Enter the name you want to specify for the connection.

URL: add the following lines for each MongoDB database to which you want to connect (to enable the Monitor to collect data from them):

The connection string should use the following format:

mongodb://[username:password@]host1[:port1][,host2[:port2],...[,hostN[:portN]]][/[database][?options]]

mongodb:// is a required prefix to identify that this is a string in the standard connection format.

username:password@ are optional. If given, the driver will attempt to login to a database after connecting to a database server. For some authentication mechanisms, only the username is specified and the password is not, in which case the ":" after the username is left off.

host1 is the only required part of the URI. It identifies a server address to which to connect.

:portX is optional and defaults to **:27017** if not provided.

/database is the name of the database to login to and thus is only relevant if the username:password@ syntax is used. If not specified, the **admin** database will be used by default.

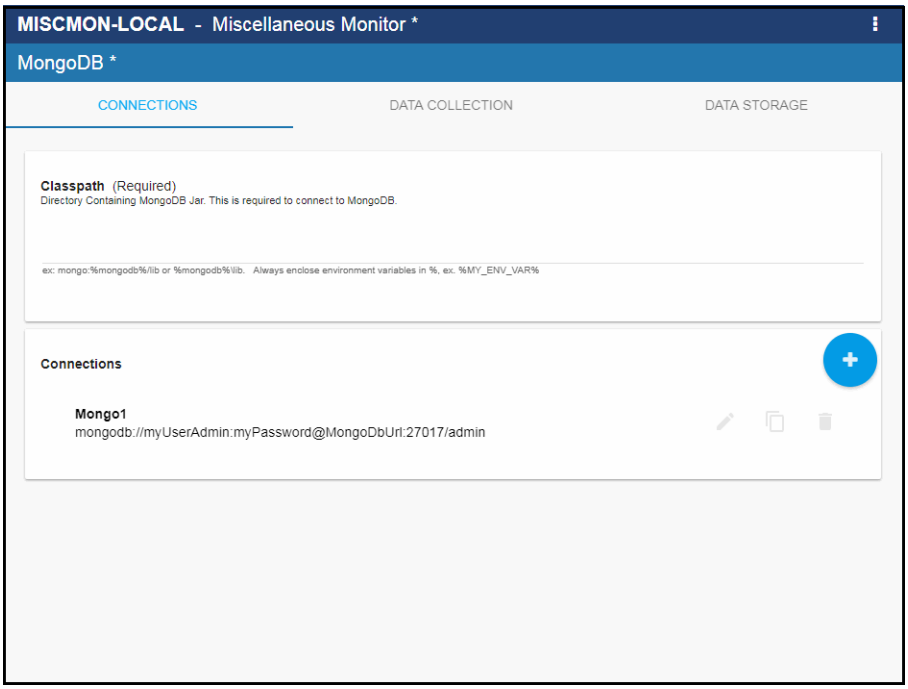
?options are connection options. Note that if the database is absent, there is still a **/** required between the last host and the **?** introducing the options. Options are name=value pairs and the pairs are separated by **&**. For backwards compatibility, **;** is accepted as a separator in addition to **&**, but should be considered as deprecated.

Example for two database connections:

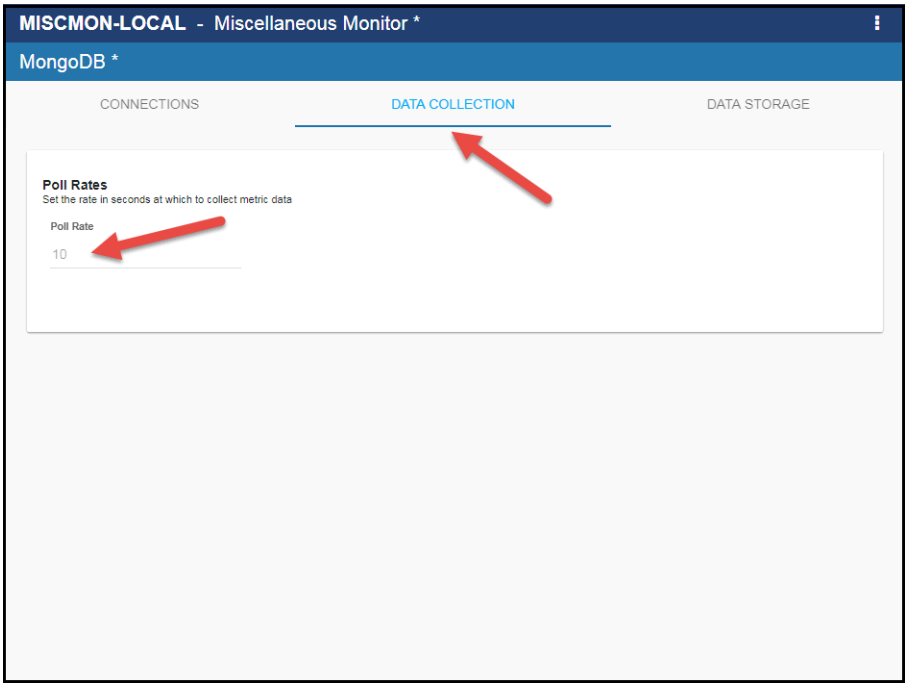
Name= Mongo1 **URL**=mongodb://myUserAdmin:abc123@123.4.567.890:27017

Name= Mongo2 **URL**=mongodb://123.456.789.012:27027

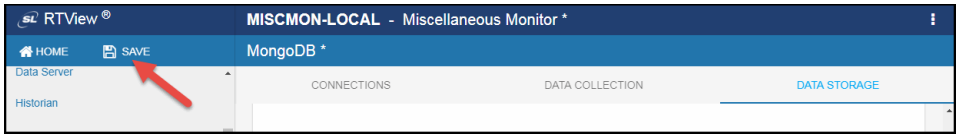
The newly created connection displays in the **Connections** section.



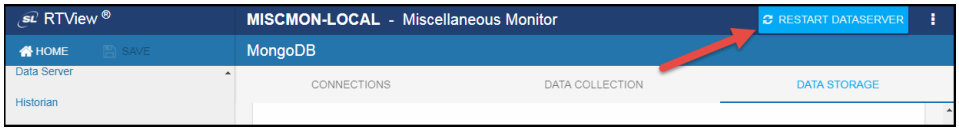
5. You can optionally modify the **Poll Rates** (query interval, in seconds) that will be used to collect the metric data for the MongoDatabase, MongoInstance, and MongoCollection caches by clicking on the **DATA COLLECTION** tab and entering the desired polling rate.



6. Save your changes.



7. To apply the changes you made, you must restart the data server, which can be done by clicking the **RESTART DATASERVER** button that appears once changes have been saved. Clicking this button automatically restarts the data server and takes you back to the projects page, which will require you to wait for a couple of minutes for the data server to restart. Once the data server has restarted, you can select the project again to verify your changes. Note that this process only restarts the data server. See "RTView Configuration Application" for more information.



Additional Configurations

This section describes the additional optional MongoDB Monitor configurations:

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. Once you have made all of your changes, you need to save your changes in the RTView Configuration Application and restart your data server for the changes to take place. See "RTView Configuration Application" for more information. This section contains the following:

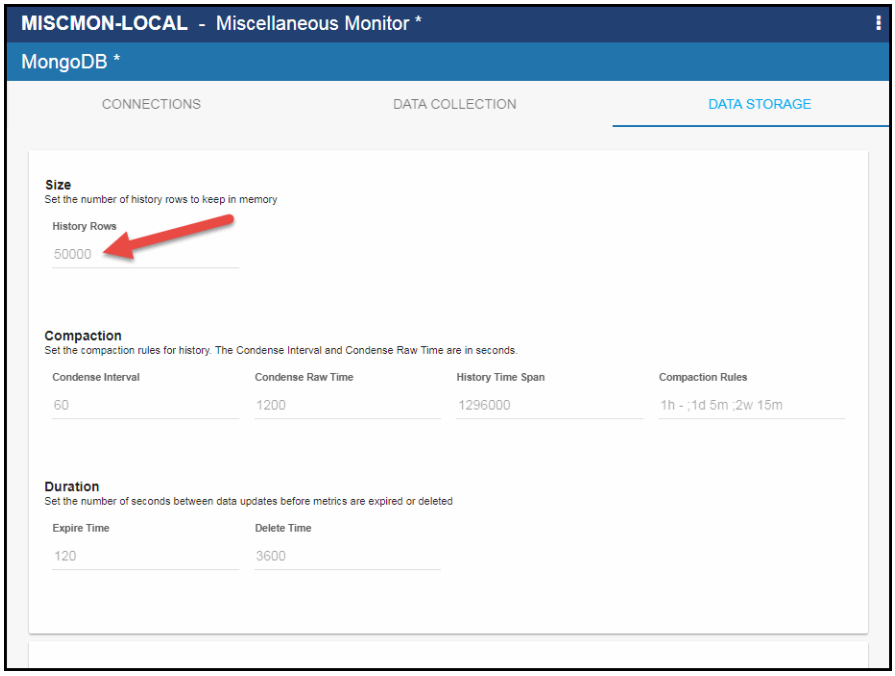
- "Defining the Storage of In-Memory History for MONGOMON"
- "Defining MONGOMON Compaction Rules"
- "Defining Expiration and Deletion Duration for MONGOMON Metrics"
- "Enabling/Disabling Storage of MONGOMON Historical Data"
- "Defining a Prefix for All History Table Names for MONGOMON Metrics"

Defining the Storage of In-Memory History for MONGOMON

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the MongoDatabase, MongoInstance, and MongoCollection caches. The default settings for **History Rows** is 50,000. To update the default setting:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining MONGOMON Compaction Rules

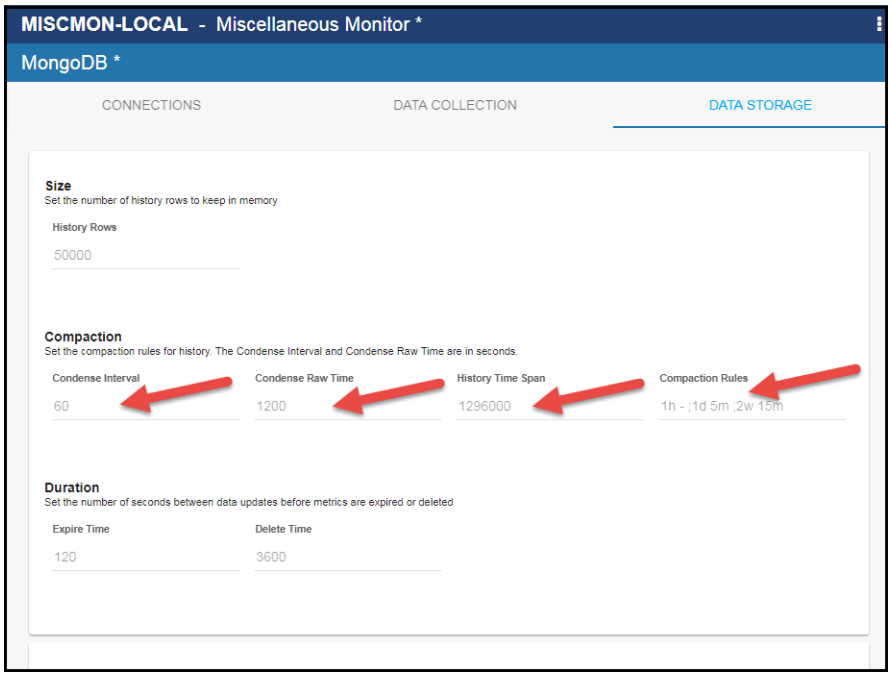
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: MongoDatabase, MongoInstance, and MongoCollection. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: MongoDatabase, MongoInstance, and MongoCollection. The default is 1200 seconds.
- **History Time Span** -- The time span of data kept in the cache history table for the following caches: MongoDatabase, MongoInstance, and MongoCollection. The default is 1296000 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: MongoDatabase, MongoInstance, and MongoCollection. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, **History Time Span**, and **Compaction Rules** fields and specify the desired settings.

Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



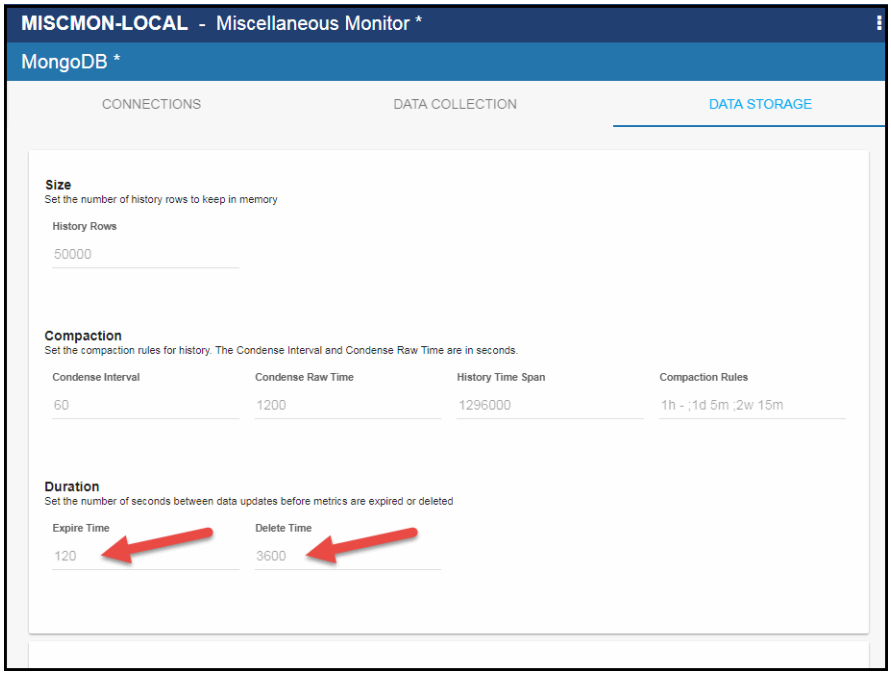
Defining Expiration and Deletion Duration for MONGOMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The following caches are impacted by settings in the **Expire Time** and **Delete Time** fields: MongoDatabase, MongoInstance, and MongoCollection. To modify these defaults:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

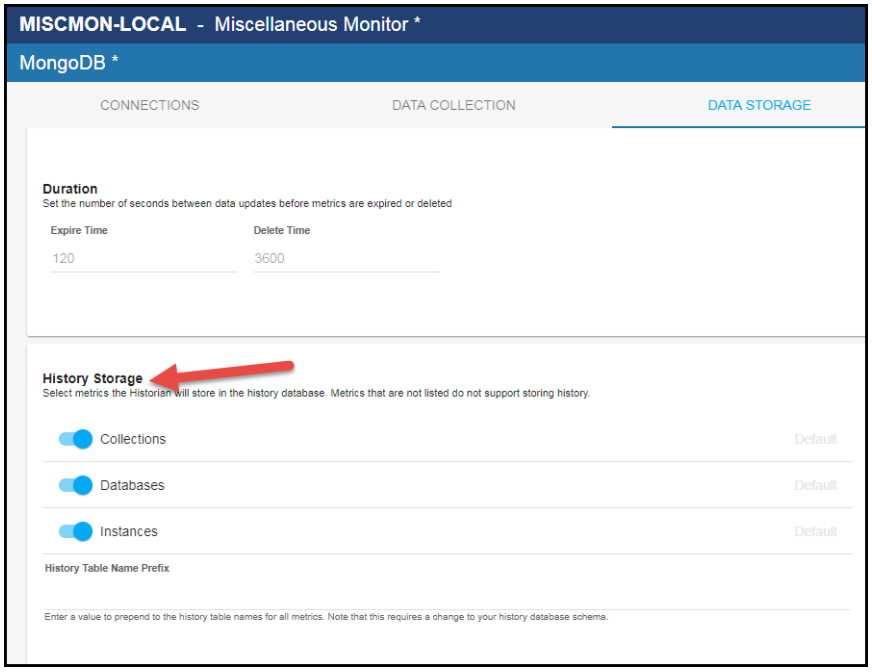


Enabling/Disabling Storage of MONGOMON Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical Collections (MongoCollection cache), Databases (MongoDatabase cache), and Instances (MongoInstance cache) are saved to the database. To disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab.

2. In the **History Storage** region, deselect the toggles for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for MONGOMON Metrics

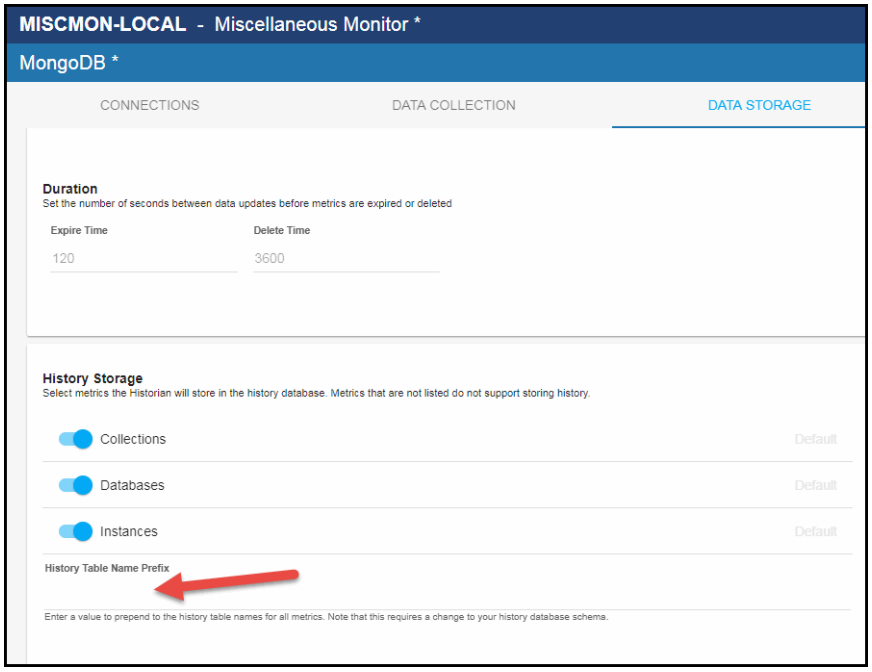
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**mongomon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshooting

This section includes:

- "Log Files," next
- "JAVA_HOME"
- "Permissions"
- "Network/DNS"
- "Verify Data Received from Data Server"
- "Verify Port Assignments"

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Mongo." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

You should also make sure that the **mongo-java-driver-3.2.1.jar** file has been copied to the **C:\RTView\ext** directory and that the #collector.sl.rtview.cp=%RTVAPM_HOME%/../ext/mongodb/mongo-java-driver-3.2.1.jar property in the **rtvapm_projects/emsample/servers/miscmon/sample.properties** file has been uncommented. See "Install and Setup" for more information.

Verify Port Assignments

If the Viewer, display server, or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

MongoDB Monitor Views/Displays

The following MongoDB Monitor Views (and their associated displays) can be found under **Components** tab **> Databases > MongoDB** once MongoDB Monitor is installed:

- "Mongo Instance View"
- "Mongo Database View"
- "Mongo Collection View"

Mongo Instance View

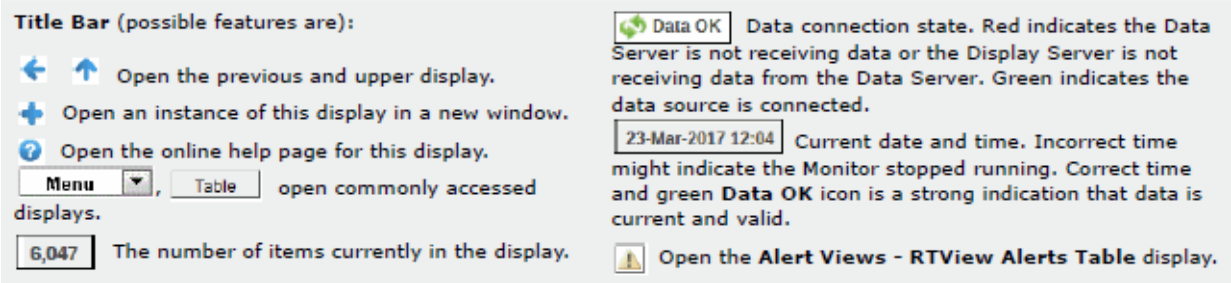
These displays present performance metrics and alert statuses for all MongoDB instances. The first two displays show different views of the same data:

- "All Instances Heatmap": This heatmap shows status and alerts for all MongoDB instances.
- "All Instances Table": This table shows all available utilization metrics for all MongoDB instances.
- "Single Instance Summary": This summary enables you to view available utilization metrics for a single MongoDB instance.

All Instances Heatmap

View status and alerts of all MongoDB Instances. Use the **Metric** drop-down menu to view the **Alert Severity**, **Alert Count**, **Physical Memory**, **Open Cursors**, **Connections**, or **Databases**.

The heatmap is organized by host, each rectangle representing a connection. The rectangle color indicates the most critical alert state. Click on a node to drill-down to the "Single Instance Summary" display and view metrics for a particular connection. You can toggle between the commonly accessed **Table** and **Heatmap** displays by clicking the icon in the upper left-hand corner. Mouse-over rectangles to view more details about host performance and status.



Fields and Data

This display includes:

Connection Select the connection from the drop down list for which you want to view data.

Primary Only Selecting this check box displays connections in the heatmap that have **Designation in Set** (within a replica set) defined as **Primary**, as well as those connections that are not part of a replica set (do not have a defined **Designation in Set**). Those connections with **Designation in Set** defined as **Secondary** will not be displayed.

Count The total number of active, inactive, and standby connections.

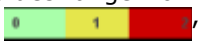
Hosts Select this check box to display the IP address of the host for each rectangle.

Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting Auto helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the instances by host, where each rectangle represents an instance. Mouse-over any rectangle to display the current values of the metrics for the instance. Click on a rectangle to drill-down to the associated "Single Instance Summary" display for a detailed view of metrics for that particular instance.

Alert Severity

The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar 

, where **2** is the greatest **Alert Severity**.

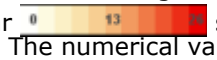
2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count

The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

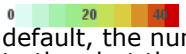
Physical Memory

The total amount of physical memory currently being used in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount of physical memory in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Open Cursors

The total number of open cursors in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **MongoInstanceOpenCursorsHigh**, which is **2000.** The middle value in the gradient bar indicates the middle value of the range (the default is **1000**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Connections

The total number of connections in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of connections in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Databases

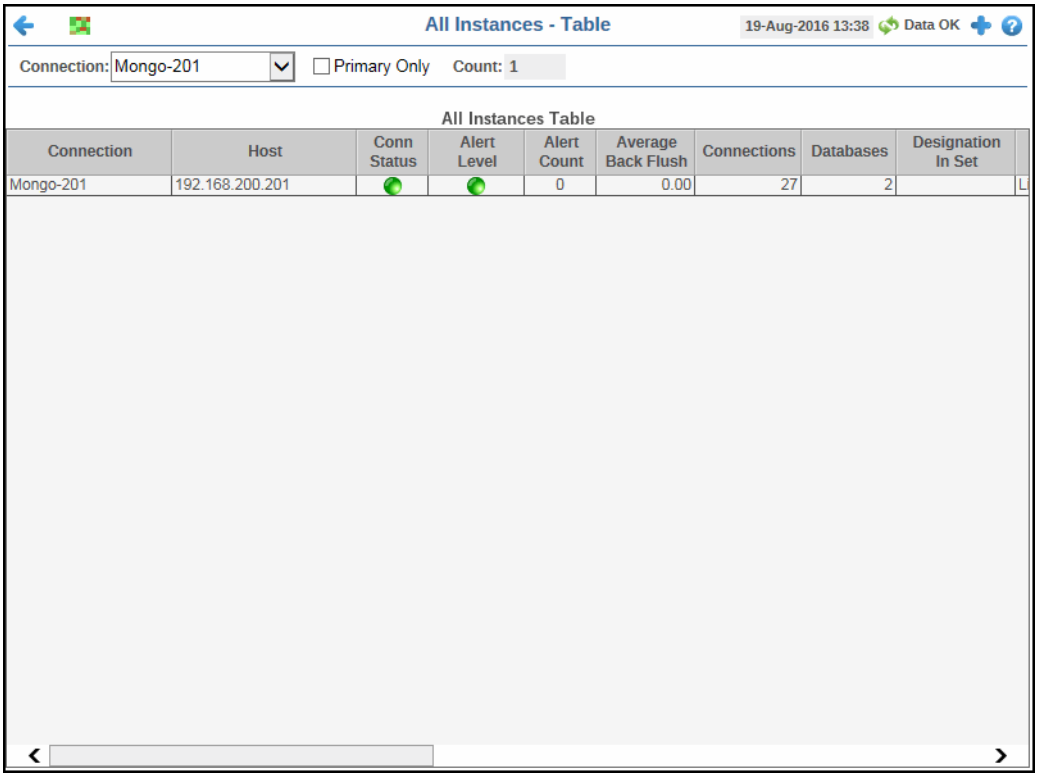
The total number of databases in a given item (index) associated with the rectangle. The color gradient bar 

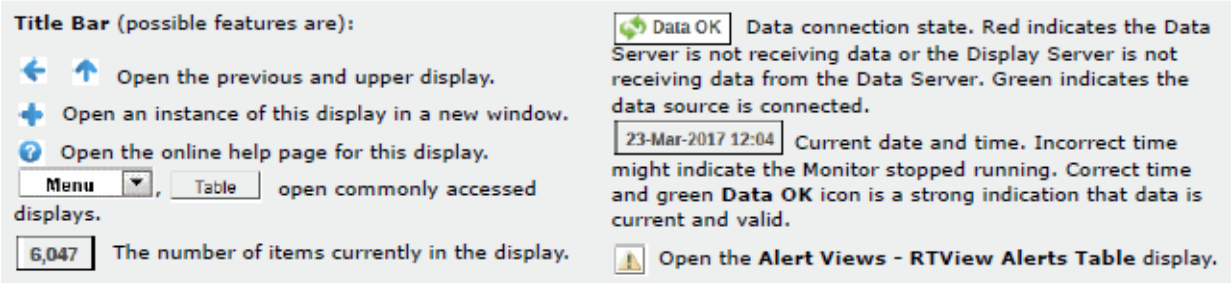
shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of databases in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

All Instances Table

This display enables you to investigate detailed utilization metrics for all MongoDB Instances. The **All Instances Table** contains all metrics available for instances, including the number of current connections. Each row in the table contains data for a particular connection. Click a column header to sort column data in numerical or alphabetical order. Click on a table row to drill-down to the "Single Instance Summary" display and view metrics for that particular instance. You can click the icon in the upper left-hand corner to toggle between the commonly accessed **Table** and **Heatmap** displays.





Fields and Data

This display includes:

Connection Select the connection for which you want to view data, or select **All Connections** to view data for all connections.

Primary Only Selecting this check box displays connections in the table that have **Designation in Set** (within a replica set) defined as **Primary**, as well as those connections that are not part of a replica set (do not have a defined **Designation in Set**). Those connections with **Designation in Set** defined as **Secondary** will not be displayed.

Count The total number of connections displayed in the table.

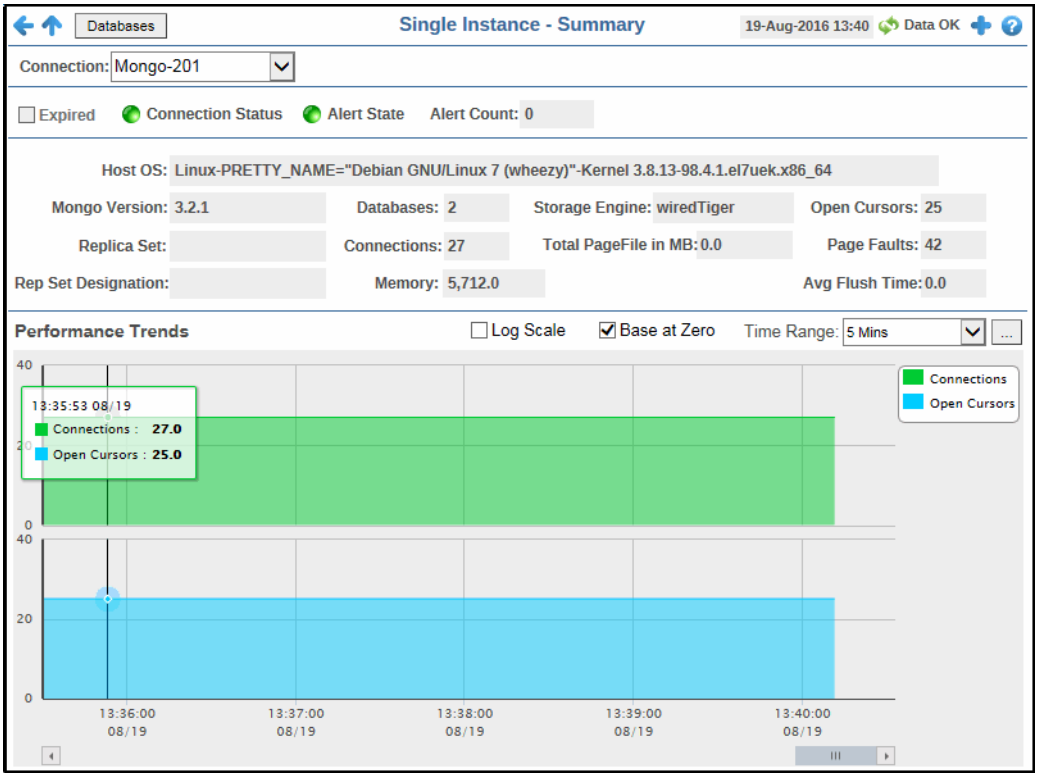
Table This table shows information for the selected connection(s). Click on a table row to drill-down to the "Single Instance Summary" display and view metrics for that particular server.

Connection	The name of the connection.
Host	The host name returned by MongoDB or the host provided by the user to use for connection if the host is not available.
Conn Status	The connection status of the Connection/Host. -- The host is not connected. -- The host is partially connected, which occurs when the connection has succeeded but the credentials given do not allow access to certain metrics. -- The host is connected.
Alert Level	The current alert level. -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold. -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. -- No alerts have exceeded an alert threshold.
Alert Count	The total number of alerts for the connection.
Average Back Flush	The average time, in milliseconds, for each flush to disk, calculated by dividing the total number of milliseconds by the total number of flushes. **Note:** Background flushing information only appears for instances using the This metric only displays when the storage engine is **MMAPv1** storage engine.
Connections	The number of connections coming in from the clients to the database server, including the current monitor session.
Databases	The number of databases being hosted by the instance.
Designation In Set	The designation of this member of the replica set (**primary**/**secondary**). This column will be empty if no replica set is configured, or set to **unknown** if there is no connection.
Host OS Version	The version of the operating system used by the host.
How Long As Primary	The amount of time the instance has been a primary instance. This field is only populated for primary instances.
MongoDB Version	The version number of the mongod instance.
Open Cursors	The total number of open cursors for the connection.
Ops Log Lag	The amount of time (in hours:minutes:seconds) in which the secondary instance is behind the primary instance. This field is only populated for secondary instances.
Ops Log Length	The length of the OpsLog collection, in bytes.

Page Faults	The number of page faults for the connection. MongoDB reports its triggered page faults as the total number of page faults in one second.
Physical Memory MB	The total amount of system memory (RAM), in megabytes.
ReplicaSet	The name of the replica set in which the mongod is a part of, if configured. This column will be empty if no replica set is configured, or set to **unknown** if there is no connection. All hosts in the replica set must have the same set name.
Storage Engine	The name of the current storage engine. The name can be either **MMAPv1** or **WiredTiger**. **WiredTiger** is the default as of MongoDB version 3.2.
Total Page File MB	The total size of pagefile defined for the connection, in megabytes.This metric only displays when the storage engine is **MMAPv1**.
Uptime	The amount of time since the instance was last started, shown in days, hours, and minutes (for example, 1d 23:43).
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Time Stamp	The date and time this row of data was last updated.

Single Instance Summary

Track utilization and performance metrics for specific instances.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Connection Select the connection for which you want to view data.

Expired This check box becomes automatically checked when the data has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.

Connection Status The connection status of the Connection/Host.
- -- The host is not connected.
- -- The host is partially connected, which occurs when the connection has succeeded but the credentials given do not allow access to certain metrics.
- -- The host is connected.

Alert State The current alert level.
- -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.
- -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold.
- -- No alerts have exceeded an alert threshold.

Alert Count The total number of alerts for the connection.

Host OS The version of the operating system used by the host.

Mongo Version The version number of the mongod instance.

Databases The number of databases being hosted by the instance.

Storage Engine The name of the current storage engine. The name can be either **MMAPv1** or **WiredTiger**. **WiredTiger** is the default as of MongoDB version 3.2.

Open Cursors The total number of open cursors for the connection.

Replica Set The name of the replica set in which the mongod is a part of, if configured. This column will be empty if no replica set is configured, or set to **unknown** if there is no connection. All hosts in the replica set must have the same set name.

Connections The number of connections coming in from the clients to the database server, including the current monitor session.

Total PageFile in MB The total size of pagefile defined for the connection, in megabytes. This metric only displays when the storage engine is **MMAPv1**.

Page Faults The number of page faults for the connection. MongoDB reports its triggered page faults as the total number of page faults in one second.

Rep Set Designation The designation of this member of the replica set (**primary**/**secondary**). This column will be empty if no replica set is configured, or set to **unknown** if there is no connection.

Memory The total amount of system memory (RAM), in megabytes.

Avg Flush Time The average time, in milliseconds, for each flush to disk, calculated by dividing the total number of milliseconds by the total number of flushes.

Note: Background flushing information only appears for instances using the **MMAPv1** storage engine.

Performance Trends Graph Shows connection and open cursor data for the connection.

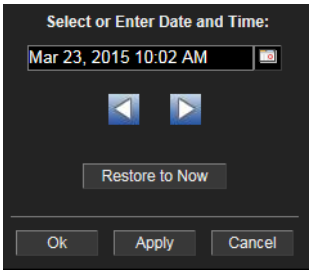
Connections -- Traces the total number of connections coming in from the clients.

Open Cursors-- Traces the total number of open cursors on the connection.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Mongo Database View

These displays present detailed performance metrics and alert statuses for all databases (in a heatmap or a tabular format) or for an individual database.

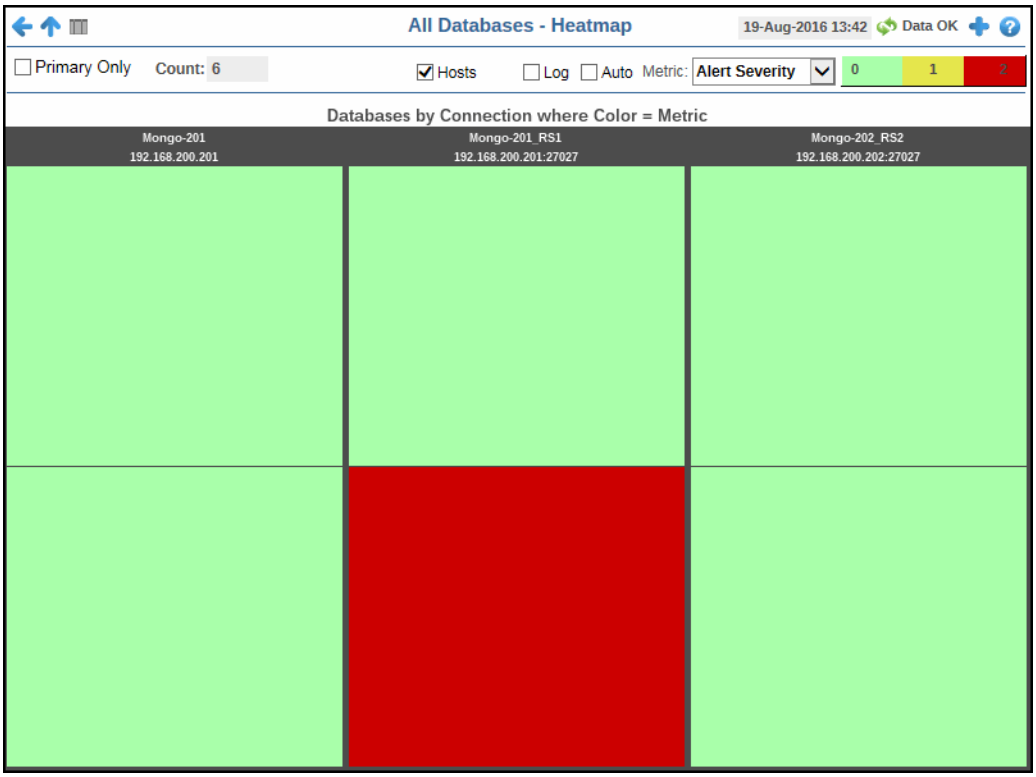
- "All Databases Heatmap": Displays a heatmap view of alert states for all databases.
- "All Databases Table": Displays a tabular view of all databases and their associated metrics for a single connection, or of all databases and their associated metrics for all connections.
- "Database Summary": Displays metrics for a specific database.

Note: No database information will display in the heatmap, table, or summary displays if a connection cannot be established.

All Databases Heatmap

Track utilization and performance metrics for all databases in a heatmap format. Use the **Metric** drop-down menu to view **Alert Severity**, **Alert Count**, **NumObjects** (number of objects), or **AvgObjectSize** (average object size).

The heatmap is organized so that each rectangle represents a database associated with a specific connection. The rectangle color indicates the value of the selected metric in the **Metric** drop down list. You can mouse-over rectangles to view more details about the performance and status of each database or click on a rectangle to drill-down to the "Database Summary" display and view metrics for that particular database. You can click the table icon in this display to navigate to the "All Databases Table" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Primary Only Selecting this check box displays connections in the heatmap that have **Designation in Set** (within a replica set) defined as **Primary**, as well as those connections that are not part of a replica set (do not have a defined **Designation in Set**). Those connections with **Designation in Set** defined as **Secondary** will not be displayed.

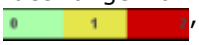
Count The total number of active and inactive databases.

Hosts Select this check box to display the name/IP address of the host for each rectangle.

Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting **Auto** helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is **Alert Severity.** Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the databases by connection, where each rectangle represents a database. Mouse-over any rectangle to display the current values of the metrics for the database. Click on a rectangle to drill-down to the associated "Database Summary" display for a detailed view of metrics for that particular database.

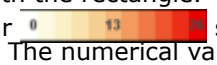
Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Collections The total number of collections in a given item (index) associated with the rectangle. The color gradient bar shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum number of collections in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

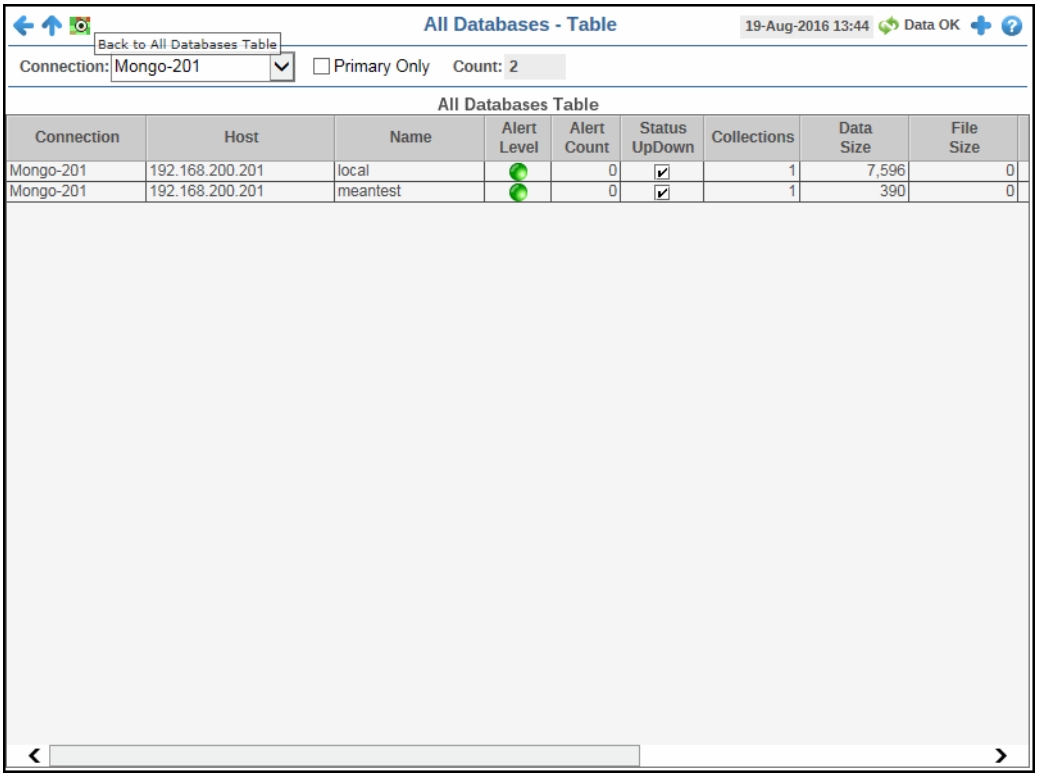
The **Auto** option does not impact this metric.

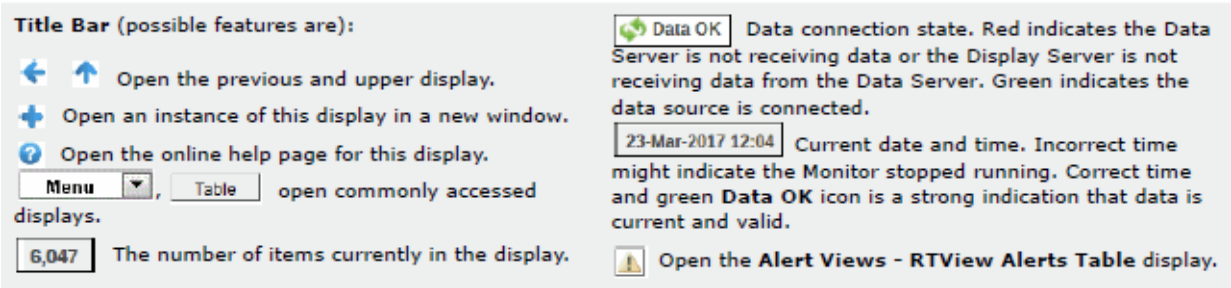
Data Size The total size (in bytes) of the data in a given item (index) associated with the rectangle. The color gradient bar shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **MongoDatabaseDataSizeHigh**, which is **100,000**. The middle value in the gradient bar indicates the middle value of the range (the default is **50,000.**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Databases Table

View details for all databases in a single connection, or view details for all databases in all connections.





Fields and Data

This display includes:

Connection Select the connection for which you want to view data, or select **All Connections** to view data for all connections.

Primary Only Selecting this check box displays connections in the table that have **Designation in Set** (within a replica set) defined as **Primary**, as well as those connections that are not part of a replica set (do not have a defined **Designation in Set**). Those connections with **Designation in Set** defined as **Secondary** will not be displayed.

Count The total number of databases displayed in the table.

Table This table shows information for the selected connection(s). Click on a table row to drill-down to the "Database Summary" display and view metrics for that particular server.

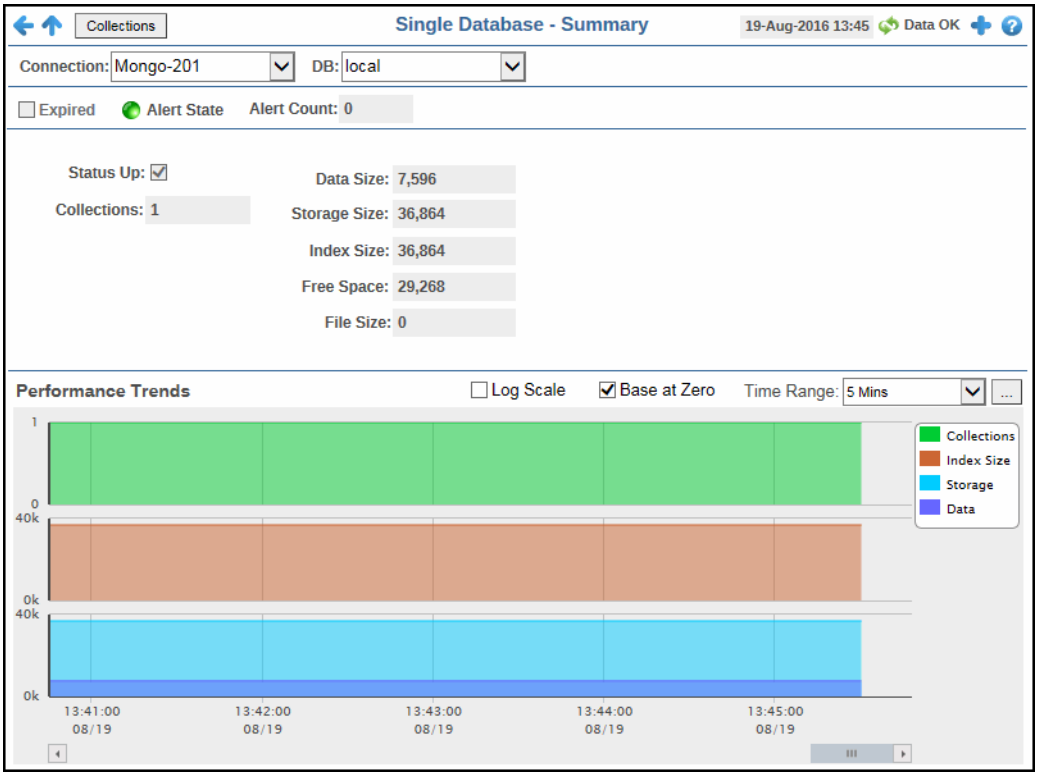
- **Connection** The name of the connection
- **Host** The host name returned by MongoDB or the host provided by the user to use for connection if the host is not available.
- **Name** The name of the database.
- **Alert Level** The current alert level.
  - -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.
  - -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold.
  - -- No alerts have exceeded an alert threshold.
- **Alert Count** The total number of alerts for the database.
- **Status UpDown** When checked, signifies that the database is up and running.
- **Collections** The number of collections in the database.
- **Data Size** The total size, in bytes, of the data held in the database including the padding factor. The **Data Size** will not decrease when the document size decreases, but will decrease when documents are removed.

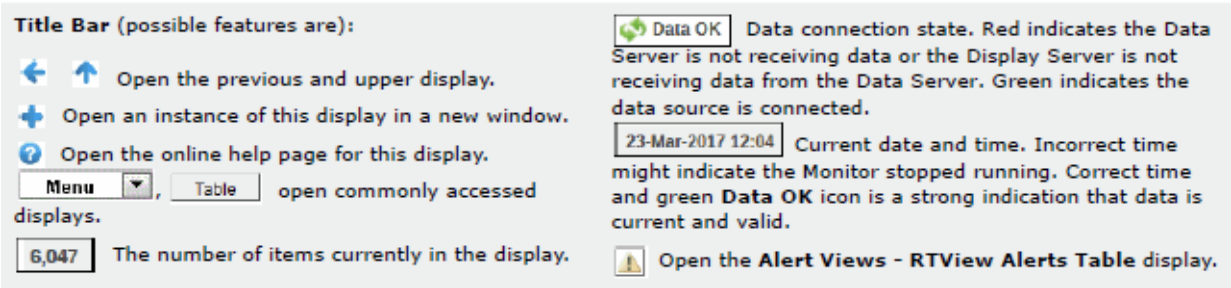
  Note: The **scale** argument affects this value.
- **File Size** The total size, in bytes, of the data files in the database. This value includes preallocated space as well as the padding factor, and only reflects the size of the data files in the database and not the size of the namespace file.
- **Free Space** The total free space remaining on the database (**Storage Size** minus **Data Size**).

Index Size	The total size, in bytes, of all indexes created on the database. **Note:** The **scale** argument affects this value.
Storage Size	The total amount of space, in bytes, allocated to collections in this database for document storage. The Storage Size does not decrease when documents are removed or the size of the documents decrease. **Note:** The **scale** argument affects this value.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
time_stamp	The date and time the data in this row was last updated.

Database Summary

View all available utilization and performance data for a specific database.





Fields and Data

This display includes:

Connection	Select the connection for which you want to view data.
DB	Select the database for which you want to view data.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Alert State	The current alert level. -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold. -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. -- No alerts have exceeded an alert threshold.
Alert Count	The total number of alerts for the database.
Status Up	When checked, signifies that the database is up and running.
Collections	The total number of collections in the database.
Data Size	The total size, in bytes, of the data held in the database including the padding factor. The **Data Size** will not decrease when the document size decreases, but will decrease when documents are removed. **Note:** The **scale** argument affects this value.
Storage Size	The total amount of space, in bytes, allocated to collections in this database for document storage. The Storage Size does not decrease when documents are removed or the size of the documents decrease. **Note:** The **scale** argument affects this value.
Index Size	The total size, in bytes, of all indexes created on the database. **Note:** The **scale** argument affects this value.
Free Space	The total free space remaining on the database (**Storage Size** minus **Data Size**).
File Size	The total size, in bytes, of the data files in the database. This value includes preallocated space as well as the padding factor, and only reflects the size of the data files in the database and not the size of the **namespace** file.

Performance Trends Graph

Shows connection and open cursor data for the connection.

Collections -- Traces the total number of collections in the database.

Index Size -- Traces the total size of indexes created on the database.

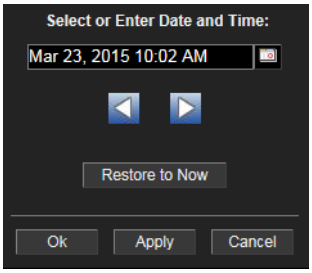
Storage -- Traces the total amount of space allocated to collections in the database.

Data -- Traces the total size of the data held in the database.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Mongo Collection View

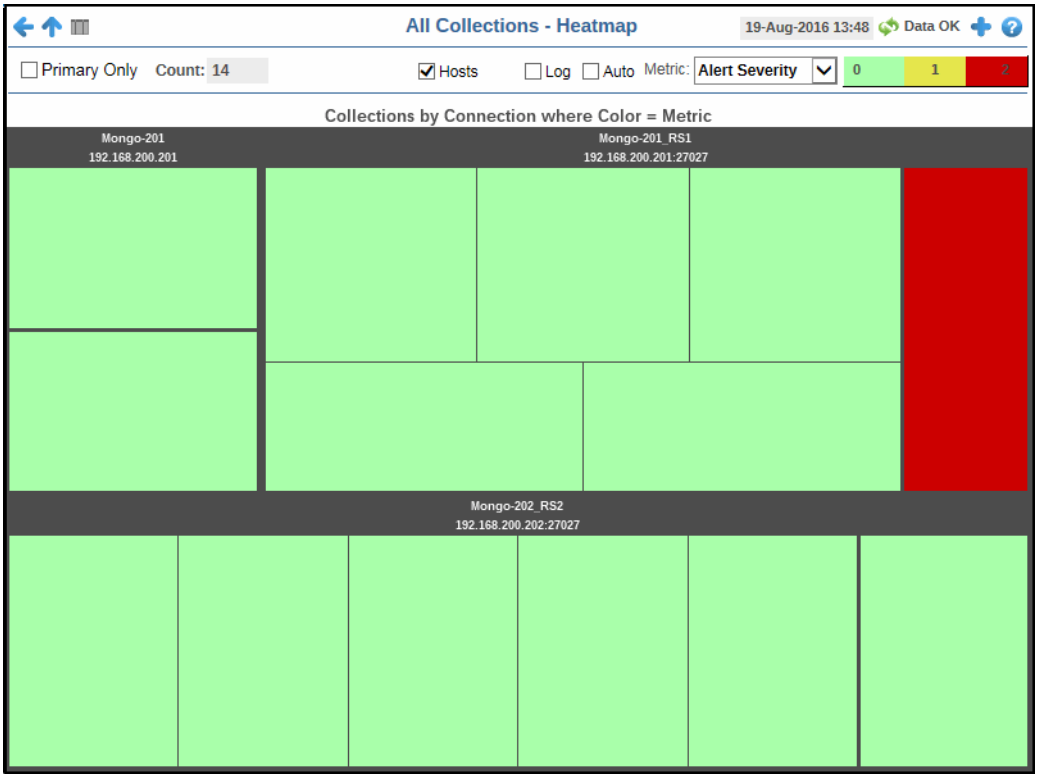
These displays present several views of performance metrics for collections. You can view heatmap or tabular views of all collections that exist in the connections in the "All Collections Heatmap" and "All Collections Table" displays, or you can view all details for a specific collection contained in a particular database in the "Collection Summary" display.

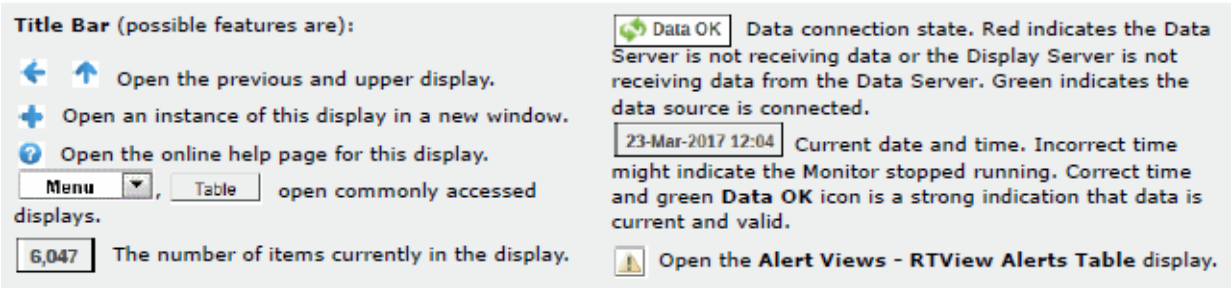
- "All Collections Heatmap": A heatmap representation that allows you to view performance and utilization metrics for all collections that exist in each of your connections.
- "All Collections Table": A tabular view that allows you to view performance and utilization metrics for all collections in a particular database, or for all collections on all databases.
- "Collection Summary": Shows detailed performance and utilization metrics and trends for a specified collection on a particular database.

All Collections Heatmap

This display provides a heatmap view of the status and alerts of all collections within each connection. Use the **Metric** drop-down menu to view **Alert Severity**, **Alert Count**, **NumObjects** (number of objects), or **AvgObjectSize** (average object size).

The heatmap is organized so that each rectangle represents a collection contained within a specific connection. The rectangle color indicates the value of the selected metric in the **Metric** drop down list. You can mouse-over rectangles to view more details about the performance and status of each collection or click on a rectangle to drill-down to the "Collection Summary" display and view metrics for that particular collection. You can click the table icon in this display to navigate to the "All Collections Table" display.





Fields and Data

This display includes:

Primary Only Selecting this check box displays connections in the heatmap that have **Designation in Set** (within a replica set) defined as **Primary**, as well as those connections that are not part of a replica set (do not have a defined **Designation in Set**). Those connections with **Designation in Set** defined as **Secondary** will not be displayed.

Count The total number of collections.

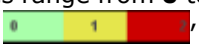
Hosts Select this check box to display the names of the hosts in the heatmap.

Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting **Auto** helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is **Alert Severity**. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the collections by connection, where each rectangle represents a collection. Mouse-over any rectangle to display the current values of the metrics for the collection. Click on a rectangle to drill-down to the associated "Collection Summary" display for a detailed view of metrics for that particular collection.

Alert Severity

The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count

The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

NumObjects

The total number of objects or documents in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **MongoCollectionNumObjectsHigh**, which is **2000**. The middle value in the gradient bar indicates the middle value of the range (the default is **1000**).

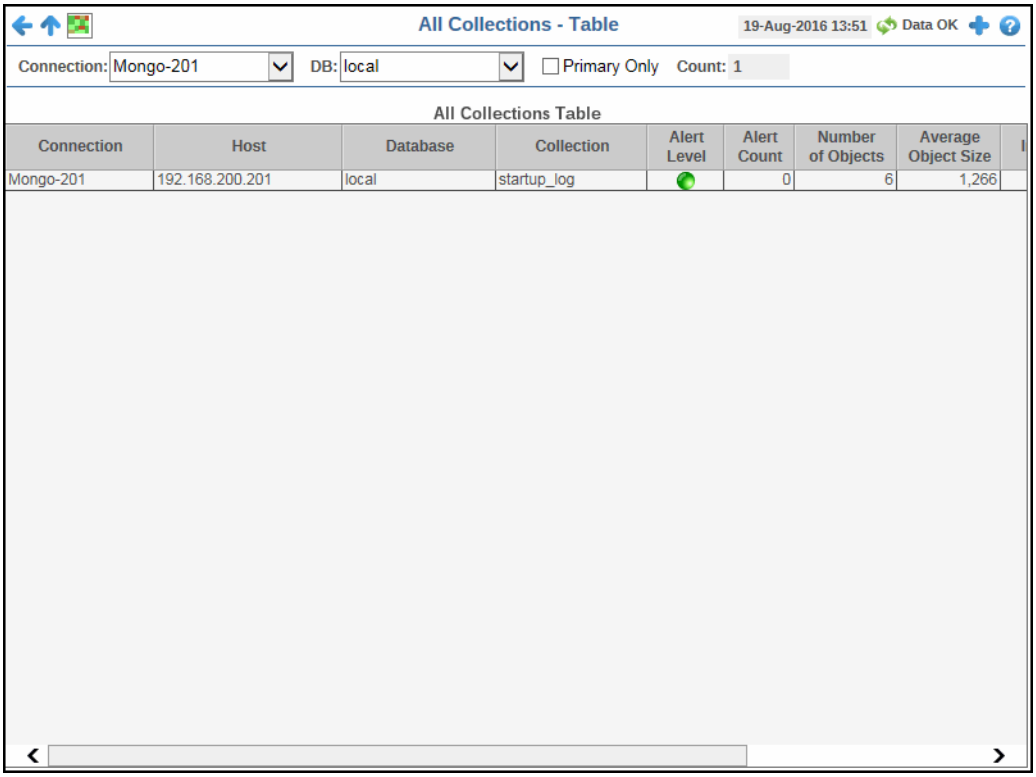
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

AvgObjectSize

The average size (in bytes) of an object in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

All Collections Table

Track performance and utilization metrics for all collections on a single database, or for all connections on all databases.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

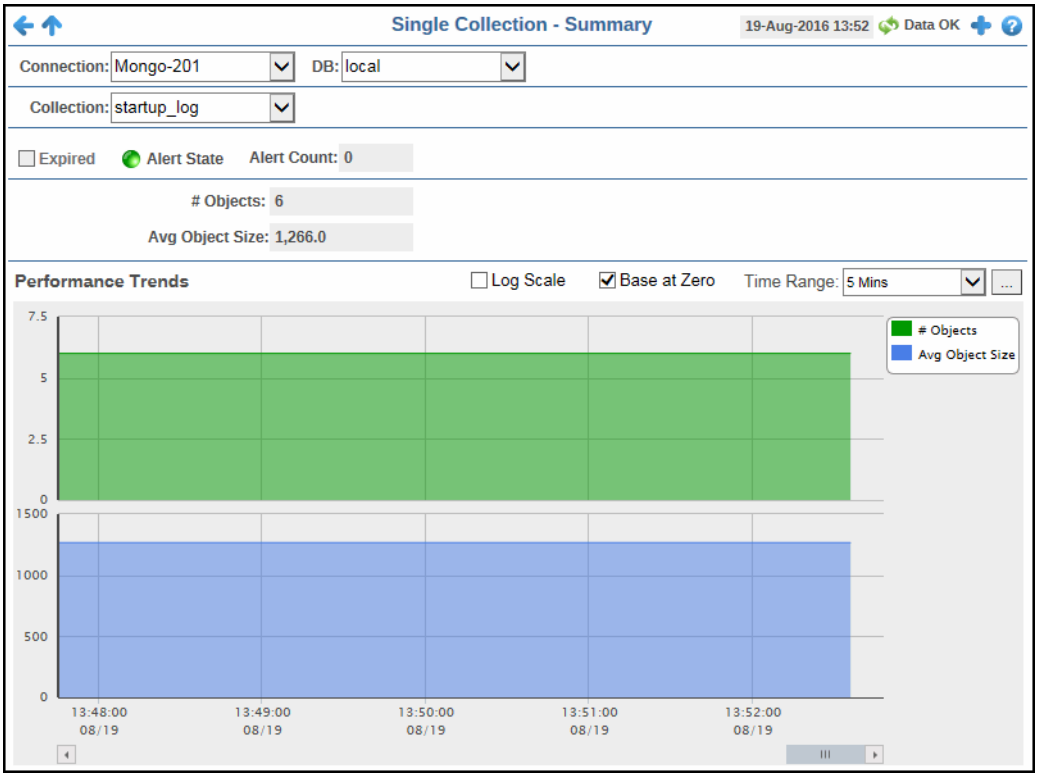
Connection	Select the connection for which you want to view collection data.
DB	Select the database for which you want to view collection data, or select **All Databases** to view all collections for all databases.
Primary Only	Selecting this check box displays connections in the table that have **Designation in Set** (within a replica set) defined as **Primary**, as well as those connections that are not part of a replica set (do not have a defined **Designation in Set**). Those connections with **Designation in Set** defined as **Secondary** will not be displayed.

Count	The total number of collections found for the selected database(s).
All Collections Table	This table describes all topics on the selected server. Click a row to view metrics for a single topic in the "Collection Summary" display.

Connection	The name of the connection.
Host	The name of the host.
Database	The name of the database.
Collection	The name of the collection.
Alert Level	The current alert level. -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold. -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. -- No alerts have exceeded an alert threshold.
Alert Count	The total number of alerts for the database.
Number of Objects	The total number of objects or documents in the collection.
Average Object Size	The average size, in bytes, of the objects in the collection.
Indexes	The total number of indexes in the collection.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
time_stamp	The date and time this row of data was last updated.

Collection Summary

Track performance and utilization metrics for a single collection on a single database.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Connection	Select the connection for which you want to view collection data.
DB	Select the database for which you want to view collection data, or select **All Databases** to view all collections for all databases.
Collection	Select the connection for which you want to view data.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **MongoDB** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert level.

-- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.

-- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold.

-- No alerts have exceeded an alert threshold.

Alert Count The total number of alerts for the database.

 # Objects The total number of objects in the collection.

Avg Object Size The average size, in bytes, of the objects in the collection.

Performance Trends Graph Shows message data for the selected collection.

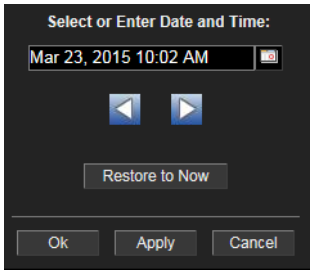
 # Objects -- Traces the total number of objects in the collection.

Avg Object Size -- Traces the average size of objects in the collection.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 15 Solution Package for MySQL Database

This section describes how to configure, start and use the Solution Package for MySQL Database.

The Solution Package for MySQL Database comes with RTView Enterprise Monitor. However, the displays are empty until you "Configure Solution Package Projects" for the Solution Package.

See **README_sysreq.txt** for the full system requirements for RTView®.

The Solution Package for MySQL Database is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your MySQLDB instances, databases, and collections.

The Solution Package for MySQL Database enables MySQLDB users to continually assess and analyze the health and performance of their infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their messaging system. It does so by aggregating and analyzing key performance metrics across all instances, databases, and collections, and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Solution Package for MySQL Database also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

For Linux, these instructions require a BASH-compatible shell.

This section includes:

Configuration Parameters You Need

- **PackageName=mysql**
- **ServerDirectory=miscmon**
- **AlertPrefix=Mysql**

Configure Data Collection

To configure data collection, use the "RTView Configuration Application" to do the following in the order provided:

- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Set the poll rate interval for data updates and enable/disable autodiscover. This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

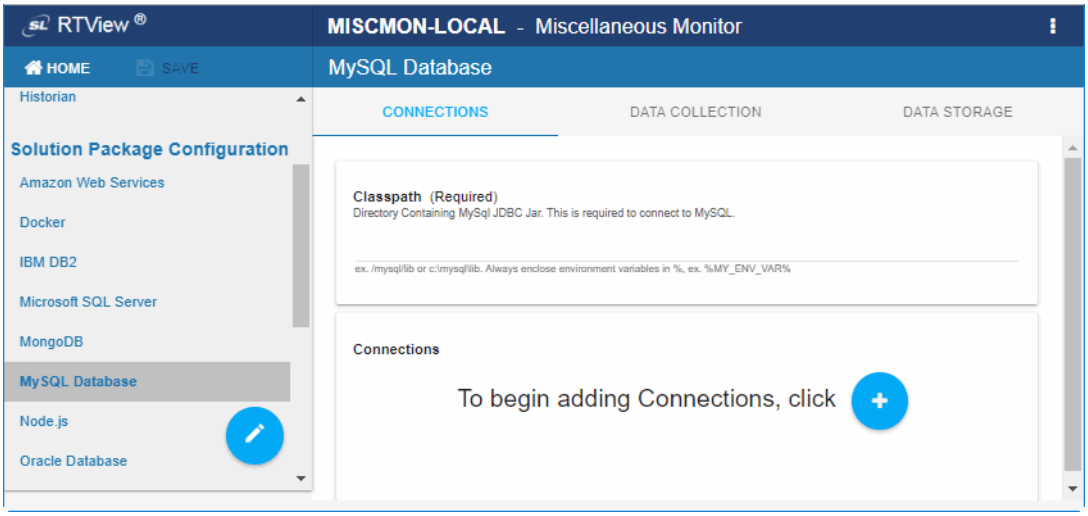
  Tip: Gray servers are either not running or not yet configured for RTView EM.

Configure CONNECTIONS

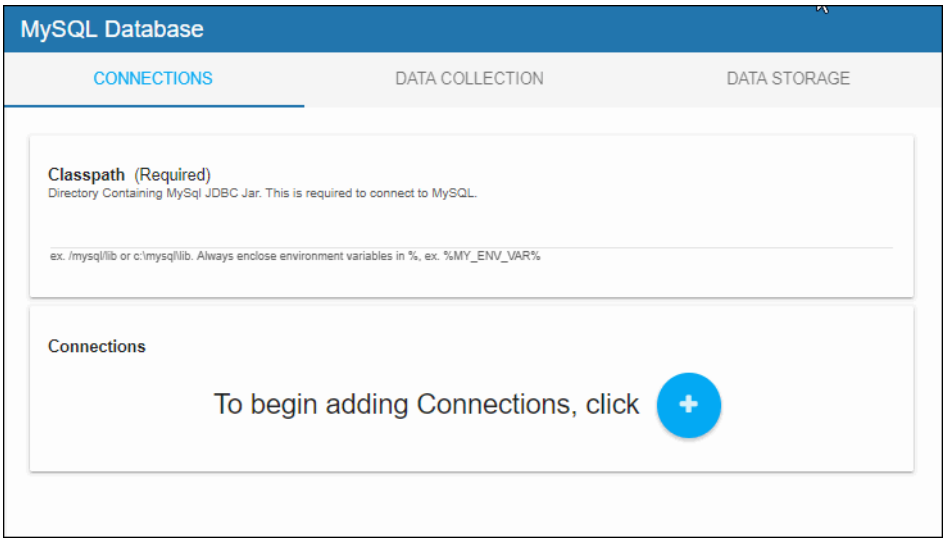
This step is required.

To configure data connections for the Solution Package for MySQL Database:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **MySQL Database** from the navigation tree (left panel).



2. On the **CONNECTIONS** tab, provide the correct full paths to the MySQL jar files in the **Classpath** field.



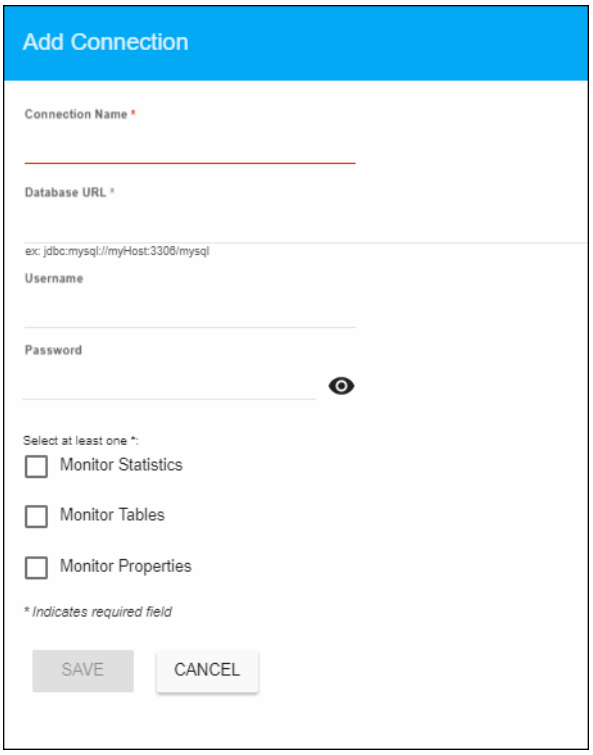
3. **Save**.

4. Click  to open the **Add Connection** dialog.

5. In the **Add Connection** dialog, enter the complete **Connection Name** (this must be unique)**, Database URL**, and optionally a **Username** and **Password**.

6. Choose at least one of the following:

- **Monitor Statistics**: Enables monitoring of MySQL Statistics. If this is not selected the MySQL Statistics displays in the monitor will not contain data for this connection.
- **Monitor Tables**: Enables monitoring of MySQL Tables. If this is not selected the MySQL Tables displays in the monitor will not contain data for this connection.
- **Monitor Properties**: Enables monitoring of MySQL Properties. If this is not selected the MySQL Properties displays in the monitor will not contain data for this connection. .



7. **Save** your settings. The newly created connection displays in the **Connections** section.

8. Repeat these instructions for each MySQL Database to be monitored.

Proceed to "Setup DATA COLLECTION," next (you can do this later).

Setup DATA COLLECTION

This step is optional.

Use the RTView Configuration Application to configure data collection for the Solution Package for MySQL Database. You can specify **Poll Rates** (query interval, in seconds) that will be used to collect the metric data.

To configure data collection for the Solution Package for MySQL Database:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **MySQL Database** from the navigation tree (left panel).

2. In the Configuration Utility, choose the **DATA COLLECTION** tab.

3. Make the following entries as appropriate:

   Poll Rate: Enter the time interval, in seconds, to check for data updates. The MysqlServerPropertiesForDisplay cache is impacted by this field.

   Poll Rate Large: Enter the time interval, in seconds, to check for data updates. The caches impacted by this field are MysqlAborted, MysqlBytes, MysqlCRUD, MysqlUptime, MysqlThreads, MysqlQcache, MysqlQueries, MysqlSummaryTable, MysqlCreatedTemp, MysqlOpenedMetrics, MysqlTableLockMetrics, MysqlBinlogMetrics, MysqlConnection, MysqlSelectMetrics and MysqlTableStats.

4. **Save** your settings.

Proceed to "Configure DATA STORAGE," next (you can do this later).

Configure DATA STORAGE

This step is optional.

Use the RTView Configuration Application to configure data storage for the Solution Package for MySQL Database. You can specify These instructions show how to configure how your Solution Package for MySQL Database data is stored. This includes both in-memory History data and on-disk History data. You can set size limits, storage duration (when to expire or remove data) and data compaction intervals (rules for reducing/increasing the amount of data stored).

To configure data storage for the Solution Package for MySQL Database:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **MySQL Database** from the navigation tree (left panel).

2. In the Configuration Utility, choose the **DATA COLLECTION** tab.

3. Under **Size**, make the following entries:

   History Rows: The maximum number of table rows to keep in he History table. If set to **0**, no History table is created. The caches impacted by this field are MysqlAborted, MysqlBytes, MysqlCRUD, MysqlQueries, MysqlTableLockMetrics, MysqlBinlogMetrics and MysqlConnections.

4. Under **Compaction**, make the following entries:

   Condense Interval: The number of seconds to wait to condense cached history data. The caches impacted by this field are MysqlAborted, MysqlBytes, MysqlCRUD, MysqlQueries, MysqlTableLockMetrics, MysqlBinlogMetrics and MysqlConnection.

   Condense Raw Time: The number of seconds to wait to condense data in the cache history table. The caches impacted by this field are MysqlAborted, MysqlBytes, MysqlCRUD, MysqlQueries, MysqlTableLockMetrics, MysqlBinlogMetrics and MysqlConnection.

   Compaction Rules: Specifies the frequency for condensing data. The caches impacted by this field are MysqlAborted, MysqlBytes, MysqlCRUD, MysqlQueries, MysqlTableLockMetrics, MysqlBinlogMetrics andMysqlConnection.

5. Under **Duration**, make the following entry:

Expire Time: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The caches impacted by this field are MysqlAborted, MysqlBytes, MysqlCRUD, MysqlQueries, MysqlTableLockMetrics, MysqlBinlogMetrics and MysqlConnection.

6. Under **History Storage**, toggle to enable/disable the types of data you want the Historian to store for the Solution Package:

7. Under **History Table Name Prefix**: Enter a prefix that you will recognize to prepend to the history data table names for these metrics.

   The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under RTVAPM_HOME/mysql/dbconfig and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

8. **Save** your settings (choose  if **SAVE** is not visible, or expand your browser width).

9. Repeat this step for each MySQL Database you wish to monitor.

Return to "Add Connections".

Troubleshoot

This section includes:

Historian Error

If you encounter this error (which is associated with the Historian and your MYSQL database rather than the Solution Package):

MYSQL: SQLException: Can't call commit when autocommit=true

relax autocommit in the URL specified for your connection, as follows:

jdbc:mysql://MyHOST:3306/MyDB?relaxAutoCommit=true

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

MySQL Database Monitor Views/Displays

The MySQL Databases displays provide extensive visibility into the health and performance of the MySQL database included in the AMI package. These displays are populated with performance data if you are using the Solution Package for Solace AMI version.

The following MySQL Database Monitor Views (and their associated displays) can be found under **Components** tab **> Databases > MySQL Database** once the Solution Package for MySQL Database is installed.

This section contains the following Views:

- "All MySQL Databases"
- "Single MySQL Database"

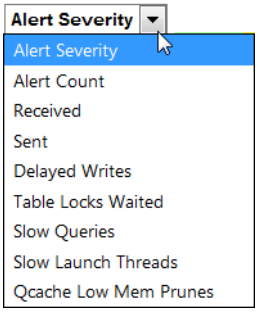
All MySQL Databases

Displays in this View are:

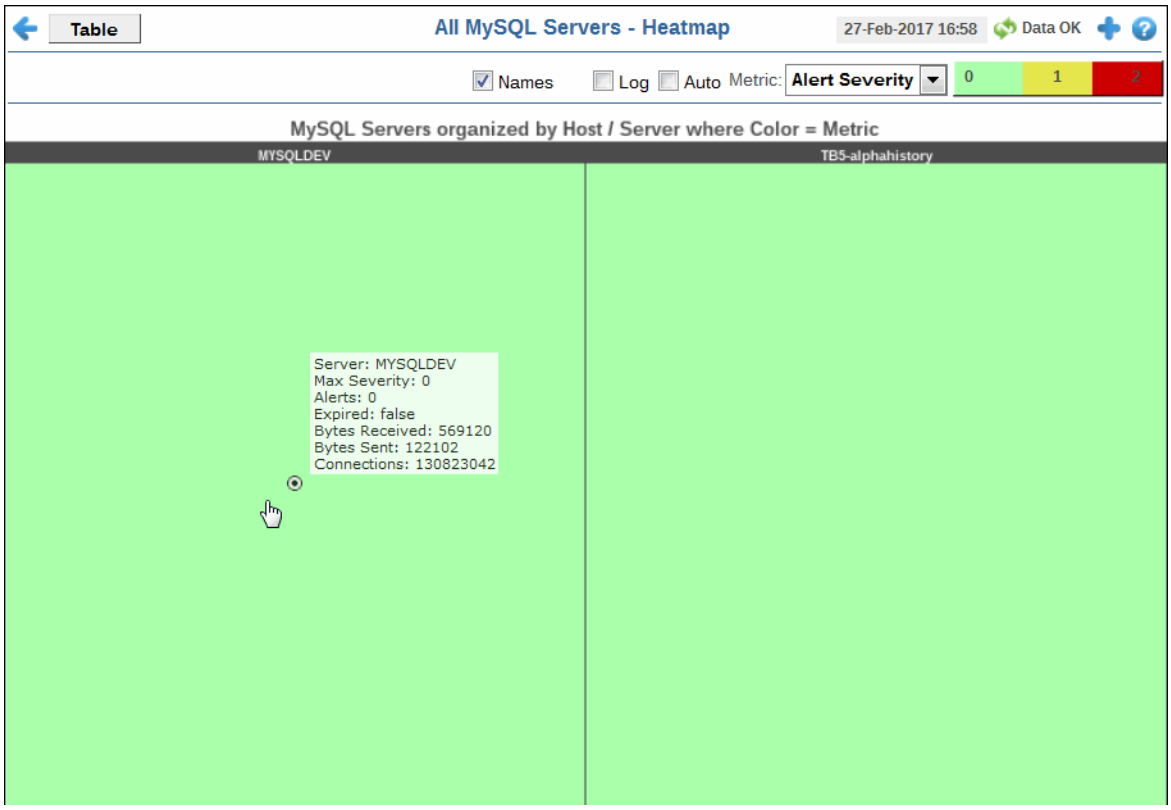
- "All Servers Heatmap" on page 548: A heatmap view of all servers and their associated metrics.
- "All Servers Table" on page 551: A tabular view of your servers and their associated metrics.

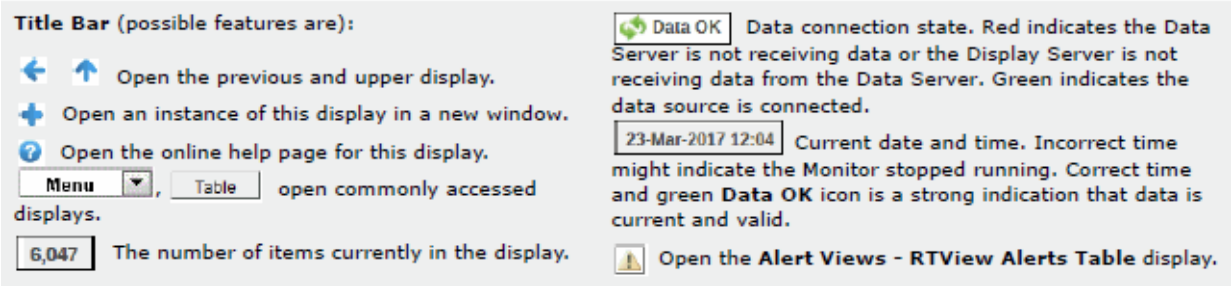
All Servers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your servers. Choose a metric from the **Metric** drop down menu. By default, this display shows the heatmap based on the **Alert Severity** metric. Other metrics are Alert Count, Received, Sent, Delayed Writes, Table Locks Waited, Slow Queries, Slow Launch Threads and Qcache Low Mem Prunes.



Each rectangle in the heatmap is a different server. Use the **Names** check-box ☑ to include or exclude labels in the heatmap, and mouse over a rectangle to see additional metrics for a server. Click a rectangle to open the "Server Summary" display and see additional details for the selected server.





Fields and Data:

Names	Select this check box to display the names of the instances at the top of each rectangle in the heatmap.
Log	Select to this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. **Note:** Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display. For details about the data, refer to vendor documentation.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Received The total number of bytes received. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the alarm threshold specified for the **MysqlBytesReceivedHigh** alert. The middle value in the gradient bar indicates the average count.

Sent The total number of bytes sent. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the alarm threshold specified for the **MysqlBytesSentHigh** alert. The middle value in the gradient bar indicates the average count.

Delayed Writes The total number of delayed writes. Values range from **0** to the alarm threshold specified for the **MysqlDelayedWrites** alert. The middle value in the gradient bar indicates the average count:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Table Locks Waited The total number of table locks waited. Values range from **0** to the alarm threshold specified for the **MysqlLocksWaited** alert. The middle value in the gradient bar indicates the average count:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Slow Queries The total number of slow queries. Values range from **0** to the alarm threshold specified for the **MysqlSlowQueries**. The middle value in the gradient bar indicates the average count:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Slow Launch Threads The total number of slow launch threads. Values range from **0** to the alarm threshold specified for the **MysqlSlowThreads**. The middle value in the gradient bar indicates the average count:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Qcache Low Mem Prunes The total number of Qcache low memory prunes. Values range from **0** to the alarm threshold specified for the **MysqlQcacheLowMemPrunes**. The middle value in the gradient bar indicates the average count:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

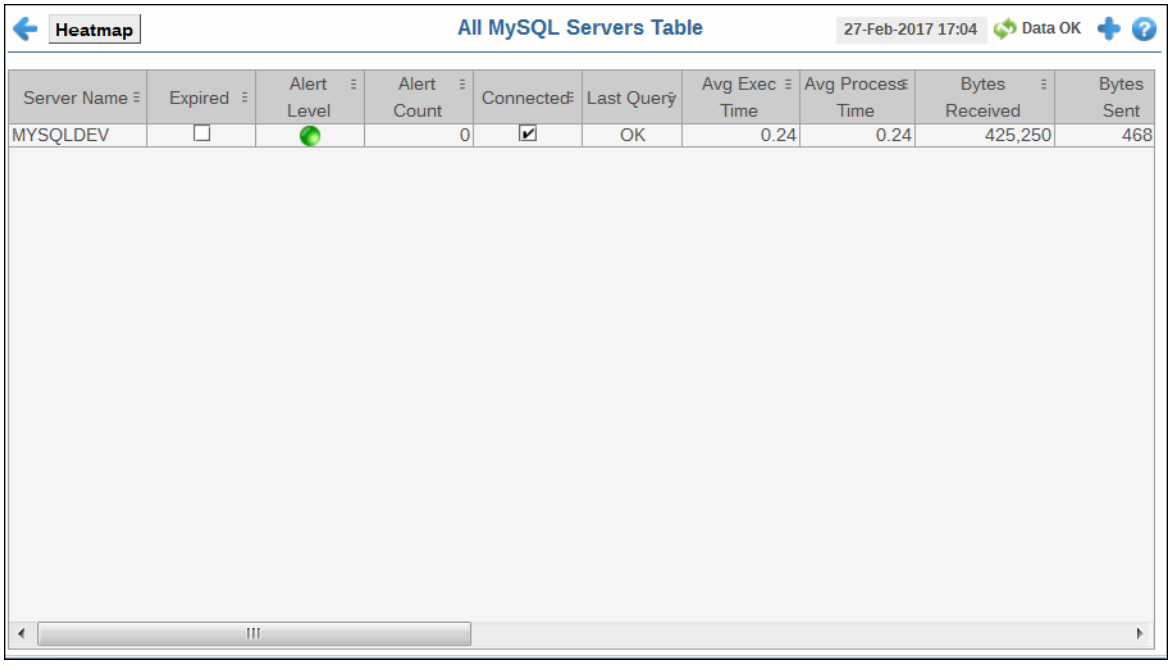
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

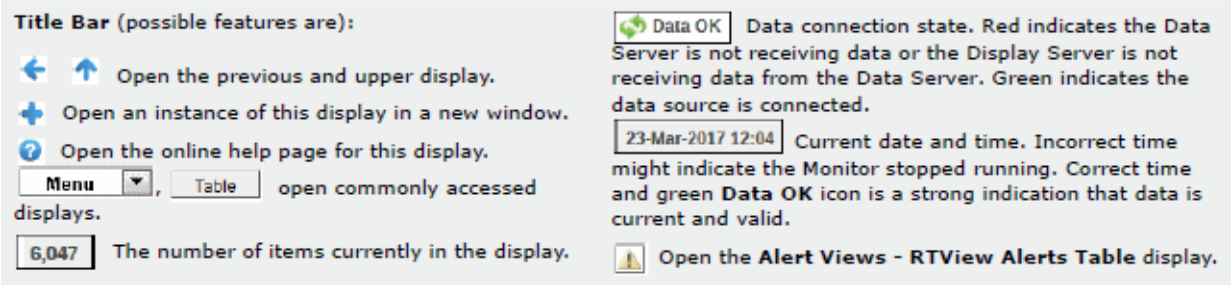
Green indicates that no metrics have exceeded their alert thresholds.

All Servers Table

This display provides a tabular view of the performance metrics shown in the "All Servers Heatmap" (alert level, alert count, bytes received, and so forth), as well as additional metrics (such as query information and uptime).

Each table row is a different server. Click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for a server in the "Server Summary" display.





All MySQL Servers Table

Server Name The name of the server.

Expired When checked, performance data about the server has not been received within the time specified (in seconds) in the **$mysqlRowExpirationTime** field in the **conf\rtvapm_mysqlmon.properties** file. The **$mysqlRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the server. To view/edit the current values, modify the following lines in the **.properties** file:

```
##########################
# CACHE / HISTORIAN SETTINGS
#
collector.sl.rtview.sub=$mssqlRowExpirationTime:120
collector.sl.rtview.sub=$mssqlRowExpirationTimeForDelete:0
```

In the example above, the **Expired** check box would be checked after 120 seconds, and the row would never be deleted. If **$mysqlRowExpirationTimeForDelete** was set to 3600, then the row would be removed from the table after 3600 seconds.

Alert Level The current alert severity.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of alerts for the server.

Connected When checked, the server is connected.

Last Query The status of the last query made:

Avg Exec Time The average amount of execution time, in seconds.

Avg Process Time The average amount of process time, in seconds.

Bytes Received The total number of bytes received since the server was last started.

Connections The total number of connections since the server was last started.

Delayed Writes The total number of delayed writes.

Queries The total number of queries.

Query Objects The total number of query objects.

Slow Queries The total number of slow queries.

Total Executions	The total number of executions.
Uptime	The amount of time since the server was last started, in seconds.
Concurrent	When checked, the database allows concurrent usage.
Enabled	When checked, the database is enabled for usage.
Timestamp	The data and time of the last data update.

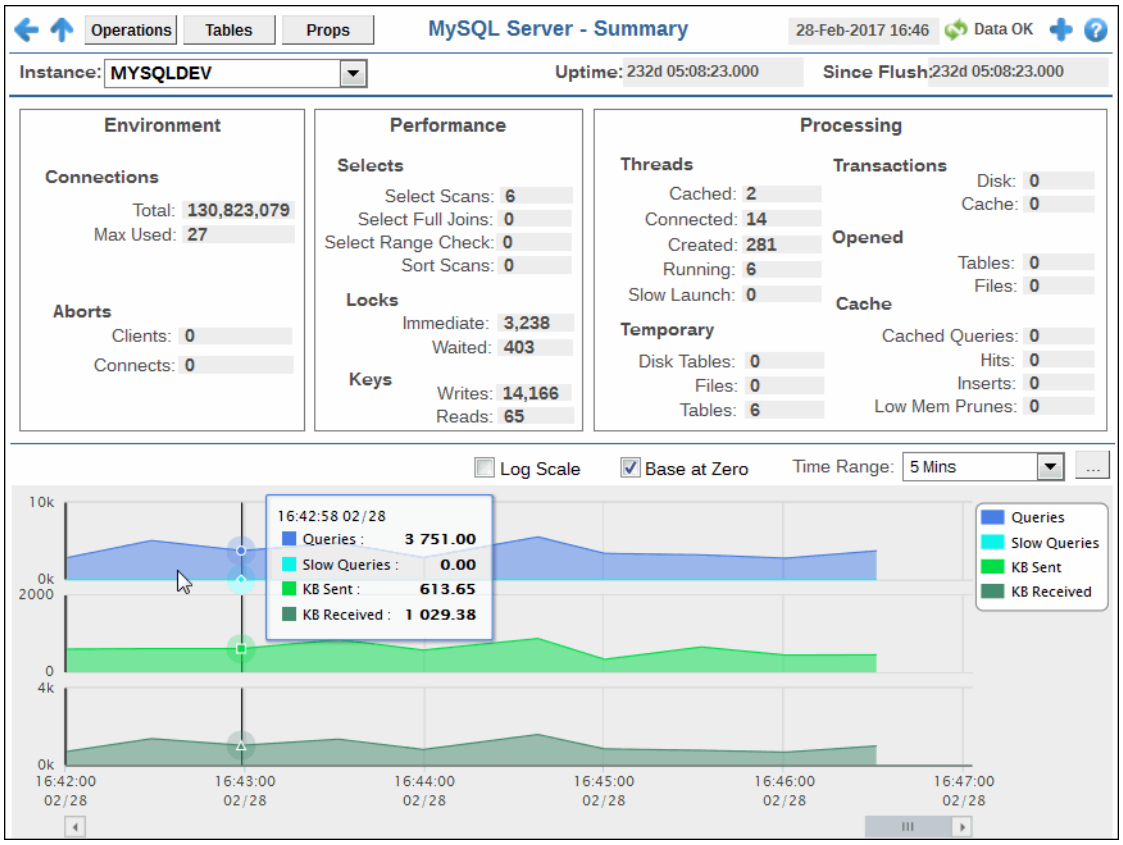
Single MySQL Database

Displays in this View are:

- "Server Summary" on page 554: Displays performance, processing, alerts, memory, and trend data for a particular database server.
- "Servers Properties" on page 556: Displays the values of properties on servers.
- "Servers Operations" on page 557: Trend graph that traces server queries, slow queries, KB sent and KB received.
- "User Tables" on page 559: A tabular view of cache tables performance and utilization metrics.

Server Summary

View connection, performance and processing details for a single MySQL database server, as well as trending data for the number of kilobytes received and queries. Choose an instance from the **Instance** drop-down menu. Mouse over the trend graph to see performance metrics with time stamps.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Instance: Select the instance for which you want to show data in the display.

Fields and Data: For details about the data in this display, please refer to vendor documentation.

Uptime The amount of time since the server was last started, in number of days, hours, minutes and seconds.

Since Flush The amount of time since the last flush, in number of days, hours, minutes and seconds.

Performance Trend Graph

Traces the following:

Queries: Traces the amount queries per second.

Slow Queries: Traces the amount of slow queries per second.

KB Sent: Traces the number of kilobytes sent per second.

KB Received: Traces the number of kilobytes received per second.

Log

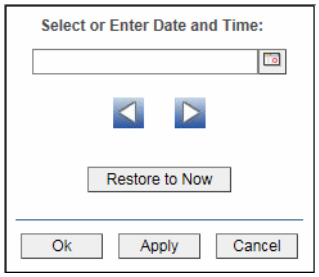
Select to this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

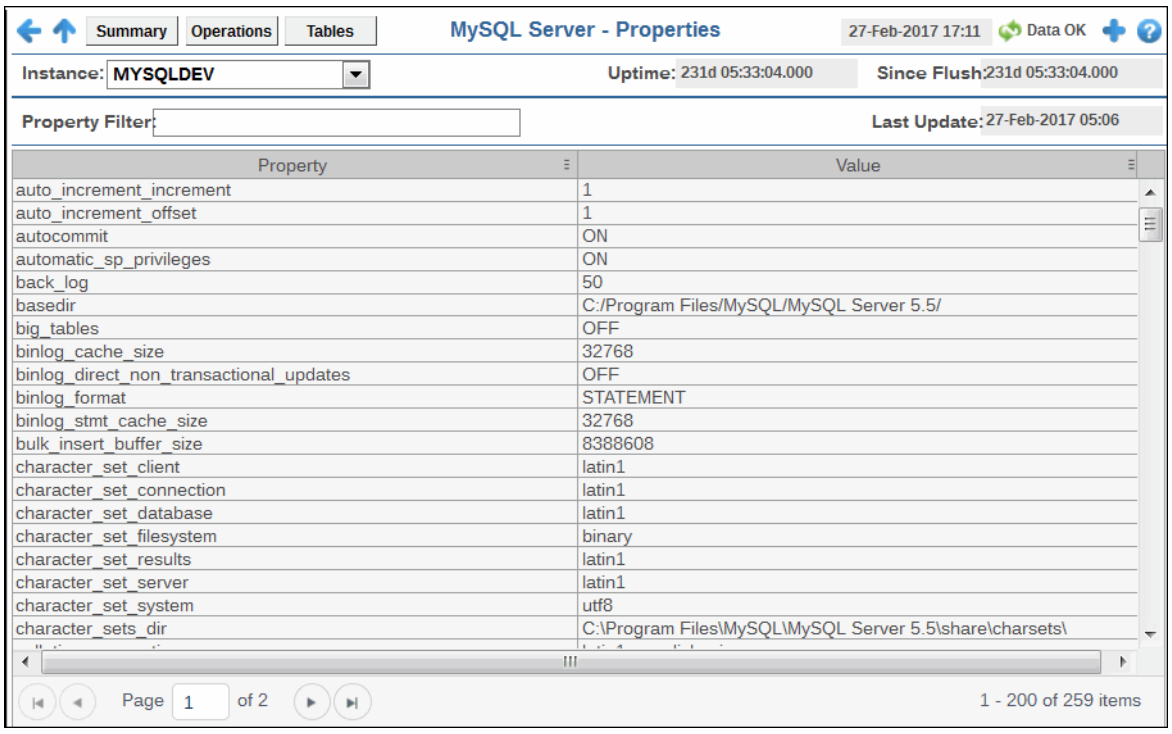
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

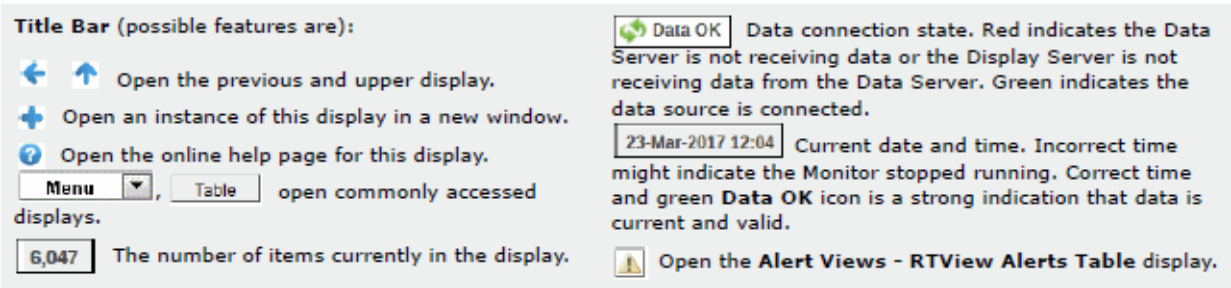
Click **Restore to Now** to reset the time range end point to the current time.

Servers Properties

View properties and property values for a single MySQL database server.

Choose an instance from the **Instance** drop-down menu. Each table row is a different property for the selected instance. Enter a search string in the **Property Filter** field to limit the number of table rows. Click a column header to sort column data in numerical or alphabetical order.





Filter By:

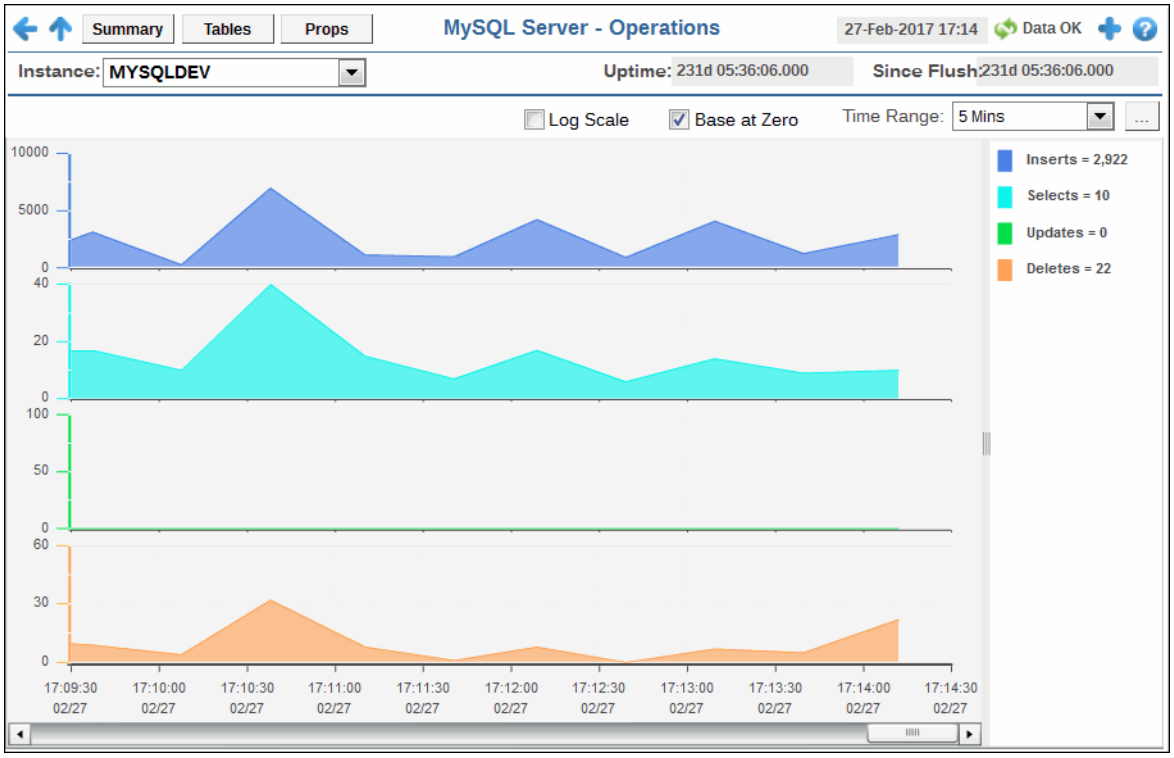
Instance	Select the database for which you want to show data in the display.

Fields and Data:

Uptime	The amount of time since the server was last started, in number of days, hours, minutes and seconds.
Property Filter:	Enter a search string to filter the number of table rows.
Since Flush	The amount of time since the last flush, in number of days, hours, minutes and seconds.

Servers Operations

View trending performance data for a single MySQL database server: **Inserts**, **Selects**, **Updates** and **Deletes**. Choose an instance from the **Instance** drop-down menu. Mouse over the trend graph to see performance metrics with time stamps.



Title Bar (possible features are):

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- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Instance	Select the database for which you want to show data in the display.

Fields and Data:

Uptime	The amount of time since the server was last started, in number of days, hours, minutes and seconds.
Property Filter:	Enter a search string to filter the number of table rows.
Since Flush	The amount of time since the last flush, in number of days, hours, minutes and seconds.

Performance Trend Graph

Traces the following:

Inserts: Traces the number of inserts per second.

Selects: Traces the number of selects per second.

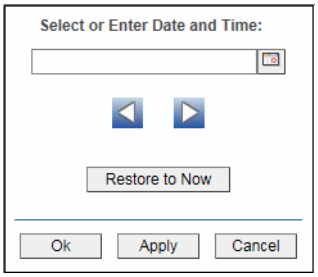
Updates: Traces the number of updates per second.

Deletes: Traces the number of deletes per second.

Log Select to this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



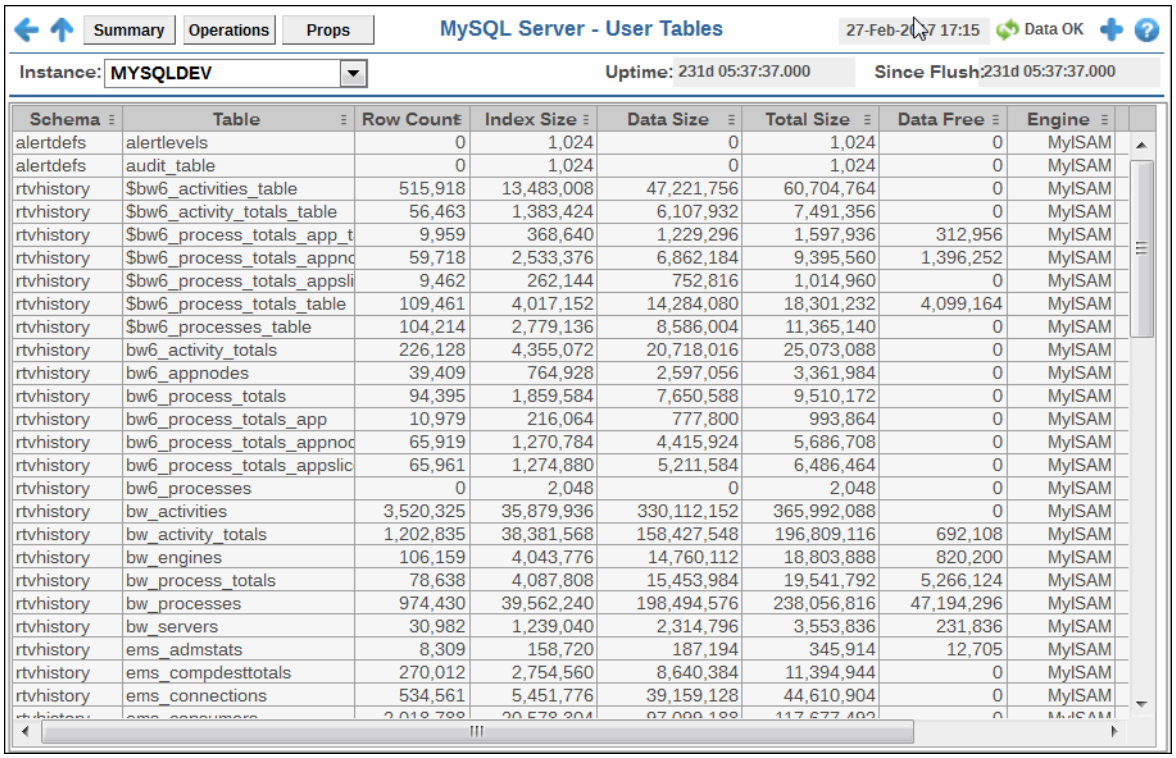
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

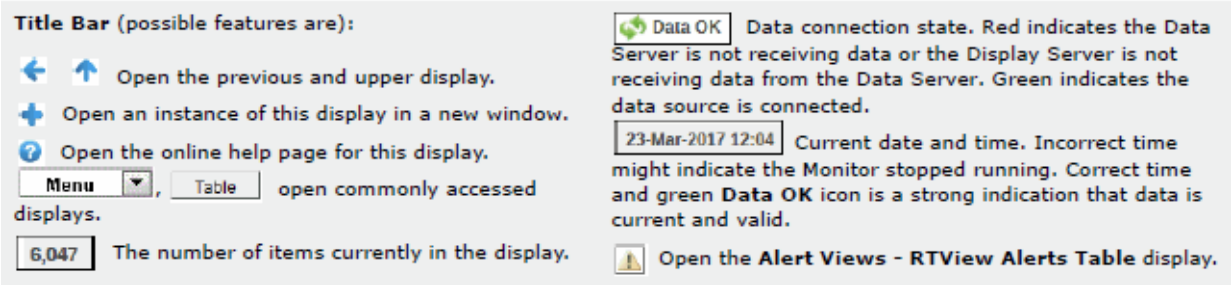
Click **Restore to Now** to reset the time range end point to the current time.

User Tables

View performance and utilization details for cache tables for a single MySQL database server. Each row is a different cache table. Choose an instance from the **Instance** drop-down menu. Click a column header to sort column data in numerical or alphabetical order.



Schema	Table	Row Count	Index Size	Data Size	Total Size	Data Free	Engine
alertdefs	alertlevels	0	1,024	0	1,024	0	MyISAM
alertdefs	audit_table	0	1,024	0	1,024	0	MyISAM
rtvhistory	$bw6_activities_table	515,918	13,483,008	47,221,756	60,704,764	0	MyISAM
rtvhistory	$bw6_activity_totals_table	56,463	1,383,424	6,107,932	7,491,356	0	MyISAM
rtvhistory	$bw6_process_totals_app_t	9,959	368,640	1,229,296	1,597,936	312,956	MyISAM
rtvhistory	$bw6_process_totals_appnc	59,718	2,533,376	6,862,184	9,395,560	1,396,252	MyISAM
rtvhistory	$bw6_process_totals_appsli	9,462	262,144	752,816	1,014,960	0	MyISAM
rtvhistory	$bw6_process_totals_table	109,461	4,017,152	14,284,080	18,301,232	4,099,164	MyISAM
rtvhistory	$bw6_processes_table	104,214	2,779,136	8,586,004	11,365,140	0	MyISAM
rtvhistory	bw6_activity_totals	226,128	4,355,072	20,718,016	25,073,088	0	MyISAM
rtvhistory	bw6_appnodes	39,409	764,928	2,597,056	3,361,984	0	MyISAM
rtvhistory	bw6_process_totals	94,395	1,859,584	7,650,588	9,510,172	0	MyISAM
rtvhistory	bw6_process_totals_app	10,979	216,064	777,800	993,864	0	MyISAM
rtvhistory	bw6_process_totals_appnoc	65,919	1,270,784	4,415,924	5,686,708	0	MyISAM
rtvhistory	bw6_process_totals_appslic	65,961	1,274,880	5,211,584	6,486,464	0	MyISAM
rtvhistory	bw6_processes	0	2,048	0	2,048	0	MyISAM
rtvhistory	bw_activities	3,520,325	35,879,936	330,112,152	365,992,088	0	MyISAM
rtvhistory	bw_activity_totals	1,202,835	38,381,568	158,427,548	196,809,116	692,108	MyISAM
rtvhistory	bw_engines	106,159	4,043,776	14,760,112	18,803,888	820,200	MyISAM
rtvhistory	bw_process_totals	78,638	4,087,808	15,453,984	19,541,792	5,266,124	MyISAM
rtvhistory	bw_processes	974,430	39,562,240	198,494,576	238,056,816	47,194,296	MyISAM
rtvhistory	bw_servers	30,982	1,239,040	2,314,796	3,553,836	231,836	MyISAM
rtvhistory	ems_admstats	8,309	158,720	187,194	345,914	12,705	MyISAM
rtvhistory	ems_compdesttotals	270,012	2,754,560	8,640,384	11,394,944	0	MyISAM
rtvhistory	ems_connections	534,561	5,451,776	39,159,128	44,610,904	0	MyISAM



Filter By:

Instance Select the database for which you want to show data in the display.

Fields and Data: For details about the data in this display, please refer to vendor documentation.

Uptime The amount of time since the server was last started, in number of days, hours, minutes and seconds.

Property Filter: Enter a search string to filter the number of table rows.

Since Flush The amount of time since the last flush, in number of days, hours, minutes and seconds.

Table

Schema	The name of the database.
Table	The name of the table.
Row Count	The number of rows currently in the table.
Index Size	The size of the table indexes, in bytes.
Data Size	The size of the data stored in the table, in bytes (Total Size - Index Size = Data Size).
Total Size	The total size of the table, in bytes.
Data Free RX	The amount of available space that can be reclaimed to store new data, in bytes.
Engine	The storage engine handling the SQL operations.
Last Updated	The time of the last data update.

CHAPTER 16 Solution Package for Node.js

The Solution Package for Node.js is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your Node.js node instances, node requests, and node processes.

The Monitor enables Node.js users to continually assess and analyze the health and performance of their infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their messaging system. It does so by aggregating and analyzing key performance metrics across all instances, requests, and processes, and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

Most of the setup in this chapter is done in the RTView Configuration Application. See "RTView Configuration Application" for more information on accessing and using the RTView Configuration Application.

This section includes:

Configuration Parameters You Need

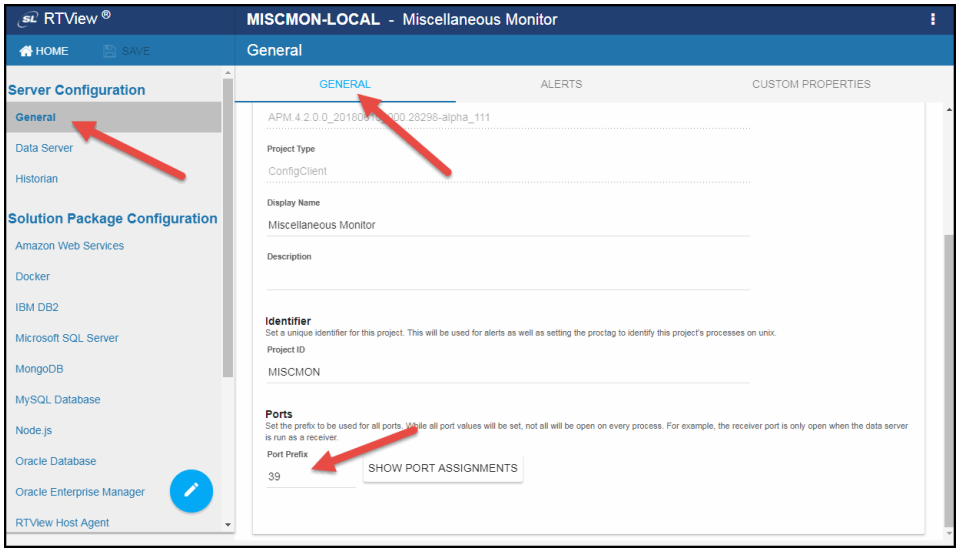
To configure the Solution Package for Node.js make a note of the following values:

- **PackageName=nodemon**
- **ServerDirectory=miscmon**
- **AlertPrefix=Node**

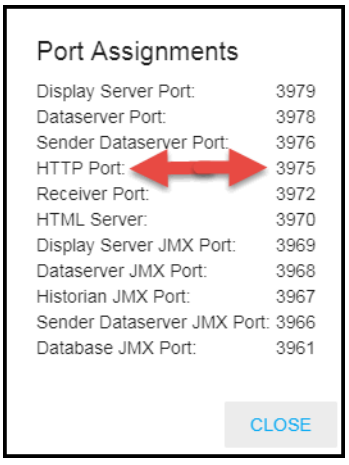
Configure Data Collection

The default port used for data collection is defined in the "RTView Configuration Application" under **Server Configuration** > **General** > **Ports**. To modify the default, perform the following:

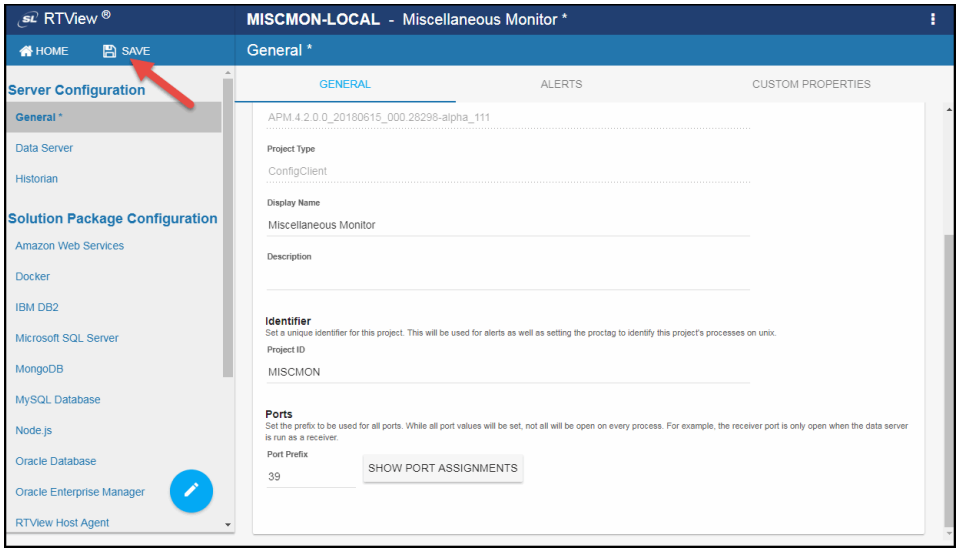
1. Open the "RTView Configuration Application" and navigate to **Server Configuration** > **General** > **GENERAL** (tab) >**Ports**.



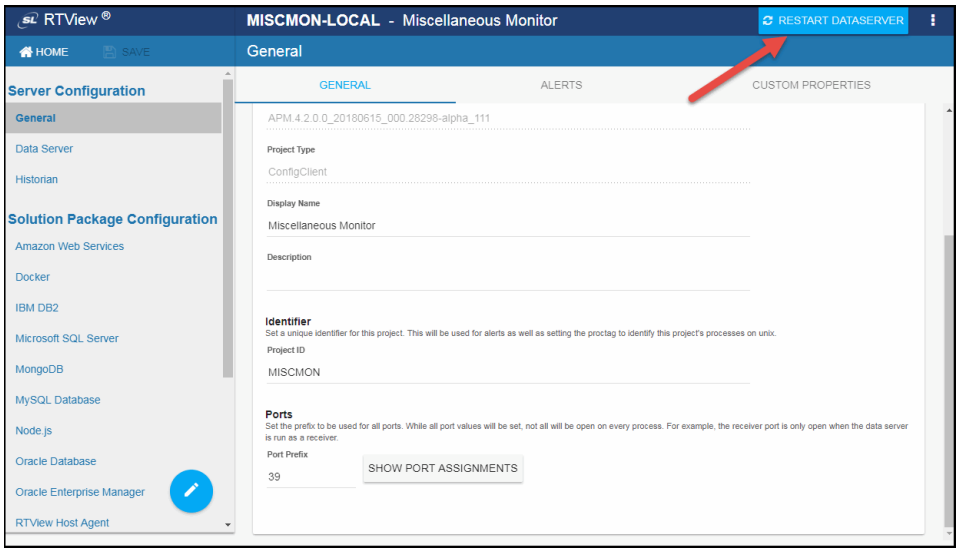
2. Specify the Node.js rtvhttp data adapter port prefix to which you want to connect (to enable the Monitor to collect data). The last two numbers in the **HTTP Port** are automatically set to 75. You can click the **SHOW PORT ASSIGNMENTS** button to see the default port assignments. For example, if you specify 39 as the **Port Prefix**, then the combined port will be 3975.



3. Save your changes in the RTView Configuration Application.



4. To apply the changes you made, you must restart the data server, which can be done by clicking the **RESTART DATASERVER** button that appears once changes have been saved. Clicking this button automatically restarts the data server and takes you back to the projects page, which will require you to wait for a couple of minutes for the data server to restart. Once the data server has restarted, you can select the project again to verify your changes. Note that this process only restarts the data server. See "RTView Configuration Application" for more information.



Additional Configurations

This section describes the additional optional Solution Package for Docker configurations:

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. Once you have made all of your changes, you need to save your changes in the RTView Configuration Application and restart your data server for the changes to take place. See "RTView Configuration Application" for more information. This section contains the following:

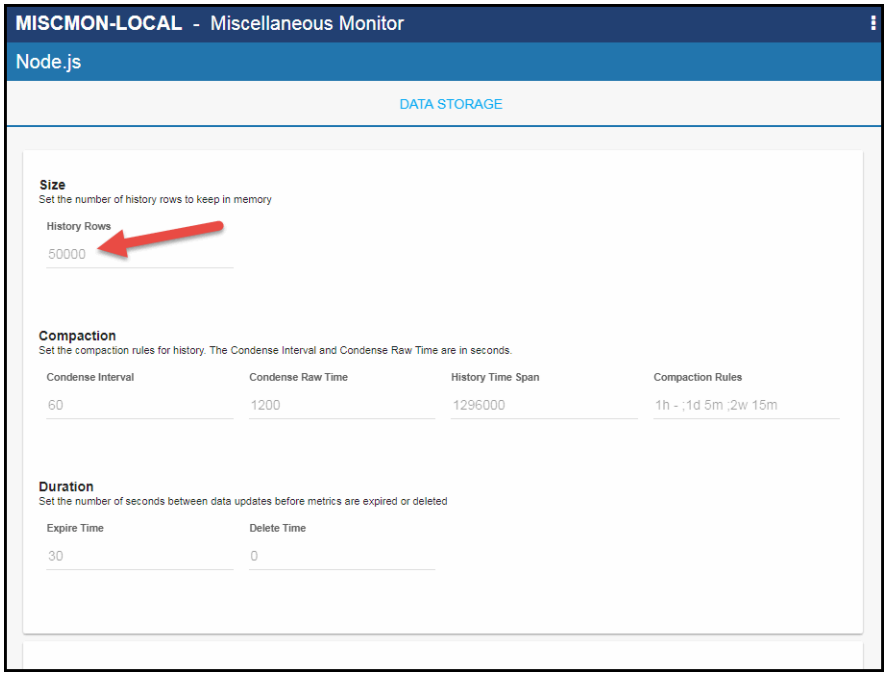
- "Defining the Storage of In-Memory History for NODEMON"
- "Defining NODEMON Compaction Rules"
- "Defining Expiration and Deletion Duration for NODEMON Metrics"
- "Enabling/Disabling Storage of NODEMON Historical Data"
- "Defining a Prefix for All History Table Names for NODEMON Metrics"

Defining the Storage of In-Memory History for NODEMON

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the NodeProcess, NodeResponseTime, NodeInfo, and NodeRequests caches. The default settings for **History Rows** is 50,000. To update the default setting:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining NODEMON Compaction Rules

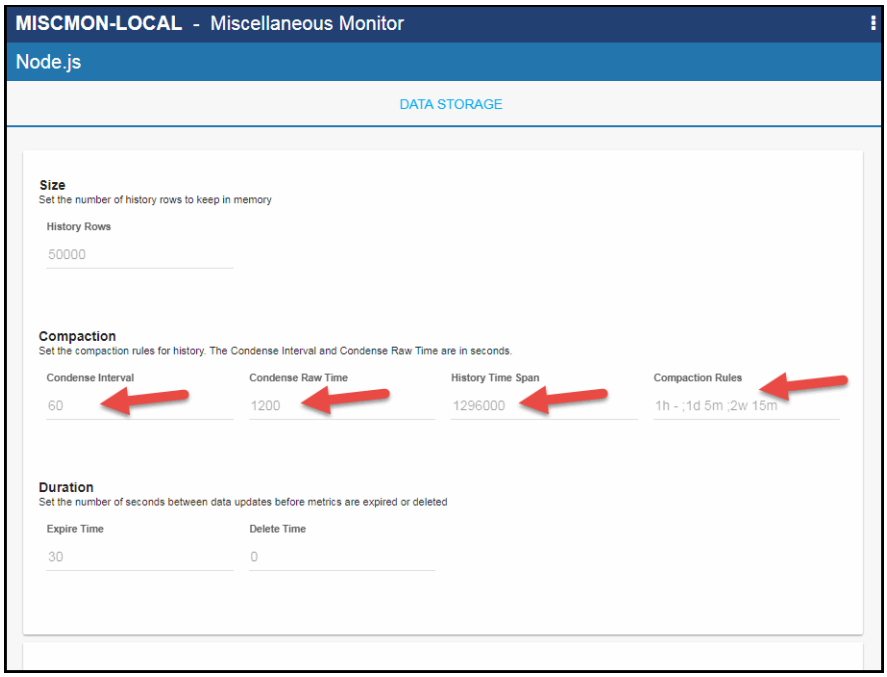
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: NodeProcess, NodeResponseTime, NodeInfo, and NodeRequests. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: NodeProcess, NodeResponseTime, NodeInfo, and NodeRequests. The default is 1200 seconds.
- **History Time Span** -- The time span of data kept in the cache history table for the following cache: NodeProcess, NodeResponseTime, NodeInfo, and NodeRequests.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: NodeProcess, NodeResponseTime, NodeInfo, and NodeRequests. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, **History Time Span**, and **Compaction Rules** fields and specify the desired settings.

Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



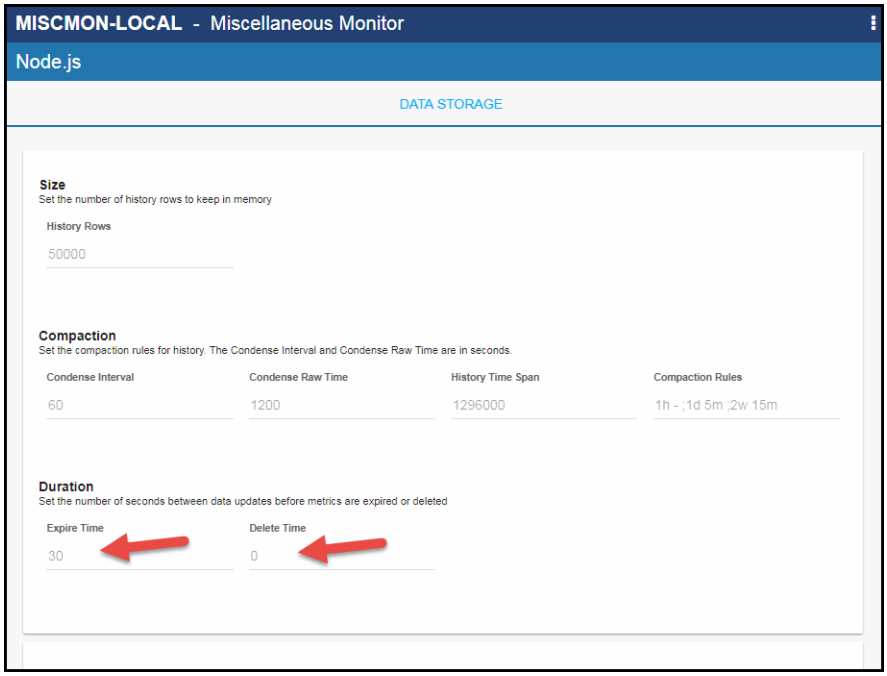
Defining Expiration and Deletion Duration for NODEMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The following caches are impacted by settings in the **Expire Time** and **Delete Time** fields: NodeProcess, NodeResponseTime, NodeInfo, and NodeRequests. To modify these defaults:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

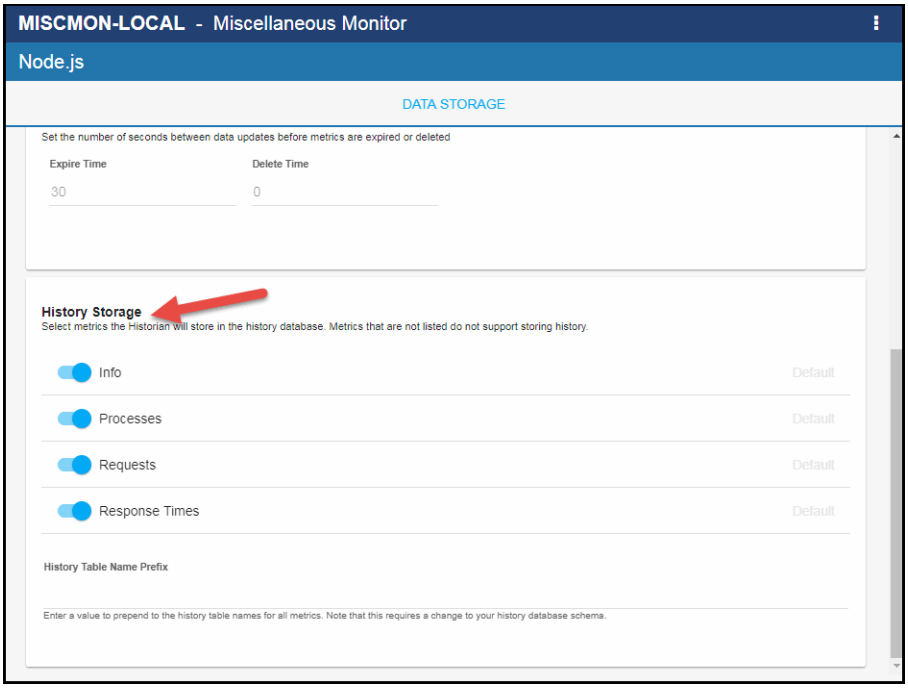


Enabling/Disabling Storage of NODEMON Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical Info (NodeInfo cache), Processes (NodeProcess cache), Requests (NodeRequests cache), and Response Times (NodeResponseTime cache) are saved to the database. To disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab.

2. In the **History Storage** region, deselect the toggles for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for NODEMON Metrics

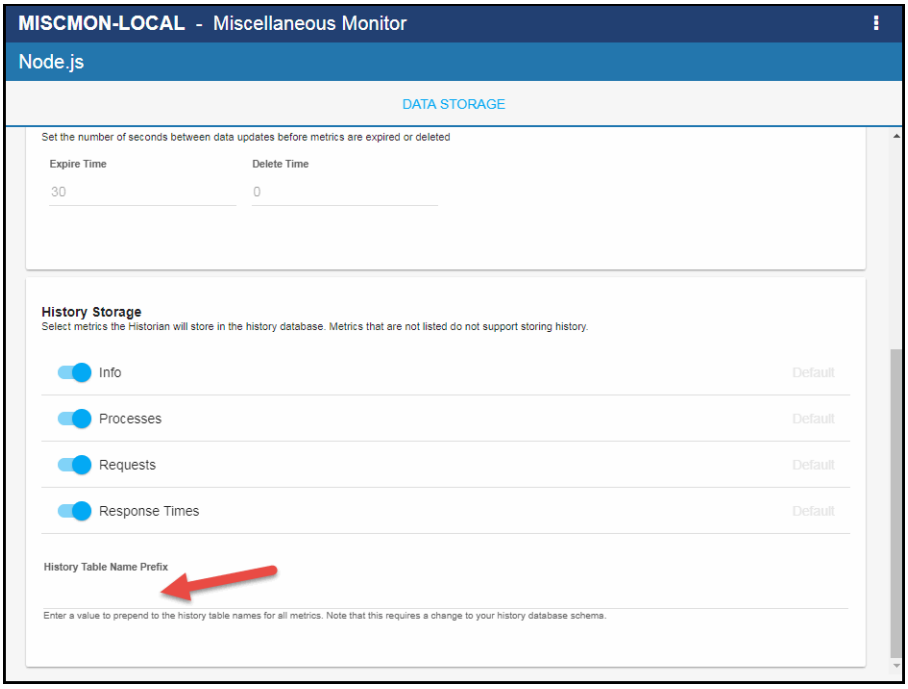
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**nodemon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Node." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Node.js Monitor Views/Displays

The following Node.js Monitor Views (and their associated displays) can be found under **Components** tab **> Application/Web Servers> Node.js Servers** once Node.js Monitor is installed.

This section includes the following:

- "Node/Master View": The displays in this View present detailed data for all node instances or for a particular node instance.
- "Node Request View": The displays in this View allow you to view data pertaining to requests for a connection and a host, or view trending request data for a particular URL associated with a connection and a host.
- "Process View": The displays in this View allow you to view the current and historical metrics for all node processes in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single node process.

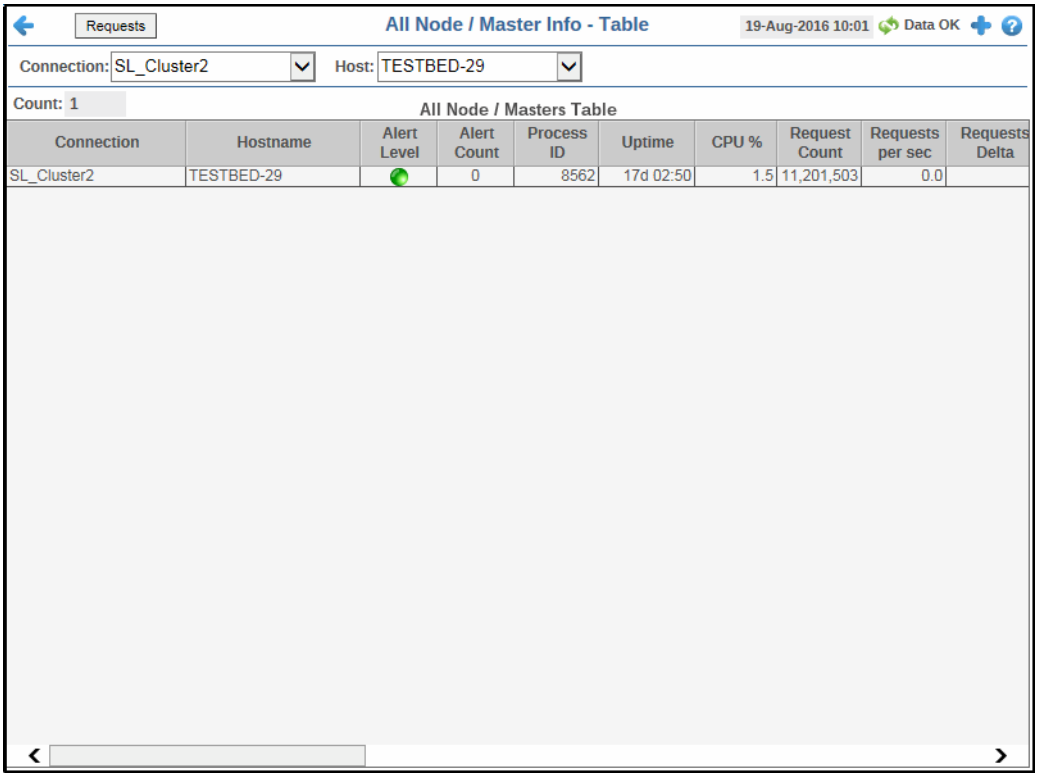
Node/Master View

These displays provide detailed data for all node instances or for a particular node instance. Displays in this View are:

- "Node Master Table": A tabular view of your connected and recently expired node instances and their associated metrics.
- "Node Master Summary": Provides a way to view trending data for individual node processes.

Node Master Table

This table provides a view of all your connected (and recently expired) node instances and their associated metric data including host, connection, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected node in the "Node Master Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The **Requests** button takes you to "Node Requests Table".

Fields and Data:

Connection Select the name of the connection containing the node instances for which you want to view data.

Host Select the name of the host containing the node instances for which you want to view data.

Count The total number of node instances being monitored based on your search criteria.

Table:
Each row in the table is a different message router.

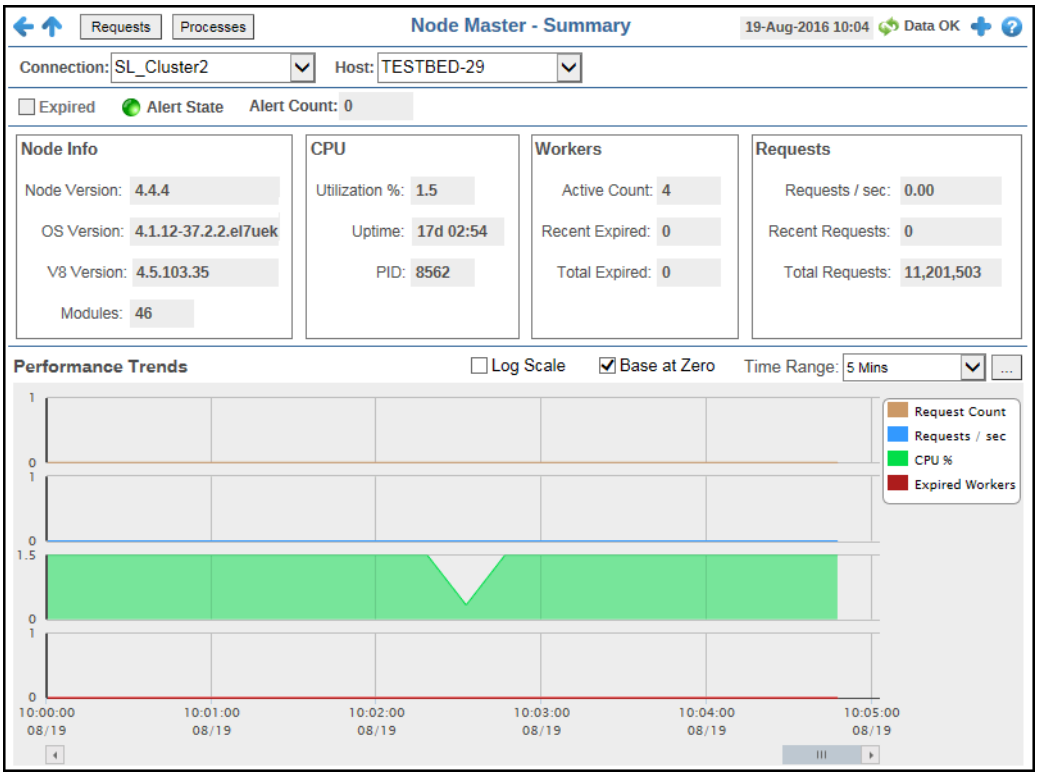
Connection The name of the connection.

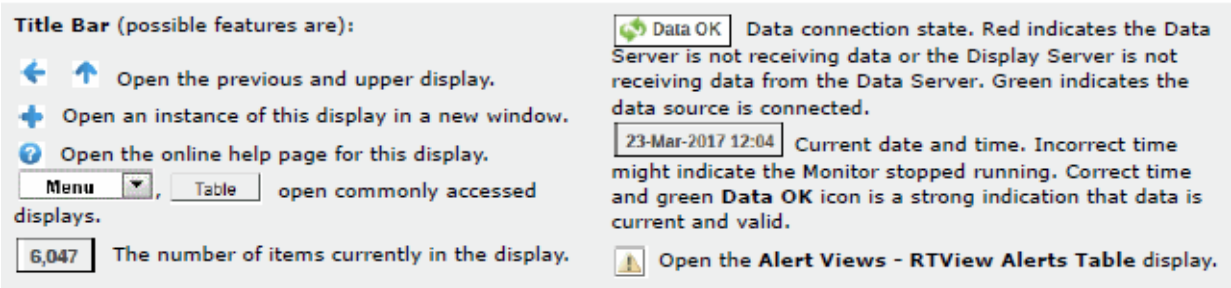
Host Name	The name of the host.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of current alerts.
Process ID	The process id for the node instance.
Uptime	The amount of time the process has been running.
CPU %	The percentage of CPU used for the process.
Request Count	The total number of requests on the host.
Requests per sec	The average number of requests per second on the host.
Requests Delta	The total number of requests since the last data update.
Requests Mean Rate	The average number of requests for the server since monitoring was started.
Requests 1 Min Rate	The average number of requests for the last minute.
Requests 5 Min Rate	The average number of requests for the last 5 minutes.
Requests 15 min Rate	The average number of requests for the last 15 minutes.
Expired Workers	The number of expired workers on the host since the last data update.
Arch	The CPU architecture of the operating system on the server. Possible values are **x64**, **arm**, and **ia32**.
C-ares	The current version of C-ares running on the host.
Http Parser	The current version of the http parser running on the host.
ICU	The current version of ICU running on the host.
Modules	This number of modules found on the host.
Node Ver	The version of **node.js** running on the host.
Open SSL	The current version of OpenSSL running on the host.
Platform	The operating system's platform. Possible values, among others, are: **darwin**, **linux**, **sunos**, or **win32**.
Release	The operating system's release number.
Type	The name of the operating system. Possible values, among others, are **Linux** on Linux, **Darwin** on OS X, and **Windows_NT** on Windows.
UV	The current version of **uv** running on the host.
V8	The current version of **v8** running on the host.
ZLib	The current version of **ZLib** running on the host.

Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Time Stamp	The date and time the row data was last updated.

Node Master Summary

This display allows you to view current CPU, worker, and request data as well as trending data for the number of requests, the number of requests per second, the percentage of CPU being used, and the number of recently expired workers on a particular host.





Note: The **Requests** button takes you to "Node Requests Table". The **Processes** button takes you to "All Processes Table".

Filter By:

Connection Choose the connection for which you want to show data in the display.

Host Choose the host for which you want to show data in the display.

Fields and Data:

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert severity.
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

Node Info

Node Version The version of **node.js** running on the host.

OS Version The operating system's version number.

V8 Version The current version of **v8** running on the host.

Modules This number of modules found on the host.

CPU

Utilization % The percentage of memory used on the CPU.

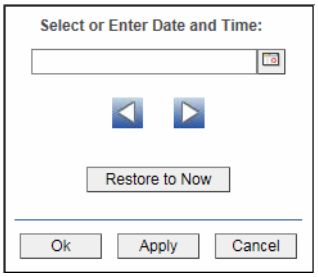
Uptime The amount of time the process has been running.

PID The process id for the node instance.

Workers

Active Count The current number of active workers on the host.

	Recent Expired	The number of expired workers on the host since the last data update.
	Total Expired	The total number of expired workers on the host.
Requests		
	Requests / sec	The average number of requests per second on the host.
	Recent Requests	The total number of requests since the last data update.
	Total Requests	The total number of requests on the host.
Performance Trends Graph	Traces the following: **Request Count** -- traces the number of requests on the host. **Requests / sec** -- traces the number of requests/sec on the host. **CPU %** -- traces the percentage of CPU being used on the host. **Expired Workers** -- traces the number of expired workers on the host.	
	Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
	Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
	Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Node Request View

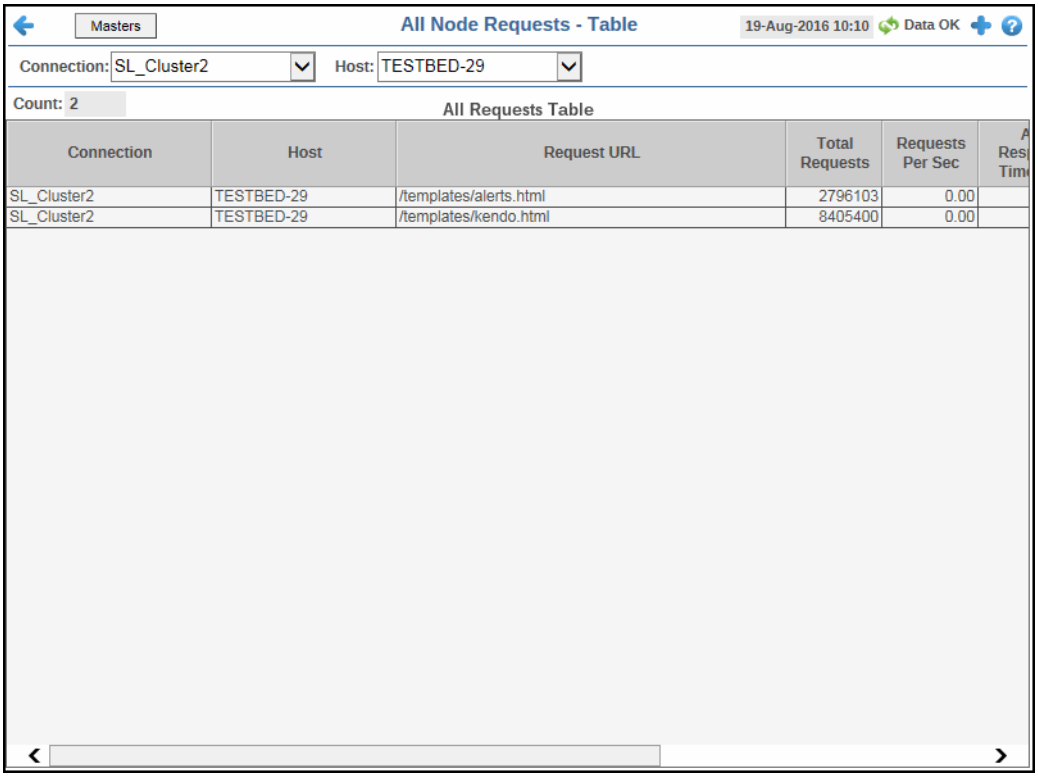
You can view data pertaining to requests for a connection and host, or view trending request data for a particular URL associated with a connection and a host. Displays in this View are:

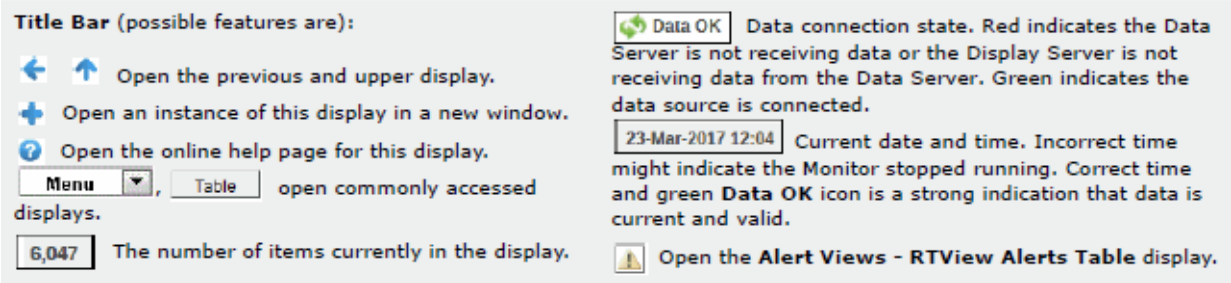
- "Node Requests Table": A tabular view of request data for one or all hosts on a particular connection.
- "Node Request Summary": Allows you to view trending data (number of requests, number of requests per second, and average response time) for individual URLs by connection and host.

Node Requests Table

This display allows you to view request data for one or all hosts on a particular connection. You can view the request URL, total number of requests, number of requests per second, the average response time, and the number of recent requests for each host.

Drill-down and investigate by clicking a row to view details for the selected host in the "Node Request Summary" display.





Note: The **Masters** button takes you to "Node Master Table".

Filter By:

The display might include these filtering options:

Connection	Select the connection for which you want to view data.
Host	Select the host for which you want to view data.

Fields and Data:

Count:	The total number of nodes (rows) in the table.

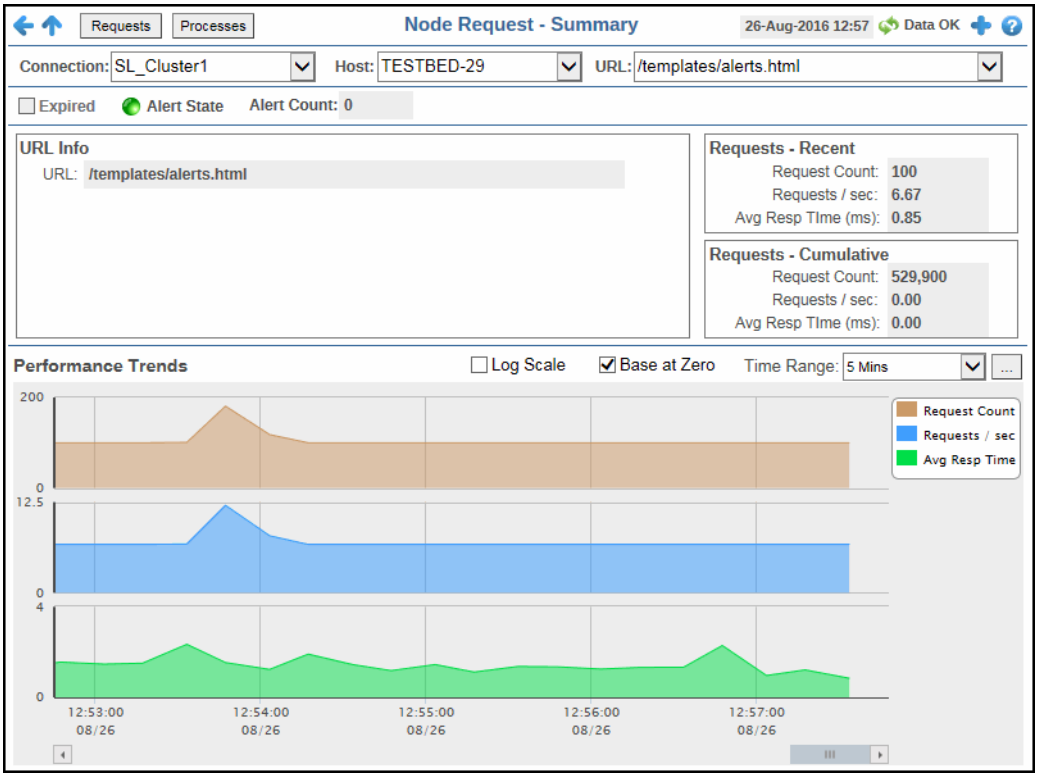
All Requests Table:

Column values describe the node and its associated requests.

Connection	The name of the connection
Host	The name of the host.
Request URL	The URL from which the requests originated.
Total Requests	The total number of requests.
Requests Per Sec	The rate of requests since the server was started.
Avg Response Time (ms)	The average response time (in milliseconds) since the server was started.
Recent Requests	The total number of requests based on the last query interval.
Recent Requests Per Sec	The rate of recent requests based on the last query interval.
Recent Avg Response Time (ms)	The average response time (in milliseconds) based on the last query interval.
Time Stamp	The date and time the row data was last updated.

Node Request Summary

This display allows you to view trending data (number of requests, number of requests per second, and average response time) for individual URLs by connection and host.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: The **Requests** button takes you to "Node Requests Table". The **Processes** button takes you to "All Processes Table".

Filter By:

Connection	Select the connection for which you want to show data in the display.
Host	Select the host for which you want to show data in the display.

URL Select the URL for which you want to view data.

Fields and Data:

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert severity.

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

URL Info

URL The URL from which the requests originated.

Requests - Recent

Request Count The total number of requests based on the last query interval.

Requests / sec The rate of requests based on the last query interval.

Avg Resp Time (ms) The average response time (in milliseconds) based on the last query interval.

Requests - Cumulative

Request Count The total number of requests since the server was (re)started.

Requests / sec The rate of requests since the server was (re)started.

Avg Resp Time (ms) The average response time (in milliseconds) since the server was (re)started.

Performance Trends Graph Traces the following:

Request Count -- traces the total number of requests.

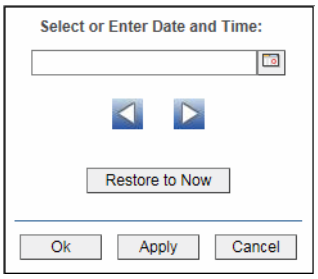
Requests / sec -- traces the rate of requests.

Avg Resp Time-- traces the average response time.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Process View

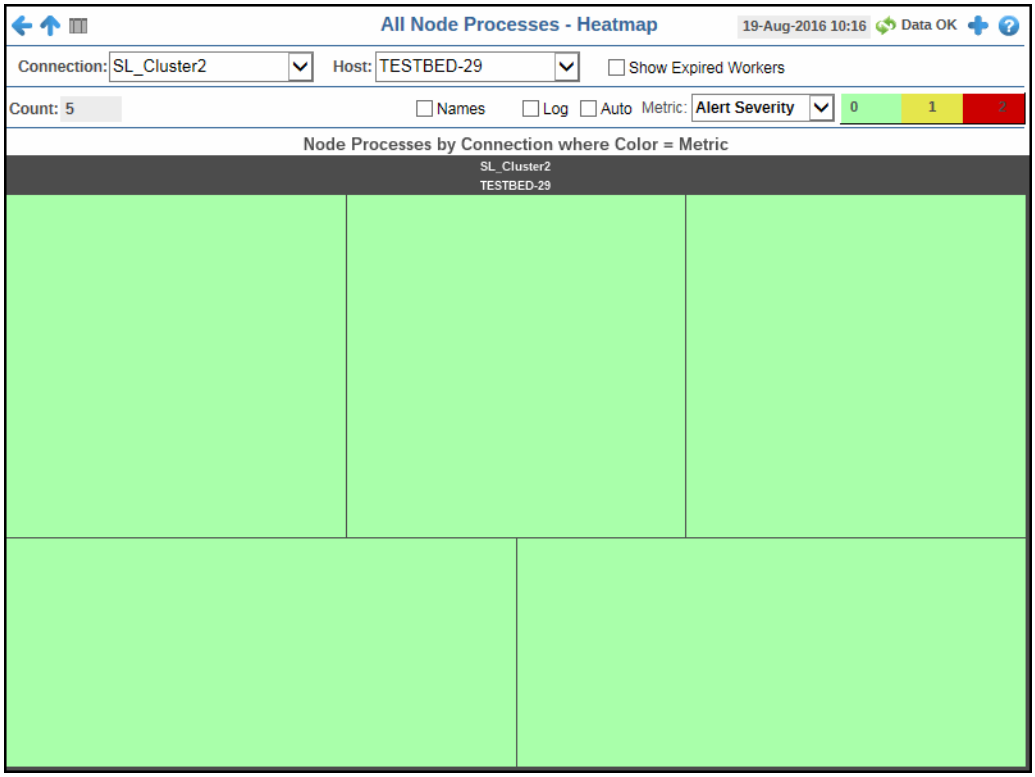
These displays allow you to view the current and historical metrics for all node processes in a heatmap or tabular format for one or all hosts, or view the current and historical metrics for a single node process. Displays in this View are:

- "All Processes Heatmap": A color-coded heatmap view of data for all node processes for a particular connection/host combination.
- "All Processes Table": A tabular view of data for all node processes for a particular connection/host combination.
- "Process Summary": This display allows you to view current and trending data for a single node process for a particular connection/host combination.

All Processes Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your node processes for each available metric. You can view the node processes in the heatmap based on the following metrics: the current alert severity, the current alert count, the percentage of CPU used, and the percentage of memory used. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a node process. Clicking one of the rectangles in the heatmap opens the "Process Summary" display, which allows you to see additional details for the selected node process.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

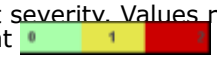
Fields and Data:

Connection	Select the connection for which you want to show data in the display.
Host	Select the host for which you want to show data in the display.
Show Expired Workers	Select this check box to view expired workers in the heatmap.
Count	Lists the total number of processes (rows) found using the search parameters.
Names	Select this check box to display the names of the processes at the top of each rectangle in the heatmap.
Log	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

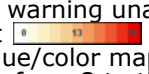
Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts in the instance. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Used % The percentage of CPU used. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **NodeProcessCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

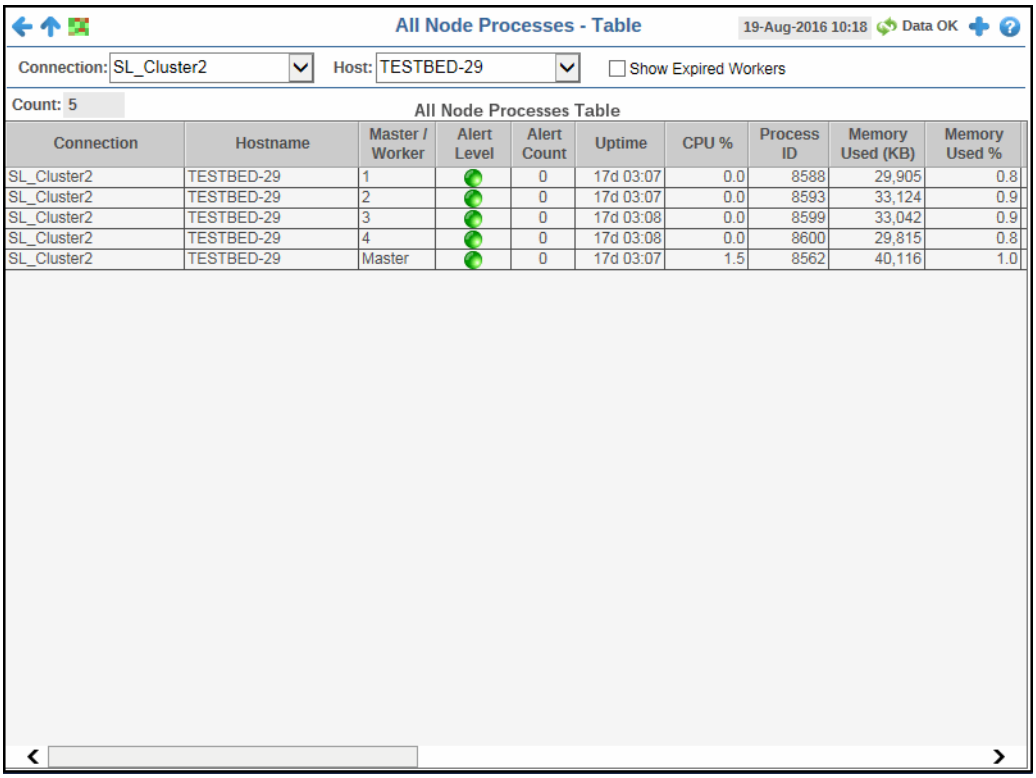
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Memory Used % The total percentage of memory used.The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **NodeProcessMemUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Processes Table

This display allows you to view memory, heap memory, and latency data for all processes in a table format. You can drill-down and view the details in the "Process Summary" display for a specific process by clicking on a row in the resulting table.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display includes these filtering options:

Connection	Select the connection for which you want to show data in the display.
Host	Select the host for which you want to show data in the display.
Show Expired Workers	Select this check box to view expired workers in the table.
Count	Lists the total number of processes (rows) found using the search parameters.

Fields and Data:

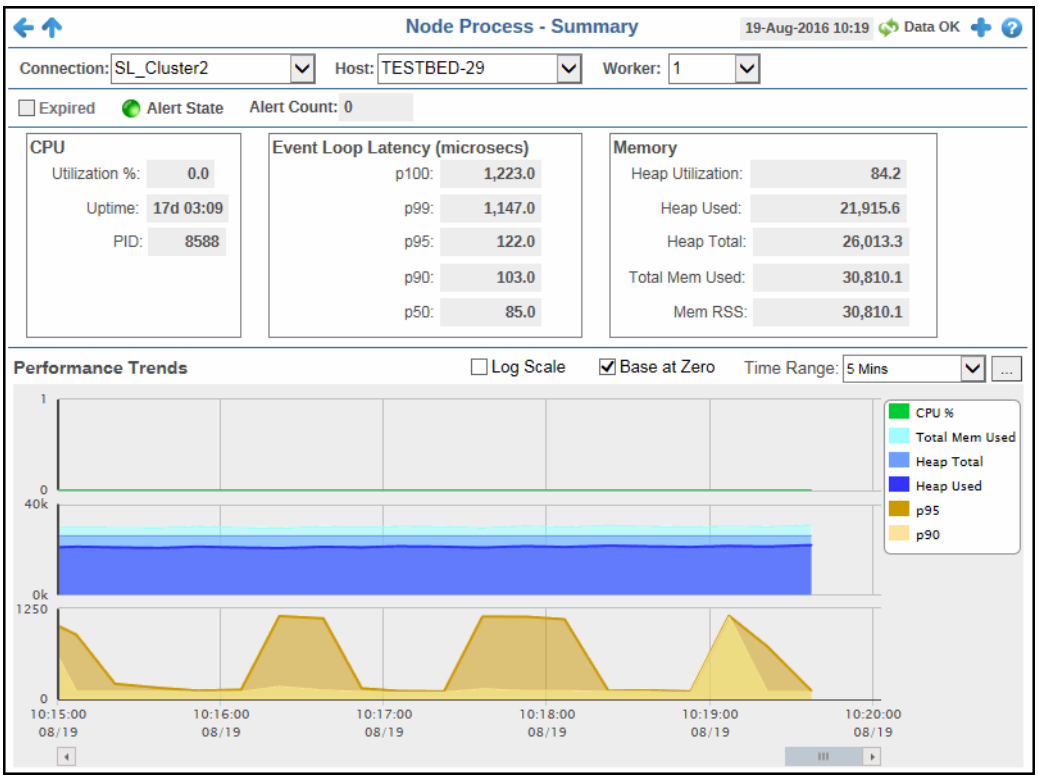
Connection	The name of the connection.
Hostname	The name of the host.
Master / Worker	Displays whether the process is the Master process or, if the application is clustered, the worker ID.
Alert Level	The current alert status. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Total number of alerts for the process.
Uptime	Lists the amount of time the process has been up and running.
CPU %	A decimal percentage describing how much the process utilizes the CPU.
Process ID	The process ID.
Memory Used (KB)	The used memory as a fraction of total system memory, in kilobytes.
Memory Used %	The percentage of total available memory used.
Memory RSS (KB)	The Resident Set Size, which is the portion of memory held in RAM (as opposed to swap or disk), in kilobytes.
Heap Total (KB)	The total amount of heap memory from which newly created objects will originate, in kilobytes.
Heap Free (KB)	The amount of memory remaining from which newly created objects will originate, in kilobytes.
Heap Used (KB)	The heap memory currently in use, in kilobytes.
Heap Used %	The percentage of heap memory currently being used.
Heap Avail (KB)	The v8 engine's **total_available_size** value, in kilobytes.
Heap Limit (KB)	The v8 engine's **heap_size_limit** value, in kilobytes.
Heap Total Executable (KB)	The v8 engine's **total_heap_size_executable** value, in kilobytes.
Latency p100	The number of microseconds that 100 percent of events were late in the previous 4 seconds.
Latency p99	The number of microseconds that 99 percent of events were late in the previous 4 seconds.
Latency p95	The number of microseconds that 95 percent of events were late in the previous 4 seconds.
Latency p90	The number of microseconds that 90 percent of events were late in the previous 4 seconds.
Latency p50	The number of microseconds that 50 percent of events were late in the previous 4 seconds.
Lag	The average number of milliseconds a request has to wait in the Node's event queue before being processed. An excess lag means that the process is overloaded.

time_stamp The date and time the row data was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Process Summary

This display provides a view of the current and historical metrics for a single process. You can view the current information pertaining to a particular URL and various request data for the node process in the upper portion of the display. The trend graph in the bottom half of the display contains the current and historical number of requests, the number of requests per second, and the average response time for the node process.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Connection Select the connection for which you want to show data in the display.

Host Select the host for which you want to show data in the display.

Worker Select the name of the worker to view. You can select from **Master** or any of the worker processes created by the Master. Worker processes are defined by numbers: **1** for the first worker process created by the **Master**, **2** for the second worker process created by the **Master**, and so on.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Node.js** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert state of the process.

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count Lists the total number of alerts for the process.

CPU

- **Utilization %** A decimal percentage describing how much the process utilizes the CPU.
- **Uptime** Lists the amount of time the process has been up and running.
- **PID** The process ID.

Event Loop Latency (microsecs)

- **p100** The number of microseconds that 100 percent of events were late in the previous 4 seconds.
- **p99** The number of microseconds that 99 percent of events were late in the previous 4 seconds.
- **p95** The number of microseconds that 95 percent of events were late in the previous 4 seconds.
- **p90** The number of microseconds that 90 percent of events were late in the previous 4 seconds.
- **p50** The number of microseconds that 50 percent of events were late in the previous 4 seconds.

Memory

- **Heap Utilization** The decimal percentage of utilized heap space.
- **Heap Used** The heap memory currently in use, in kilobytes.
- **Heap Total** The total amount of memory from which newly created objects can originate, in kilobytes.
- **Total Mem Used** The used memory as a fraction of total system memory, in kilobytes.
- **Mem RSS** Resident Set Size, which is the portion of memory held in RAM (as opposed to swap or disk), in kilobytes.

Performance Trends Graph

Traces the following:

CPU %-- traces the CPU utilization percentage.

Total Mem Used-- traces the amount of memory used.

Heap Total-- traces the total amount of available heap memory.

Heap Used-- traces the amount of used heap memory.

p95 -- traces the number of microseconds that 95 percent of events were late in the previous 4 seconds.

p90 -- traces number of microseconds that 90 percent of events were late in the previous 4 seconds.

Log Scale

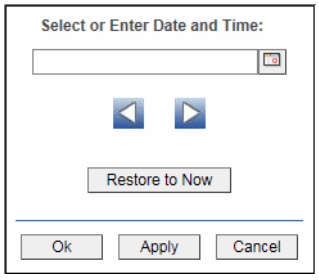
Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

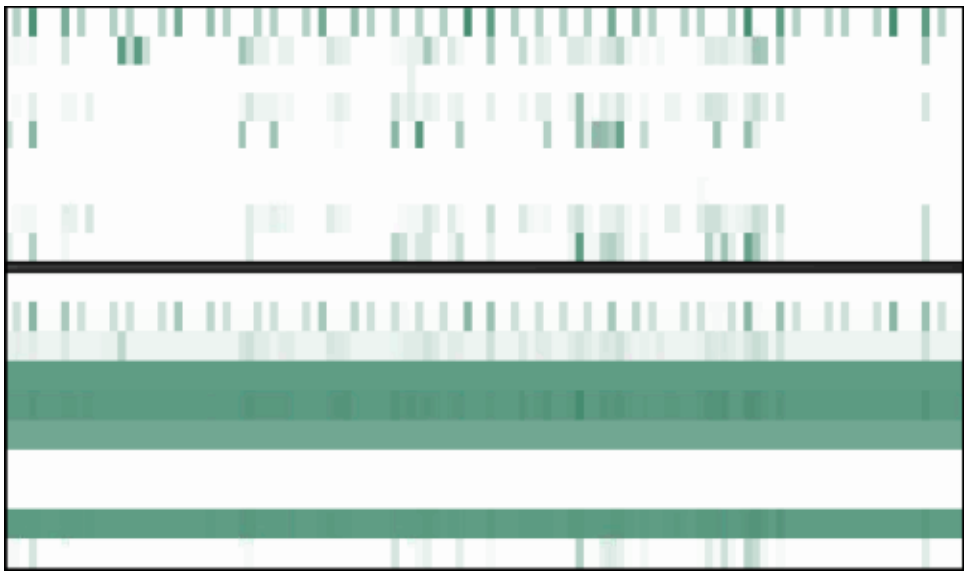
Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 17 Solution Package for Oracle Coherence

The Solution Package for Oracle Coherence provides information about the health and configuration of your Oracle Coherence cluster elements, including caches, nodes, services and clients. The Solution Package for Oracle Coherence can be configured for a single Coherence cluster or multiple Coherence clusters (see below).

The Solution Package for Oracle Coherence collects metrics from all your Coherence elements simultaneously, and does so at frequent intervals (typically every 10 seconds). At each interval, the OC Monitor performs analytic calculations on the gathered metrics (on the Data Server rather than a database for optimal performance) in terms of the cluster as a whole. It then presents consistently updated health "snapshots" of your entire cluster, in real time, using a dashboard format and visually rich and legible graphics.

For example, history heatmaps, such as the following cache heatmap, show you utilization trends, over time, for your entire cluster.



Each row represents a cache. Each column represents a time period. A darker color indicates heavier usage, a lighter color indicates lighter usage. At a glance, you can quickly analyze load distribution, check for bottlenecks and identify caches with high usage. You can also answer questions such as, Is the cluster using what I expect? Is the cluster using it in a uniform scale? If there is an issue, you can mouse-over the heatmap to see when the issue started, what behavior preceded it, and the name of the resource.

Additionally, because data updates for all the elements in your cluster share the same time-stamp, you can see utilization spikes in the cluster, such as in trend graphs or heatmaps, and immediately address performance issues. Other monitoring systems cannot gather enough simultaneous data points for displaying spikes.

The Solution Package for Oracle Coherence is also often used in pre-production environments for conducting load testing and performance tuning.

This chapter includes:

- "Configuration Parameters You Need"
- "Properties File Configuration"
- "Configure Data Collection"
- "Troubleshoot"
- "Additional Data Connection Options"
- "Additional Configurations"
- "OC Monitor Views/Displays": Describes the displays that come with Solution Package for Oracle Coherence.

Configuration Parameters You Need

To configure the Solution Package for Oracle Coherence make a note of the following values, then follow instructions in "Properties File Configuration". You will replace all references to **PackageName**, **ServerDirectory**, and **AlertPrefix** with the following values:

- **PackageName=ocmon**
- **ServerDirectory=ocmon**
- **AlertPrefix=Oc**

Properties File Configuration

This solution package is not included in the "RTView Configuration Application" and must be configured using properties files as described below. For more information about properties files, see "Properties".

1. Locate **RTVAPM_HOME/<PackageName>/conf/sample.properties**, copy it to **RTViewEnterpriseMonitor/emsample/servers/<ServerDirectory>** and give it a name that is meaningful to you. For example, you might name the file **myPackageName.properties**.

2. To add properties to the **myPackageName.properties** file you just created, follow the instructions in the "Configure Data Collection" section below, then return here.

3. Navigate to the **RTViewEntepriseMonitor/emsample/servers** directory and open the **rtvservers.dat** file in a text editor. Locate the section for your ServerDirectory. For example, the WebLogic Data Server entry, by default, is the following:

WLM

wlm ./wlm dataserver rundata

#wlm ./wlm historian runhist -ds

4. Make the following entry to point RTView Enterprise Monitor to the **.properties** file you just created: **-properties:myPackageName** For example, for the WebLogic Data Server we enter:

WLM # wlm ./wlm dataserver rundata -properties:myPackageName

#wlm ./wlm historian runhist -ds

5. **Save** the file.

6. Return to "Add Connections".

Configure Data Collection

This section includes "Add Connection Properties".

1. Windows systems only: set JAVA_HOME to the location of your Java installation and include it in the path.

   Important: This environment variable must also be defined in UNIX/Linux systems for Tomcat to start successfully.

2. Verify that your Coherence cluster is configured with unique Member Names for each node. For information, see Oracle Coherence documentation:

http://docs.oracle.com/cd/E18686_01/coh.37/e18677/cluster_setup.htm#COHDG5446.

3. Verify that your system is able to monitor Coherence using JMX. See Using JMX to Manage Coherence at the following link: http://docs.oracle.com/cd/E18686_01/coh.37/e18682/jmx.htm. Specifically consider section **2.2 Accessing Coherence MBeans**: http://docs.oracle.com/cd/E18686_01/coh.37/e18682/jmx.htm#BABDIEJG.

4. Gather the information you need for configuring the direct connection. If the Java properties and class path used by the cluster you want to monitor are not readily available from cluster design documents, cluster launch scripts, or knowledgeable personnel, the following might assist with discovery of the required settings:

- Use the Coherence MBeanConnector to add a management node to your cluster as described in section 2.2.3 Setting Up the Coherence MBean Connector at the following link: http://docs.oracle.com/cd/E18686_01/coh.37/e18682/jmx.htm#CEGBECFH.
- Adjust JVM options and the class path as needed so that the MBean Connector joins the cluster.
- Use jconsole to connect to the MBean Connector node, and verify that all Coherence MBeans appear in the jconsole MBeans tab (**Cache,Cluster,Connection,ConnectionManager,Node,Platform,Service,StorageManager**).

- Save the JVM options and class path settings that work with the MBean Connector for configuring OCM.

Information Needed

JAR File Information:
- Paths to Coherence JARs and patch JARs.
- Paths to all JAR files that facilitate deserialization of MBeans, including JAR files for custom and third party MBeans.

Paths to database JDBC JAR files.

Direct Connection - Cluster Discovery:
- **Override File** - The name of the override file, if one is used, that contains all cluster discovery parameters.
- **WKA Connection** -
  - The name of the cluster.
  - WKA IP or host, or WKA list.
  - WKA port if not using default.

Multicast Parameters Used By Existing Cluster Nodes
- Cluster name
- Cluster address
- Cluster port
- Local port
- Edition
- Mode

Java Properties:

- All Coherence command line override properties used by existing cluster nodes.
- All Java properties that effect communication with cluster nodes such as network protocol properties.
- JMX authentication properties if applicable.

Proceed to "Add Connection Properties," next.

Add Connection Properties

Windows

1. Open the rtview.properties file, located in your project directory (**RTViewEnterpriseMonitor/emsample/servers/ocmon**), which you created during your RTView EM installation), and edit as follows:

2. Specify that OCM connect as a node:

   sl.rtvapm.ocmon.node=true

3. Define values for the tangosol properties that your cluster nodes use to join the cluster:

tangosol.coherence.cluster=MyClusterName
tangosol.coherence.wka=
tangosol.coherence.override=
tangosol.coherence.cacheconfig=

4. Set the value of the **sl.rtvapm.ocmon.jmxconn** property to the name of the cluster:

   sl.rtvapm.ocmon.jmxconn=MyClusterName

5. Add the path to the Coherence jar to the java class path. For example:

   sl.rtview.cp=c:/coherence/lib/coherence.jar

Note: You must also add any Coherence patch jars, and all jar files that facilitate deserialization of MBeans, including jar files for custom and third party MBeans.

---

6. Save your changes.

UNIX/Linux

1. Open the **rtview.properties** file, located in your OC Monitor project directory (**RTViewEnterpriseMonitor/emsample/servers/ocmon**), which you created during your RTView EM installation), and edit as follows:

2. Specify that OCM connect as a node:

   sl.rtvapm.ocmon.node=true

3. Define values for the Tangosol properties that your cluster nodes use to join the cluster:

   tangosol.coherence.cluster=MyClusterName
   tangosol.coherence.wka=
   tangosol.coherence.override=
   tangosol.coherence.cacheconfig=

4. Set the value of the **sl.rtvapm.ocmon.jmxconn** property to the name of the cluster:

   sl.rtvapm.ocmon.jmxconn=MyClusterName

5. Add the path to the Coherence jar to the java class path. For example:

   sl.rtview.cp=c:/coherence/lib/coherence.jar

Note: You will also add any Coherence patch jars, and all jar files that facilitate deserialization of MBeans, including jar files for custom and third party MBeans.

---

6. Save your changes.

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/ocmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **OCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "**Oc**." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server, or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Additional Data Connection Options

This section provides step-by-step instructions for configuring a connection to acquire data from the cluster. You configure the data connection using property values in conjunction with property filters. For details about properties and property filters, see "Properties" on page 1643.

Note: The data connection method options are: a named JMX connection, a multi-cluster configuration, a direct connection and an OCM agent. JMX connection methods are generally used for small clusters, and direct or OCM agent connection methods are generally used for large clusters. To configure the OC Monitor for multiple Coherence clusters a JMX connection method is required.

If you have an existing management node in your cluster, choose the JMX connection variant that applies. If you do not have an existing management node in your cluster, see the following requirements.

See "Oracle Coherence JMX Connection Options" on page 1699 for an overview of data connection methods.

The data connection method options are:

- **Named JMX Connection** (see "Configure JMX Connection" on page 595): This method connects to the cluster via a named JMX connection. The JMX connection name is used to identify the cluster in the database tables.
- **Multi-Cluster Configuration** (see "Configure JMX Connection" on page 595): This method is suitable for monitoring many small clusters with a single OCM instance. This method consolidates the monitoring of Coherence clusters (rather than having a monitoring system for each cluster), is easy to configure (using one of the JMX Connection methods) and requires a single historical database instance.
- **Direct Connection** (see "Configure Direct Data Connection" on page 599): This method is generally used for large clusters.
- **OCM Agent** (see "Use the OCM Agent" on page 601): This method is generally used for large clusters to minimize the amount of garbage collection associated with collecting and processing JMX monitoring data.

Configure JMX Connection

This section provides step-by-step instructions for configuring a JMX connection to acquire data from the cluster.

Note: To configure the OC Monitor for multiple Coherence clusters a JMX connection method is required.

If you have an existing management node in your cluster, choose the JMX connection variant that applies. If you do not have an existing management node in your cluster, see the following guidelines.

Also see "Oracle Coherence JMX Connection Options" on page 1699 for further details about JMX connection options.

This section includes:

- "Named JMX Connection" on page 596: This method is can be used with both the JMX remote port and the JMX RMI URL connection methods. Use this method when the JMX connection requires a user name and password.
- "Password Encryption" on page 597: When you create a JMX connection by editing the **rtview.properties** file in a text editor, the connection password will be in plain text. This section describes how to encrypt the password.
- "Multi-Cluster Configuration" on page 598: This method is for using the OCM to monitor multiple Coherence clusters. This method consolidates the monitoring of Coherence clusters (rather than having a monitoring system for each cluster), is easy to configure (using one of the JMX Connection methods) and requires a single historical database instance.

Named JMX Connection

This section describes how to create an RTView JMX connection in the **rtview.properties** file using a text editor and the encode_string utility. The **rtview.properties** file is located in your project directory (**RTViewEnterpriseMonitor/emsample/servers/ocmon**).

1. Open the **rtview.properties** file in a text editor and add the following line below the "Collector named JMX Connections" comment (this is a searchable string) to set the value for the **maincollector.sl.rtview.jmx.jmxconn** property:

   # maincollector.sl.rtview.jmx.jmxconn=<conn_name> <host> <port> URL:- - - 'false'

   maincollector.sl.rtview.jmx.jmxconn=<conn_name> <host> <port> URL:- - - 'false'

   Where:

   <conn_name> is the name of the connection

   <host> is the hostname of the machine with the Coherence management node

   <port> is the port number used by the management node

   (specified by **-Dcom.sun.management.jmxremote.port=xxxx**, as described above)

   For example:

   maincollector.sl.rtview.jmx.jmxconn=MyCluster localhost 9971 URL:- - - 'false'

2. Set the **<username>** and **<password>** as desired for the connection.

   For example, when no username or password are required:

   maincollector.sl.rtview.jmx.jmxconn=MyCluster localhost 9971 URL:- - - 'false'

   For example, when a username and password are required:

   maincollector.sl.rtview.jmx.jmxconn=MyCluster localhost 9971 URL:- myusername mypassword 'false'

3. Specify the name of the JMX connection you just created by setting the **sl.rtvapm.ocmon.jmxconn** property value as follows:

- use a named jmx connection

sl.rtvapm.ocmon.jmxconn=<conn_name>

Where:

<conn_name> is the name of the connection you created

4. Specify to not connect as a node (so we can use JMX) by setting the **sl.rtvapm.ocmon.node** property value to false:

   # Specify whether OCM should connect as a node or not

   sl.rtvapm.ocmon.node=false

5. Verify that all other JMX connection properties are comments:

   # sl.rtvapm.ocmon.jmxhost
   # sl.rtvapm.ocmon.jmxport
   # sl.rtvapm.ocmon.jmxurl

6. Save the **rtview.properties** file and exit the text editor.

See **Password Encryption**, next.

Or proceed to "Verify Configuration" on page 602.

Password Encryption

If you create a JMX connection by editing the **rtview.properties** file in a text editor, the connection password will be in plain text. To encrypt the password perform the following steps:

1. Initialize a command line window by executing the **rtvapm_init** script. For example:

   Windows

   Go to your RTView Enterprise Monitor installation directory and type:

   rtvapm_init

   UNIX

   Go to your Enterprise Monitor installation directory and type:

   . ./rtvapm_init.sh

2. Initialize the user project directory by executing the **rtvapm_user_init** script. For example:

   Windows

   Change directory (**cd**) to **RTViewEnterpriseMonitor/emsample** and type:

   rtvapm_user_init

   UNIX

   Change directory (**cd**) to **RTViewEnterpriseMonitor/emsample** and type:

   . ./rtvapm_user_init.sh

3. Change directory (**cd**) to **servers/ocmon/projects/sample** directory and type:

   encode_string jmx <password>

where **<password>** is your password to be encrypted.

For example:

encode_string jmx newpassword

The encrypted value, a series of numbers, is returned.

4. Copy and paste the encrypted value into the **<password>** field of the JMX connection definition in the **rtview.properties** file. For example:

   maincollector.sl.rtview.jmx.jmxconn=MyCluster localhost 9971 URL:-myusername 013430135501346013310134901349013530134501348013 34'false'

5. Edit the **rtview.properties** file as needed for authentication:

- Add all necessary JMX options to the JVM property **sl.rtview.jvm=**
- Add all necessary class paths to the classpath property as **sl.rtview.cp=property** values
- Add keystore

Proceed to "Verify Configuration" on page 602.

Multi-Cluster Configuration

The Multi-Cluster Configuration is suitable for monitoring many small clusters with a single OCM instance. If you have more than one cluster to monitor, consider the Multi-Cluster Configuration benefits:

- Centralizes the monitoring of Coherence clusters
- Metrics for all clusters is accessed from a single URL (rather than a URL for each cluster)
- Easy to configure
- Requires a single historical database instance
- Reduces hardware costs
- Simplifies OCM configuration

See **README_sysreq.txt** for the full system requirements.

For Linux, these instructions require a BASH-compatible shell.

This section describes how to configure the OCM to monitor multiple Coherence clusters. To configure the OC Monitor for multiple Coherence clusters JMX connections are required (a direct connection is not compatible, since there can only be a direct connection to a single cluster). The **rtview.properties** file is located in your project directory (**RTViewEnterpriseMonitor/emsample/servers/ocmon)**.

Note: Multi-cluster monitoring requires sufficient resources to monitor all the clusters you intend to monitor. Verify that you have sufficient resources for the clusters you intend to monitor.

To configure the OC Monitor for multiple Coherence clusters:

1. Configure named JMX connections as described in "Named JMX Connection" on page 596.

2. Verify that you can connect to each cluster you wish to monitor using an explicit named JMX connection.

3. Ensure that the following property values are set in the **rtview.properties** file that are used for multi-cluster monitoring:

- sl.rtvapm.ocmon.node=false (where **false** specifies not to use a single direct connection)
- sl.rtvapm.ocmon.jmxconn=* (where ***** specifies to use all named JMX connections)

4. Open the **rtview.properties** file and ensure that all clusters you intend to monitor have correct, unique and meaningfully named JMX connection definitions. Edit as needed. The cluster name should be descriptive as it is used in OCM displays and alert messages. For example, DEV1 and SALES1.

5. If additional clusters need to be monitored that are not specified as a named connection in the **rtview.properties** file, add an entry for the cluster (using unique and meaningfully named JMX connection definitions).

6. Save the file.

7. Restart the Data Server.

Proceed to "Verify Configuration" on page 602.

Configure Direct Data Connection

To deploy the Solution Package for Oracle Coherence for use with a web browser:

1. Open the **rtview.properties** file, located in the **rtvapm_projects/emsample/servers/ocmon/projects/sample** directory, in a text editor and make the following changes:

- **sl.rtvapm.ocmon.node=true**
- Set Coherence Properties for Cluster Node configuration. OC Monitor property files support the following Coherence command line override properties (and any other property that begins with **tangosol**):

  tangosol.coherence.cluster
  tangosol.coherence.clusteraddress
  tangosol.coherence.clusterport
  tangosol.coherence.edition
  tangosol.coherence.mode
  tangosol.coherence.wka
  tangosol.coherence.wka.port
  tangosol.coherence.localhost
  tangosol.coherence.localport
  tangosol.coherence.override
  tangosol.coherence.cacheconfig
  tangosol.coherence.management.refresh.policy
  tangosol.coherence.management.refresh.expiry
- Define values for the properties that your cluster nodes use to join the cluster.
- Uncomment, and set the value of the **sl.rtvapm.ocmon.jmxconn** property to the desired name of the direct connection. Typically, the name of the cluster is used for this value (or, if the cluster does not have a Coherence cluster name, a unique name is used).

  Example:

sl.rtvapm.ocmon.jmxconn=DevClusterA

Note: The name specified for the **sl.rtvapm.ocmon.jmxconn** property (in Direct Connection mode) is also used to identify the cluster in alerts and data persisted in the database. Because data from multiple databases might subsequently be combined, best practices dictate that a globally unique identifier be specified for cluster names to easily identify data from each cluster.

---

2. Using the Jar Properties information you previously gathered (see "Configure Data Collection" on page 591):

- Add the path to the Coherence JAR files required by the existing cluster to sl.rtview.cp=. Include any patch JARs used by cluster nodes, as well as the paths to JAR files for POF serialization. Use one entry per **sl.rtview.cp** property instance as they are combined into a cumulative classpath.

  Windows Example:

  sl.rtview.cp=c:\coherence352\lib\coh-352-patch-01.jar
  sl.rtview.cp=c:\coherence352\lib\coherence.jar
- Add the path to the database JDBC driver, and other required JAR files, using additional **sl.rtview.cp=** property values.
- Add JVM options as **sl.rtview.jvm=** property values.

  Example:

  sl.rtview.jvm=-Dtangosol.coherence.mbeans=/sl-custom-mbeans.xml

3. If none of the following are true, skip this Step. If any of the following are true, complete this Step:

- the existing cluster uses Java authentication features.
- additional Tangosol/Coherence properties or options are needed.
- additional JAR files are needed to connect to the cluster.
- additional JAR files are needed to support custom and third party MBeans.
- additional JAR files are needed for database access.
- additional file paths are needed for Coherence configuration files such as POF configuration.

If any of the above are true, edit the **rtview.properties** file as follows:

- Add the paths to JAR files required to join the cluster as sl.rtview.cp=property values.
- Add the paths needed for JAR and Coherence configuration file directories required by the existing cluster, third party applications or database as **sl.rtview.cp=**property values.
- Add additional Coherence overrides and Java security properties used by the existing cluster as **sl.rtview.jvm=**property values.

4. Save the file.

Proceed to "Verify Configuration" on page 602.

Use the OCM Agent

This section describes how to use the OCM Agent to gather data from the Coherence cluster. The OCM Agent is a method for acquiring JMX data from a Coherence cluster that reduces the occurrence of packet loss errors sometimes seen in large clusters. This method is especially useful for monitoring very large clusters containing many MBeans.

Normally, and by default, the Data Server acquires data from a Coherence cluster and supplies it to the OC Monitor. The Data Server also aggregates and processes raw data into caches, and in the process creates large amounts of transient data. This extra overhead can cause long garbage collection pauses on a node in the cluster, and increase both communication delays and other garbage collection activity in the cluster.

The OCM Agent method employs an OCM Agent Data Server that joins the cluster and is dedicated solely to acquiring JMX data and forwarding it to the Data Server. The Data Server does not join the cluster and is dedicated solely to aggregating and processing raw data into caches. This configuration minimizes garbage collection, reducing the overhead for optimal monitoring.

To summarize the OCM Agent method process:

- The Data Server receives a request for a new data sample.
- The Data Server forwards the request to the OC Monitor Agent Data Server.
- The OC Monitor Agent Data Server provides the data to the Data Server.
- The Data Server updates its caches with the new data sample.

The OCM Agent method entails an additional Java process (the OCM Agent) and an additional connection (between the Agent and the Data Server).

The **rtview.properties** file is located in your project directory (**RTViewEnterpriseMonitor/emsample/servers/ocmon)**.

To use the OCM Agent

1. Verify that all OC Monitor applications and the cluster are stopped. See Stopping the Monitor for details about stopping OC Monitor applications.

2. Initialize a command line window by executing the **rtvapm_init** script. For example:

   Windows

   Go to your RTView Enterprise Monitor installation directory and type:

   rtvapm_init

   UNIX

   Go to your Enterprise Monitor installation directory and type:

   . ./rtvapm_init.sh

3. Initialize the user project directory by executing the **rtvapm_user_init** script. For example:

   Windows

   Change directory (**cd**) to **RTViewEnterpriseMonitor\emsample** and type:

   rtvapm_user_init

   UNIX

   Change directory (**cd**) to **RTViewEnterpriseMonitor/emsample** and type:

. ./rtvapm_user_init.sh

4. Change directory (**cd**) to the **ocmon/projects/sample** directory.

5. In the **projects/sample** directory, start the OCM applications by typing:

start_rtv agentmode all

Note: If you do not wish to start all the OC Monitor applications at once, you must start each application (or "server") individually and in the following order:

---

start_rtv agentmode dataserver

start_rtv agentmode agentsender

Note: The **start_rtv** script starts processes in an OCM configuration as specified in the "rtvservers.dat"configuration file. For details about **start_rtv**, see "Scripts" on page 1631.

The OCM Agent is now configured to gather data from the Coherence cluster.

Proceed to "Verify Configuration" on page 602.

Verify Configuration

The purpose of this section is to verify that your OC Monitor configuration is operating properly before performing a full web deployment.

Windows

On Windows, use the standalone OC Monitor to test data acquisition from the cluster. For details about **start_rtv**, see "Scripts" on page 1631.

1. Initialize a command line window by executing the **rtvapm_init** script. For example:

   Windows

   Go to your RTView Enterprise Monitor installation directory and type:

   rtvapm_init

   UNIX

   Go to your Enterprise Monitor installation directory and type:

   . ./rtvapm_init.sh

2. Initialize the user project directory by executing the **rtvapm_user_init** script. For example:

   Windows

   Change directory (**cd**) to **RTViewEnterpriseMonitor\emsample** and type:

   rtvapm_user_init

   UNIX

Change directory (**cd**) to **RTViewEnterpriseMonitor\emsample** and type:

. ./rtvapm_user_init.sh

3. Change directory (**cd**) to the **projects\mysample** directory of the OC Monitor installation directory.

4. Start the HSQLDB database by typing:

start_rtv default database

A command prompt window appears for the HSQLDB database.

5. Start the Viewer by typing:

start_rtv viewer -console

A command prompt window appears, followed by the OC Monitor application.

6. Inspect the messages that appear in the command prompt window for errors.

- If there are no errors, the Cluster Overview display appears. Your OC Monitor configuration is operating properly. It takes at least two JMX retrieval cycles to obtain data and fully populate the displays. Proceed to full deployment as described in the section Starting the Monitor.
- If there are errors they appear in the command prompt window, or display fields remain empty. Proceed to the next Step.

7. Perform the following steps:

- Note the errors that occurred.
- Terminate the OC Monitor.
- Modify the configuration files as needed.
- Restart the OC Monitor.

8. Repeat Steps 2 – 5 as needed to resolve any data acquisition issues.

Proceed to Starting the Monitor.

UNIX/Linux

For details about **start_rtv**, see "Scripts" on page 1631.

1. Initialize a command line window by executing the **rtvapm_init** script. For example:

   Windows

   Go to your RTView Enterprise Monitor installation directory and type:

   rtvapm_init

   UNIX

   Go to your Enterprise Monitor installation directory and type:

   . ./rtvapm_init.sh

2. Initialize the user project directory by executing the **rtvapm_user_init** script. For example:

   Windows

Change directory (**cd**) to **RTViewEnterpriseMonitor\emsample** and type:

rtvapm_user_init

UNIX

Change directory (**cd**) to **RTViewEnterpriseMonitor/emsample** and type:

. ./rtvapm_user_init.sh

3. Change directory (**cd**) to the mysample directory.

   Example: **cd projects/mysample**

4. Start HSQLDB.

   Example: **start_rtv.sh default database**

5. Check the HSQLDB log file for errors. Example without errors:

```
cat hsqldb.log
[Thread[main,5,main]]: checkRunning(false) entered
[Thread[main,5,main]]: checkRunning(false) exited
Startup sequence initiated from main() method
Loaded properties from [/home/m/SLTest/rtvoc_55c1/projects/myocm/server.properties]
Initiating startup sequence...
Server socket opened successfully in 8 ms.
Database [index=0, id=0, db=file:DATA/alertdefs, alias=alertdefs] opened sucessfully in
452 ms.
Database [index=1, id=1, db=file:DATA/rtvhistory, alias=rtvhistory] opened sucessfully
in 878 ms.
Startup sequence completed in 1341 ms.
2009-11-20 11:16:56.800 HSQLDB server 1.8.0 is online
To close normally, connect and execute SHUTDOWN SQL
From command line, use [Ctrl]+[C] to abort abruptly
```

6. Start the Data Server.

   Example: **start_rtv.sh default dataserver**

7. Carefully inspect the Data Server log file, **logs/dataserver.log**, for OC Monitor and Coherence errors.

Note: Coherence can produce a large number of long messages making errors difficult to notice. Common errors at this stage are "class not found" errors due to missing JAR files, and incorrect or blocked ports.

- If there are no errors, proceed to Starting the Monitor.
- If there are errors proceed to Step 8.

8. Terminate the Data Server and correct any configuration errors found.

   Example: **stop_rtv.sh** default dataserver

9. Repeat steps 6 – 8 as needed until the Data Server output produces no errors.

10. Terminate the data server and HSQLDB and use **"ps –ef | grep hsqldb"** to find the HSQLDB process.

Additional Configurations

This section describes optional configurations for the Solution Package for Oracle Coherence.

If you wish to configure sender/receiver Data Servers, note that the Solution Package for Oracle Coherence requires one sender per receiver and the receiver should not be configured to both collect and receive data. See the "Configure Sender / Receiver" on page 38 for details.

This section includes:

- "High Availability" on page 605 - For details about configuring a PRIMARYHOST and BACKUPHOST.
- "Invocation-only Clusters" on page 606 - For details about configuring clusters that do not have storage nodes or caches.

High Availability

High Availability (HA) mitigates single point of failure within OCM by providing a means of defining redundant system components together with failover capability for users of those components.

When using HA, components are designated PRIMARY and BACKUP. If the PRIMARY component fails, failover occurs to the BACKUP component. If the PRIMARY component is subsequently restarted, the BACKUP component allows the newly restarted component to take the primary role and return to its backup role.

A High Availability (HA) Data Server configuration that is within the RTView EM platform is available for the OCM Solution Package version.

The **RTViewEnterpriseMonitor/emsample/servers** directory provides an example of HA for RTView EM and the Solution Package for Oracle Coherence. The example assumes the availability of two machines PRIMARYHOST and BACKUPHOST defined by environment variables of the same name. RTView EM is configured by the rtvservers-ha.dat file in place of the rtvservers.dat file in the **RTViewEnterpriseMonitor/emsample/servers** directory

Assuming the environment variables PRIMARYHOST and BACKUPHOST are set correctly,

EM components on the primary machine are started as normal using the "central" configuration with the **start_rtv** command. EM components on the backup machine are started using the "central-backup" configuration with the **start_rtv** command.

1. Start the primary OCM Data Server on the primary machine as normal using the ocmon configuration with the **start_rtv** command. For example:

   Windows

   start_rtv ocmon dataserver

   UNIX

   start_rtv.sh ocmon dataserver

2. Start the backup OCM Data Server on the backup machine using the ocmon-backup configuration with the **start_rtv** command. For example:

   Windows

   start_rtv ocmon-backup dataserver

   UNIX

start_rtv.sh ocmon-backup dataserver

The appropriate property files and propfilters for the OCM Data Sever are defined in the **rtvservers-ha.dat** file in the **servers** directory. The property values controlling HA used by the OCM Data Servers are defined in the **ha.properties** file, located in the **servers/ocmon** directory.

Invocation-only Clusters

Clusters that do not have storage nodes or caches (*invocation-only* clusters) require additional configuration to be monitored. This section describes how to edit the **invocationonly.properties** file and then use it to enable the Data Server that is to monitor it.

NOTE: This configuration requires that only one invocation only cluster be monitored at a time by a suitably configured Data Server.

1. Open the **invocationonly.properties** file, located in the **sample** project directory, in a text editor.

2. Locate **ACTUAL_CONN_NAME** in the file, which resides here:

maincollector.sl.rtview.cache.config=oc_connection_dummy_cache_store.rtv $conn:**ACTUAL_CONN_NAME** $cache:OcStorageDataRaw $file:ocmon_ts_constants.xml $table:DummyOcStorageDataRaw

3. Change **ACTUAL_CONN_NAME** to the value of the named connection for the **sl.rtview.jmx.jmxconn** property (which is used to connect to the invocation-only cluster).

   NOTE: Consider using a descriptive name for the named connection, such as "MyInvocationCluster". Your **sl.rtview.jmx.jmxconn** property would then be: **sl.rtvapm.ocmon.jmxconn=MyInvocationCluster**.

4. Continuing with our example, your entry should look like this:

maincollector.sl.rtview.cache.config=oc_connection_dummy_cache_store.rtv $conn:**MyInvocationCluster** $cache:OcStorageDataRaw $file:ocmon_ts_constants.xml $table:DummyOcStorageDataRaw

5. Save the **invocationonly.properties** file.

6. Start the Data Server that is to monitor the invocation-only cluster and execute the following command line argument:

-properties:invocationonly

NOTE: Alternatively, you can add **-properties:invocationonly** to the **rtvservers.dat** entry used to start the monitoring Data Server.

OC Monitor Views/Displays

The following Solution Package for Oracle Coherence Views (and their associated displays) can be found under **Components** tab **> Middleware > Oracle Coherence** after installation:

This section contains the following:

- "Cluster Selector": See all your Coherence clusters and Data Servers and choose which cluster to display data for.
- "Cluster Views": Use these displays to assess Coherence cluster-level performance and utilization.
- "Proxy Services": Use these displays to assess proxy service performance metrics.
- "Cache Services": Use these displays to assess performance and utilization of all caches in the cluster.
- "Federated Clusters": See all your Federated clusters and Data Servers and choose which cluster to display data for.
- "All Caches": Use these displays to investigate performance, utilization and activity metrics of a single cache.
- "Single Cache": Use these displays to assess node-level performance and utilization in the cluster.
- "All Nodes": Use these displays to investigate performance and utilization metrics of a single node.
- "Single Node": Use these displays to investigate performance and utilization metrics of a single node.
- "Time Range Analysis": Use these displays to manage your Oracle Coherence metrics, nodes and caches.
- "OC Administration": Use these displays to manage your Oracle Coherence metrics, nodes and caches.

Cluster Selector

This display shows details about your Coherence clusters and Monitor Data Servers.

Use this display to see all the Coherence clusters you can monitor, as well as their status. Choose a cluster to view performance details for the cluster in the "Cluster - Overview" display.

Each row in the table is a different Coherence cluster. The columns contain information pertaining to each cluster. When you select a cluster you are also selecting the Data Server corresponding with that cluster. After you make your selection, all displays subsequently show data for that cluster/Data Server (except for alert displays which consolidate alerts from all Data Servers). For example, the "Node Summary" display will then show data for the selected cluster/Data Server.

For details about Oracle Coherence data, refer to vendor documentation at www.oracle.com.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Connection	The name of the user defined connection that is used to connect to the monitored Coherence cluster.
Alert Severity	The maximum level of alerts on the cluster. Red indicates that one or more exceeded their ALARM LEVEL threshold. Yellow indicates that one or more exceeded their WARNING LEVEL threshold. Green indicates that none have exceeded their alert thresholds.
Alert Count	The number of current alerts for the cluster.
Cluster Size	The total number of nodes for the cluster.
Caches	The total number of caches for the cluster.
Objects	The total number of objects stored in the cluster.
Data Sever	The name of the Data Server (connection) that is used to monitor the cluster.

Cluster Views

Cluster Views displays present high-level performance metrics for the cluster. Use the Cluster Views displays to quickly assess Coherence cluster-level performance metrics.

- "Cluster - Overview" on page 609: Quickly assess general cluster stability, cluster size (number of nodes, clients and caches), service and cache capacity utilization/distribution and HA status.
- "Caches / Nodes / Alerts" on page 613: View cache and node utilization hot spots and currently active alerts.
- "Memory/Network Health" on page 616: Assess cluster memory utilization and packet transmission success/failure trends, and see weakest nodes.
- "Stability Metrics" on page 618: Troubleshoot nodes joining and leaving the cluster, view HA status for cache services.
- "All Services History" on page 620: Assess capacity utilization, over time, by all services in a cluster.
- "All Caches History" on page 623: Assess capacity utilization and distribution for all caches in a cluster, and quickly identify potential bottlenecks.
- "All Nodes History" on page 627: Assess capacity utilization, over time, for all nodes in a cluster.

Cluster - Overview

Use this display to quickly assess the cluster size (number of nodes, clients and caches) and stability, service and cache capacity utilization and HA status. This display is the initial view in the Monitor.

Choose a cluster from the drop down menu. Check the Communication Success% bar charts for cluster packet loss. If the pairs of bar graphs are uneven, this indicates that packet loss is occurring. The cause for the packet loss could be a network issue, a single defective NIC card, a garbage collection issue, disk swapping or a shortage of CPU on a single machine. Investigate further by clicking the bar chart to view details in the Cluster - "Memory/Network Health" display.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

Coherence Cluster Configuration

Total Nodes	Total number of nodes being monitored, including storage enabled nodes, client nodes, and management (JMX) nodes.
Storage	Total number of nodes in the cluster which have storage enabled for any cache. This value is equal to the total nodes when replicated caches are being used. The number is less when only distributed cache types are utilized.
Clients	Total number of nodes in the cluster which do not have storage enabled for any cache. These are usually process nodes, proxy nodes, extend nodes, or MBean server nodes.
Caches	Total number of caches in the cluster.

Version Version of Oracle Coherence running.

Cluster Memory Usage Totals

Senior Node Node ID of the senior node of the cluster.

Client Nodes Monitor client node memory utilization for the cluster.

- **Max MB** Total memory allocated.
- **Used MB** Total memory used.
- **% Percent of allocated memory being used.**

Storage Nodes Monitor storage node memory utilization for the cluster.

- **Max MB** Total memory allocated.
- **Used MB** Total memory used.
- **% Percent of allocated memory being used**

Alert Severity The maximum level of alerts for all nodes in the cluster. Click to drill down to the Alert Detail Table.

- Red indicates that one or more exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more exceeded their WARNING LEVEL threshold.
- Green indicates that none have exceeded their alert thresholds.

- **Memory** Represents the current most critical state of alerts related to heap and memory alerts for all nodes in the cluster. For example, the AvailableMemoryLowNode alert.
- **Network** Represents the current most critical state of alerts related to network and communication protocols for all nodes in the cluster. For example, the BadCommunicationCluster alert.
- **Stability** Represents the current most critical state of alerts related to cluster stability for all nodes in the cluster. For example, the DepartedNodePercentage alert.
- **Tasks** Represents the current most critical state of alerts related to queries, entry processors and invocations for all nodes in the cluster. For example, the HighTaskBacklogNode alert.
- **Data Quality** Represents the current most critical state of alerts related to the quality of data in the Data Server for all nodes in the cluster. For example, the JmxProcessingTime alert.
- **Other** Represents the current most critical state of alerts related to all alerts not represented in the other five status indicators for all nodes in the cluster. For example, the CapacityLimiitAllCaches alert.
- **Memory** Represents the current most critical state of alerts related to heap and memory alerts for all nodes in the cluster. For example, the AvailableMemoryLowNode alert.

Service Configuration & HA Status

Cache Services Assess size, distribution and status of Coherence protocol-related cache services used by applications in the cluster. Determine whether cache services are distributed properly across the cluster. The list includes distributed, replicated and mirrored caches. Note that Management and Invocation services are intentionally not listed.

- **Service Name** The name of the service in the cluster. These are defined in each server cache configuration XML file.

StatusHA The high availability status for each of the services.

- **MACHINE-SAFE** If a machine for the service goes offline the data stored on the machine remains available in the cluster (no data loss).
- **NODE-SAFE** If a node for the service goes offline (or is taken offline using kill-9) data stored on the node remains available in the cluster (no data loss).
- **ENDANGERED** If a node for the service goes offline the data stored on the node is potentially unavailable in the cluster (potential data loss).

Total Nodes The number of nodes in the cluster that are running a thread for the service.

Storage Nodes The number of nodes for the service where storage is enabled.

Caches The number of caches for the service.

Objects The number of objects in all caches for the service.

Senior The node ID of the most senior node in the cluster for the service.

Caches - Busiest & Largest

Most Gets Track services performing the greatest number of gets in the cluster. The total is the number of gets by nodes in the cluster since the last sample was retrieved. Click to drill-down to the All Caches - "Current Activity Chart" display.

Cumulative Select the checkbox to show only the cumulative total for all nodes for the service since they started in the Most Gets bar chart.

Largest Cache Track caches that consume the greatest amount of capacity. Click to drill-down to the All Caches - "Current Size Chart" display.

Cluster Stability

Node Uptimes Monitor cluster stability and how often nodes are restarted (for example, every month, every day, every hour, and so forth). If the number of nodes running for seconds of time increases (and your nodes are restarted weekly), consider investigating. Click in the Node Uptimes region to view details on the "Stability Metrics" display.

Solid colors in the graph indicate the amount of time since the nodes were started. Longer uptimes generally represent a more stable cluster. Departed Nodes specifies the number of nodes that have departed and not returned since monitoring of the cluster was started. If a node departs and returns with the same name, the count is decremented.

Memory Utilization % Monitor memory utilization for all nodes in the cluster.

Average The average memory utilization for all nodes in the cluster.

Worst Node The most amount of memory consumed by a single node in the cluster. A slow node that provides data to other nodes can cause latency issues for the entire cluster. If a node is consuming too much memory, investigate by clicking the bar chart to view details in the Cluster - "Memory/Network Health" display.

Communication Success%

Monitor cluster packet loss--an excellent indicator of systemic issues in the cluster. If the pairs of bar graphs are uneven, this indicates that packet loss is occurring and analysis is needed. Investigate further by clicking the bar chart to view details in the Cluster - "Memory/Network Health" display.

The bar charts show the percent (%) successful UDP packet transfers in the cluster for the last twenty minutes. Each pair of bars show the Publish and Receive success rates for all nodes in the cluster. Compare each pair of Publish and Receive bars. The bars should have similar rates. If they do not have similar rates this indicates packet loss in the cluster. For example, if the Publish success rate is much lower than the Receive success rate, packets are being resent and the receiver is not getting them.

Compare and track the pairs of bars across twenty minutes. The bars should track evenly. If the bars do not track evenly this also is a sign of packet loss in the cluster.

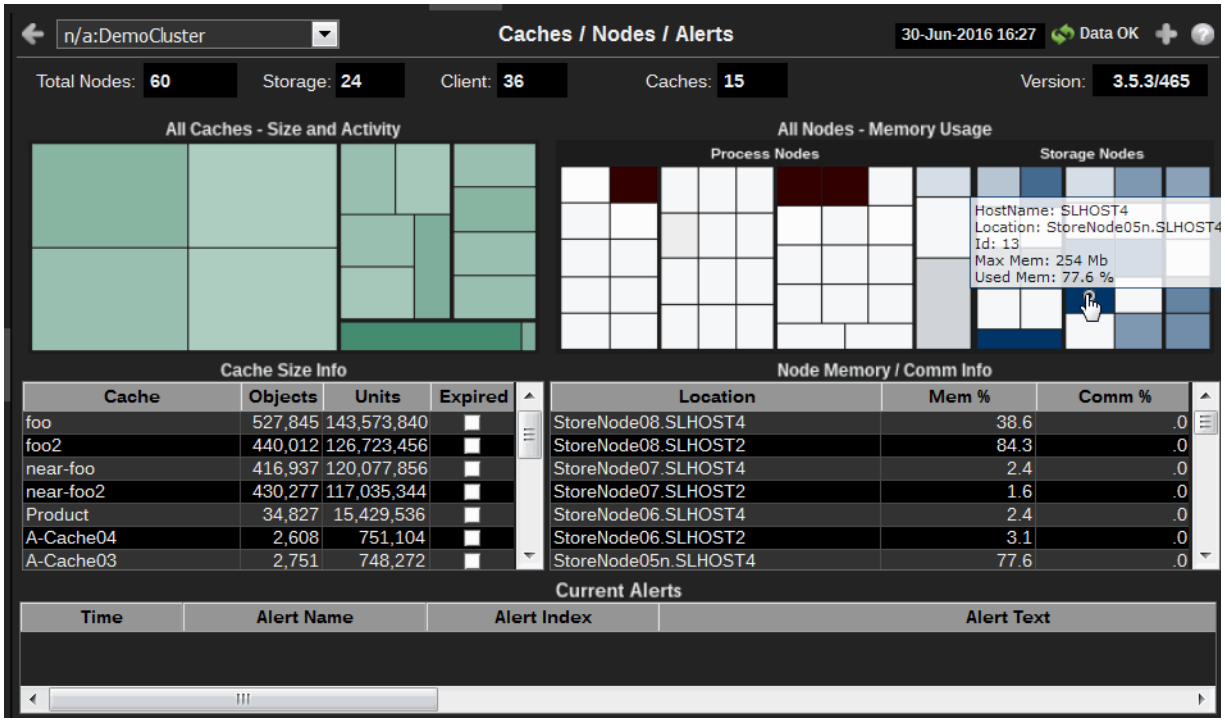
The cause for the packet loss could be a network issue, a single defective NIC card, a garbage collection issue, disk swapping or a shortage of CPU on a single machine.

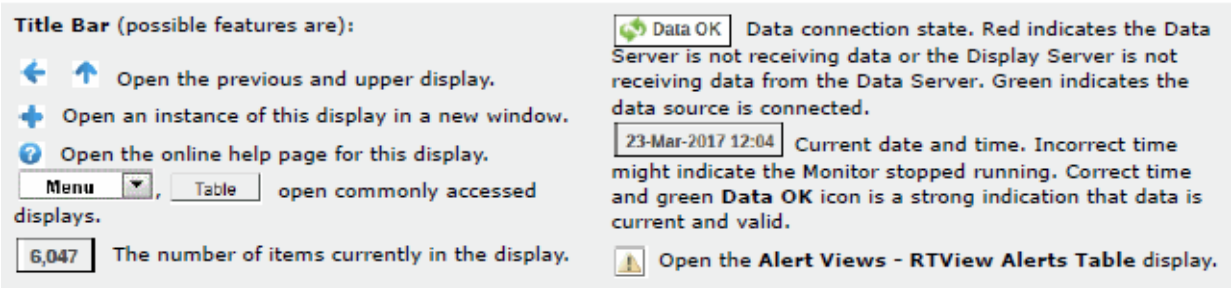
Publish The Publish success rate is the percent (%) of packets in the cluster successfully sent by nodes, without having to be resent. A 100% success rate occurs when a packet is sent and does not have to be re-sent. When a packet must be resent the success rate is reduced.

Receive The Receive success rate is the percent (%) of packets in the cluster successfully received by nodes, without being received twice. A 100% success rate occurs when a packet is received once. When a packet is received twice the success rate is reduced.

Caches / Nodes / Alerts

Use this display to view cache and node utilization hot spots and currently active alerts. Observe how much capacity is taken from memory and how much is taken from consumption. Identify caches and nodes that are slow due to a shortage of capacity or memory. Verify nodes are configured properly (using the mouseover tool-tip). View time-ordered list of current alerts in the cluster.





Fields and Data:

Total Nodes Total number of nodes being monitored, including storage enabled nodes, client nodes, and management (JMX) nodes.

Storage Total number of nodes in the cluster which have storage enabled for any cache. This value is equal to the total nodes when replicated caches are being used. The number is less when only distributed cache types are utilized.

Clients Total number of nodes in the cluster which do not have storage enabled for any cache. These are usually process nodes, proxy nodes, extend nodes, or MBean server nodes.

Caches Total number of caches in the cluster.

Version Version of Oracle Coherence running.

Capacity & Memory Usage

All Caches - Size and Activity Use the heatmap to identify a cache with high capacity or memory usage, indicated by a dark rectangle. Observe how much capacity is taken from memory and how much is taken from consumption. View cache metrics using the mouseover tool-tip. Investigate cache utilization trends over time in the "All Caches History" display. Click on a rectangle to drill-down to the All Caches - "All Caches Heatmap".

The heatmap is grouped by service. Each rectangle represents a cache within the service. The size of each rectangle represents the size of a cache in units. The color of each rectangle represents the number of gets on the cache. The color is linearly scaled, where white is the minimum gets seen and dark green is the maximum gets seen.

Cache Size Info The table lists each cache in the cluster and enables you to sort the by most/least amount of objects or units. Click a row to view details in the "Single Cache Summary" display.

Cache The name of the cache.

Objects The number of objects currently in the cache.

Units The number of units currently used by the cache.

All Nodes- Memory Usage Use the heatmap to identify a node with high memory usage, indicated by a dark rectangle. Verify nodes are configured properly using the mouseover tool-tip. Click on a rectangle to drill-down to the "All Nodes by Type/Host/Memory".

The heatmap is divided into two sections: Process Nodes and Storage Nodes. Each rectangle represents a node in the cluster. The size of the rectangle represents the value of the maximum node memory. The color of the rectangle represents the value of the memory used. The color is linearly scaled, where white is 0% memory used and dark green is 80% memory used.

Node Memory/ Comm Info The table lists each node in the cluster and enables you to sort the by most/least amount of objects or units. Click a row to view details in the "Node Summary" display.

Location	A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
Mem%	The percent memory utilization for the node.
Comm%	The percent memory utilization used for packet transfer by the node.

All Active Alerts (in selected cluster)

Current Alerts The table lists all alerts for all sources (nodes and caches) in the selected cluster that have exceeded an alert threshold. Sort the data by column using the button. By default, critical and warning alerts are shown. Select an alert in the list to open the **Alert Detail Table** dialog and acknowledge an alert or add comments. Where:

Red indicates that one or more resources exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more resources exceeded their WARNING LEVEL threshold.

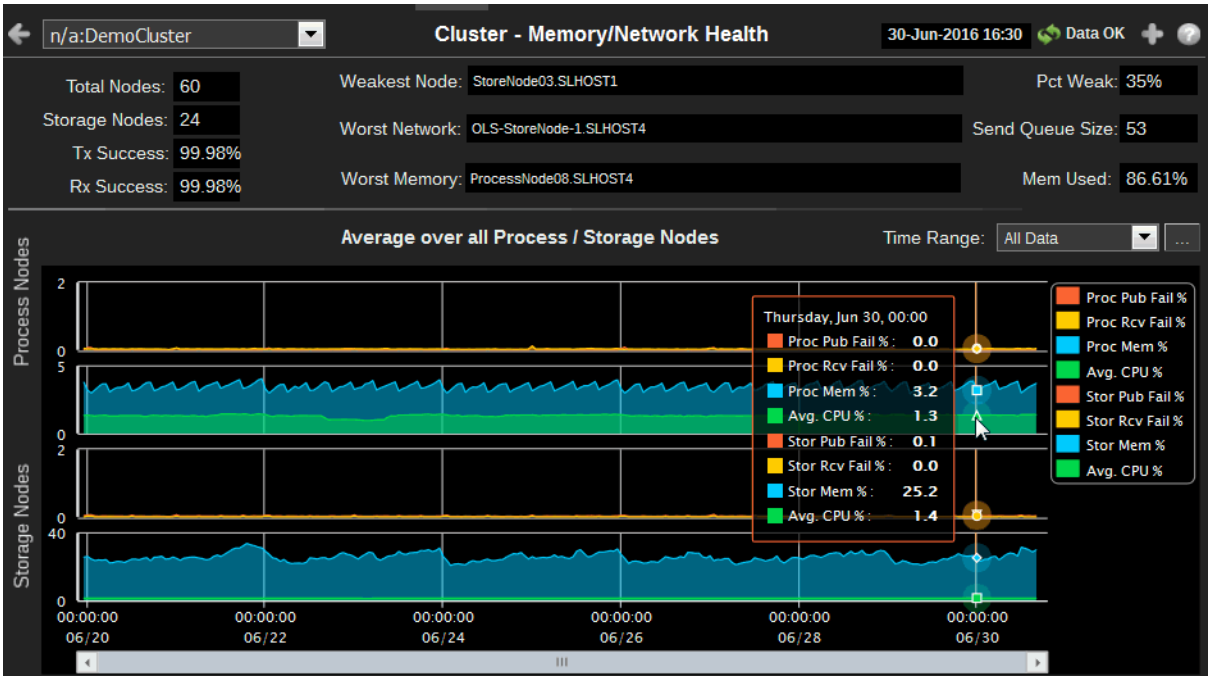
Green indicates that no resources have exceeded their alert thresholds.

For details about alerts, see **Appendix, Alert Definitions**.

Alert Name	The alert type. Alert Types contain alert threshold definitions. A single alert type applies to all nodes or caches in the cluster. For example, the OcAvailableMemoryLowNodeSpike alert type applies to multiple nodes, and the OcCapacityLimitCache alert type applies to multiple caches. (The Alert Index identifies the source node for the alert.) For details about alerts, see **Appendix, Alert Definitions**.
Alert Index	The Oracle Coherence source (node or cache) from which the alert originated. As with nodes, a cluster can have multiple caches. A single alert type, such as OcCapacityLimitCache, applies to all caches in the cluster. The Alert Index identifies the cache from which the alert originated.
Alert Text	Descriptive information about the alert.
Cleared	The checkbox is selected if this alert has cleared. An alert is considered cleared when the source for the alert (node or cache) returns to below the alert threshold. To include acknowledged alerts in the table, select Show Cleared.
Acknowledged	The checkbox is selected if this alert has been acknowledged. Acknowledged alerts have been manually acknowledged by an administrator. Acknowledged alerts are automatically removed from the Current Alerts table. To include acknowledged alerts in the table, select Show Acknowledged.
ID	Unique ID for the alert.
Comments	Comments about the alert previously entered by an administrator.
Cleared Reason	An alert is in a cleared state when the source for the alert (node or cache) returns to below the alert threshold. Or, with the OcDepartedNode alert type, when the node rejoins the cluster the alert is cleared.
Cleared Time	The time the alert was cleared.
Alert Index Value	The Oracle Coherence source (node or cache) from which the alert originated.
Cluster Connection	The name of the cluster in which the alert source (node or cache) is a member.

Memory/Network Health

Use this display to assess cluster memory utilization and packet transmission success/failure trends, and to see the weakest nodes.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

Total Nodes	The total number of nodes in the cluster. This includes storage enabled nodes, client nodes, and management (JMX) nodes.
Storage Nodes	The total number of nodes in the cluster which have storage enabled for any cache. This value is equal to the total nodes when replicated caches are being used. The number is less when only distributed cache types are utilized.
Tx Success	The publisher success rate, in percent. The Publish success rate is the percent (%) of packets in the cluster successfully sent by nodes, without having to be resent. A 100% success rate occurs when a packet is sent and does not have to be re-sent. When a packet must be resent the success rate is reduced.
Rx Success	The receiver success rate, in percent. The Receive success rate is the percent (%) of packets in the cluster successfully received by nodes, without being received twice. A 100% success rate occurs when a packet is received once. When a packet is received twice the success rate is reduced.

Weakest Node

The node voted by Coherence as the weakest in the cluster. The Weakest Node often points to a server/node that is causing performance issues. The node value most often appears in the "weakest node" attribute of all the JMX "node" objects. The format of this string is **<Node IP Address>:< Node Port >/<NodeID>**.

Weak The percent of the Coherence nodes that "elected" the node as the weakest.

Worst Network

The node that has the longest network queue in the cluster.

Send Queue The number of packets currently scheduled for delivery, including packets sent and still awaiting acknowledgment. Packets that do not receive an acknowledgment within the ResendDelay interval are automatically resent.

Worst Memory

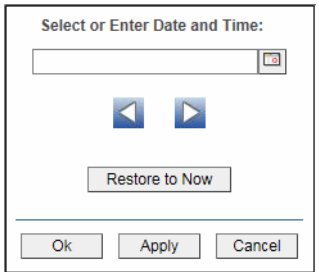
The node that has the lowest available memory of any node in the cluster.

Mem Used The percent of memory consumed on the Worst Memory node.

Average over all Process / Storage Nodes

Trend Graphs
The trend graphs show aggregated performance metrics for storage and process nodes.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Process Nodes

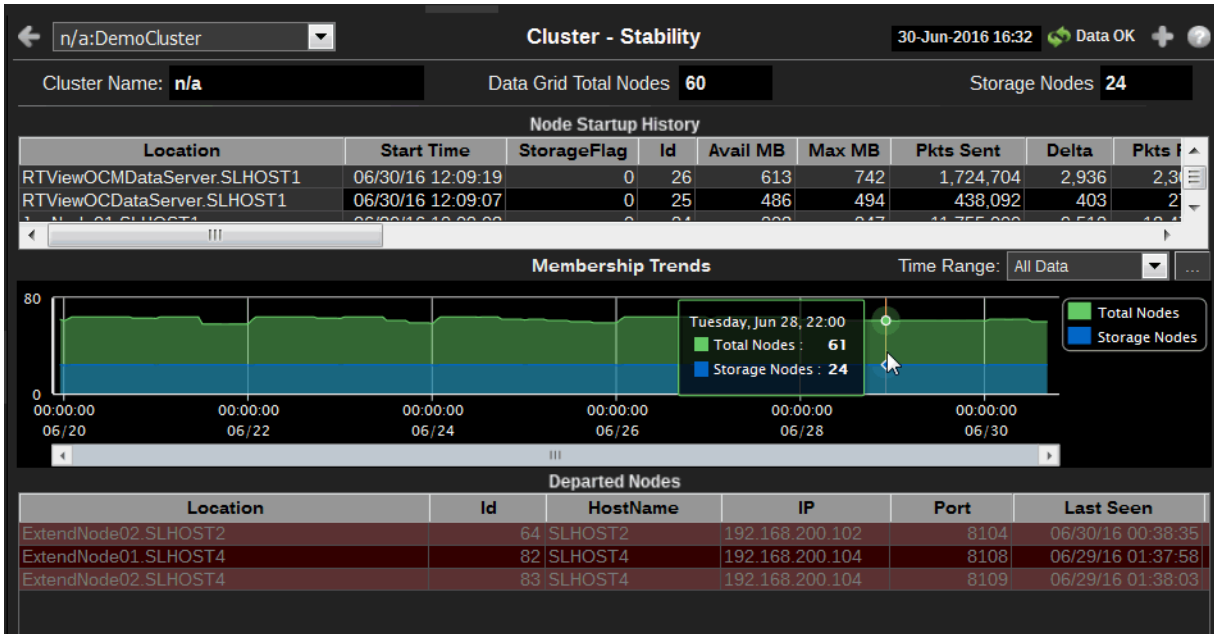
Publish Failures and Received Failures — Indicates the trending of process node publisher and receiver failure rates. If these values are above 10%, action may be required to improve the stability or performance of the cluster as a whole. The Weakest Node information often points to the server/nodes that are the cause of these issues.

Memory Utilization% — Indicates the trending of process node memory utilization. If these values are above 10%, action may be required to improve the stability or performance of the cluster as a whole.

Storage Nodes	Publish Failures and Received Failures	Indicates the trending of storage node publisher and receiver failure rates. If these values are above 10%, action may be required to improve the stability or performance of the cluster as a whole. The Weakest Node information often points to the server/nodes that are the cause of these issues.
	Memory Utilization%	Indicates the trending of storage node memory utilization. If these values are above 10%, action may be required to improve the stability or performance of the cluster as a whole.

Stability Metrics

Use this display to troubleshoot nodes joining and leaving the cluster, and view HA status for cache services. This display presents information about node up times and the stability of the cluster.



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- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

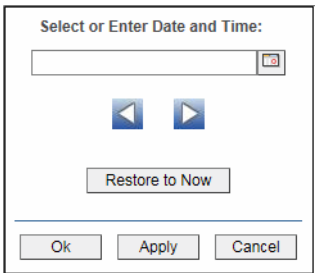
Cluster Name	Select a cluster from the drop-down menu.
Data Grid Total Nodes	The total number of nodes being monitored. This includes storage enabled nodes, client nodes, and management (JMX) nodes.

Storage Nodes The total number of nodes in the cluster which have storage enabled for any cache. This value is equal to the total nodes when replicated caches are being used. The number is less when only distributed cache types are utilized.

Node Startup History Use this table to identify nodes that have departed and returned to the cluster recently. This table contains a list of nodes in the cluster, sorted by start time (the most recently created node is listed first).

Location	A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
Start Time	The date and time that the node joined the cluster.
StorageFlag	Indicates whether storage is enabled (**0** or **1**).
Id	The short member id that uniquely identifies this member.
Avail MB	The amount of available memory for this node, in megabytes.
Max MB	The maximum amount of memory for this node, in megabytes.
Pkts Sent	The cumulative number of packets sent by this node since the node statistics were last reset.
Delta	The number of packets sent by this node since the last update.
Pkts Rcvd	The cumulative number of packets received by this node since the node statistics were last reset.
Delta	The number of packets received by this node since the last update.
Pkts Rptd	The cumulative number of duplicate packets received by this node since the node statistics were last reset.
Delta	The number of duplicate packets received by this node since the last update.
Pkts Resent	The cumulative number of packets resent by this node since the node statistics were last reset.
Delta	The number of packets resent by this node since the last update.
Pub Succ Rate	The publisher success rate for this node since the node statistics were last reset. Publisher success rate is a ratio of the number of packets successfully delivered in a first attempt to the total number of sent packets. A failure count is incremented when there is no ACK received within a timeout period. It could be caused by either very high network latency or a high packet drop rate.
Rec Succ Rate	The receiver success rate for this node since the node statistics were last reset. Receiver success rate is a ratio of the number of packets successfully acknowledged in a first attempt to the total number of received packets. A failure count is incremented when a re-delivery of previously received packet is detected. It could be caused by either very high inbound network latency or lost ACK packets.
Member	The member name for this node.
Machine	The machine name for this node.
Rack	The rack name for this node.
Site	The site name for this node.
Process	The process name for this node.
Uni Addr	The unicast address. This is the IP address of the node's DatagramSocket for point-to-point communication.

	Uni Port	The unicast port. This is the port of the node's DatagramSocket for point-to-point communication.
	RoleName	The role name for this node.
	ProductEdition	The product edition this node is running. Possible values are: Standard Edition (SE), Enterprise Edition (EE), Grid Edition (GE).
Membership Trends	Track the total number of nodes and the total number of storage nodes in the cluster for the duration of the user session. These lines are normally unchanging or "flat". If there are fluctuations in this graph, check the debugging guide for appropriate actions.	
	Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

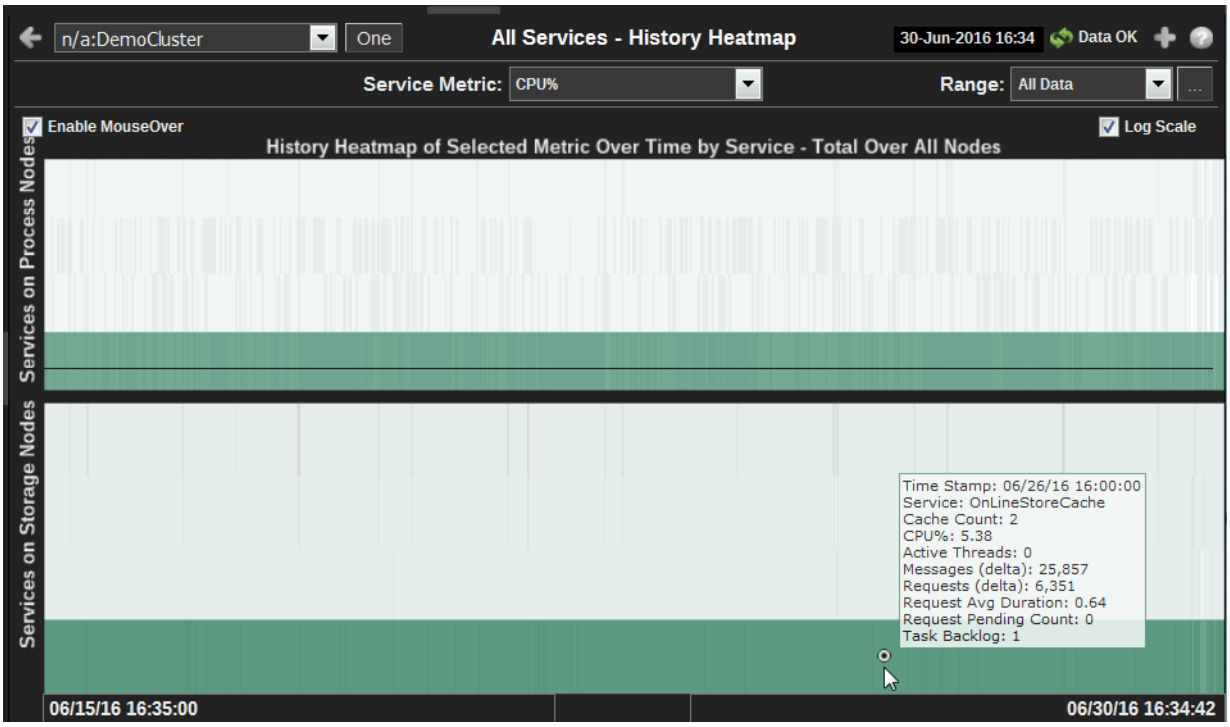
Departed Nodes	Track departed nodes by IP address, port number and time last seen.	
	Location	A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
	HostName	The name of the host on which the node resides.
	IP	The node IP address.
	Port	The unicast port the node used while in the cluster. This is the port of the node's DatagramSocket for point-to-point communication.
	Last Seen	The date and time that the node left the cluster.

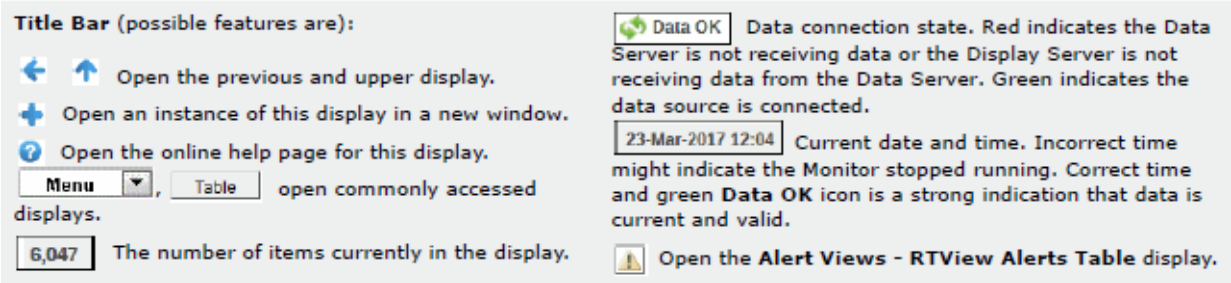
All Services History

Use this display to assess utilization of cache capacity, over time, by all services in a cluster. Analyze load distribution across services and caches, check for bottlenecks and quickly identify services that need more threads. Answer questions such as:

- Is their enough cache capacity available for the service?
- Is their enough storage capacity available for the service?

Use the mouseover tool-tip to see how many caches the service runs on, and data for the selected metric.





Filter By:
The display might include these filtering options:

Service Metric: Choose a service metric for which to display data in the heatmap. Use the mouse-over tool-tip to view metrics. Identify a service with high utilization. Perform node analysis by clicking **One** to view the "Single Service History" display.

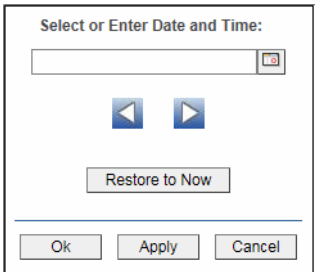
CPU%	Percent of CPU utilization in the specified time range.
Requests	The number of client requests issued to the cluster in the specified time range. This metric is a good indicator of end-user utilization of the service.
Messages	The number of messages for the given node in the specified time range.
ActiveThreads	The number of threads in the service thread pool, not currently idle.

TaskBacklog The size of the backlog queue that holds tasks scheduled to be executed by one of the service threads. Use this metric for determining capacity utilization for threads running on a service. For example, if the service has a high **TaskBacklog** rate and a low amount of CPU available, consider increasing the number of threads for the service to improve performance.

RequestPendingCount The number of pending requests issued by the service.

RequestAverageDuration The average duration (in milliseconds) of an individual request issued by the service since the last time the statistics were reset.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Enable MouseOver Select this option to make service details visible upon mouseover.

History Heatmap of Selected Metric by Service Use the heatmap to view utilization trends for all services, over time, and quickly identify heavy usage, indicated by a dark color (by default, dark green). Look for a consistently dark horizontal line, which typically indicates constant high utilization. If this level of utilization is unexpected, consider performing a lower level analysis by viewing service details in the "Single Service Summary"display.

Two heatmaps, one for Process Nodes and another for Storage Nodes, show utilization trends for the selected metric, for all services running in the cluster. Each row represents a service. Cells in a row are sized uniformly. Each column represents a time period (typically in 10 second intervals). The color of the row cells represent the relative value of the selected service Metric, where a darker shade is a larger value.

Use the mouseover tool-tip to see how many caches the service runs on, and data for the selected metric.

Services on Process Nodes Each row represents a service. The color of the cells represents the relative value of the selected Service Metric, where a darker shade is a larger value. The size of the cells are uniform as they each represent one process node. Use the mouseover tool-tip to see how many caches the service runs on, and data for the selected metric.

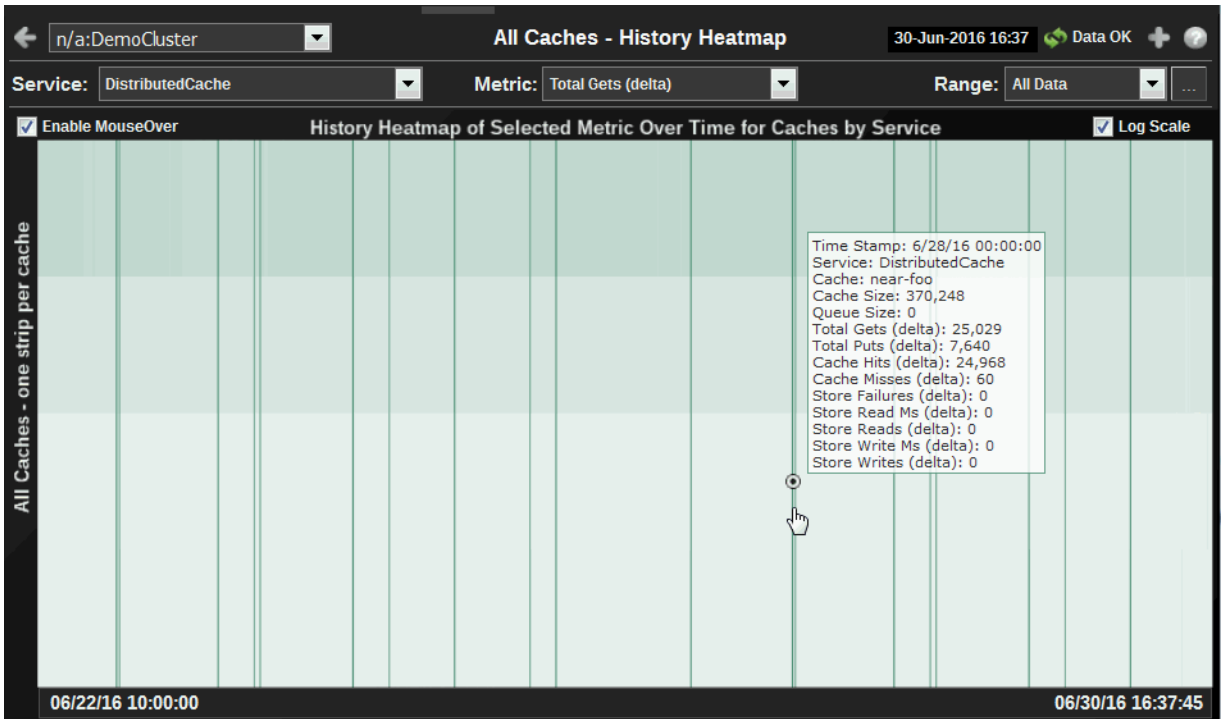
Services on Storage Nodes	Each row represents a service. The color of the cells represents the relative value of the selected Service Metric, where a darker shade is a larger value. The size of the cells are uniform as they each represent one storage node. Use the mouseover tool-tip to see how many caches the service runs on, and data for the selected metric.
Log Scale	Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

All Caches History

Use this display to assess capacity utilization, over time, for all caches in a cluster. Analyze load distribution, check for bottlenecks and quickly identify caches with high usage. Answer questions such as:

- Is the cluster using what I expect?
- Is the cluster using it in a uniform scale?

Use the mouseover tool-tip to see the name of the cache and data for the selected metric.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

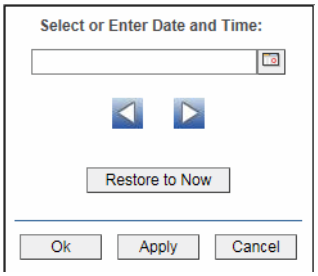
Cluster: Select a cluster for which to display data in the heatmap.

Service: Select a service for which to display data in the heatmap.

Metric: Select a metric for which to display data in the heatmap.

Total Gets	The total number of requests for data from this cache.
Total Puts	The total number of data stores into this cache.
Cache Hits	The total number of successful gets for this cache.
Cache Misses	The total number of failed gets for this cache. This metric indicates whether cache utilization is effective. For example, how often requests are made for data that does not exist in the cache. If a cache has a high rate of misses, consider performing a lower level analysis by viewing the cache in the "Single Cache Summary"display. Check the metrics for Size, Evictions and Misses to determine whether more capacity is needed.
Cache Size	The total number of objects in the cache.
StoreFailures (Delta)	The total number of store failures on this cache since the last data sample.
StoreReads (Delta)	The total number of load operations on this cache since the last data sample.
StoreReadMillis (Delta)	The cumulative amount of time (in milliseconds) of load operations for this cache since the last data sample.
StoreWrites (Delta)	The total number of store and erase operations for this cache since the last data sample.
StoreWrites Millis (Delta)	The cumulative amount of time (in milliseconds) of store and erase operations on this cache since the last data sample.
Total Gets	The total number of requests for data from this cache.

Range: Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

AppName: Choose an AppName to show data for in the display.

Fields and Data:

AppSlice Information

Last Update: The date and time the data was last updated.

Completed: The total number of completed processes summed across all processes in one AppSlice of the application.

Suspended: The total number of suspended processes

Failed: The total number of failed processes

Created Rate: The number of application processes created per second.

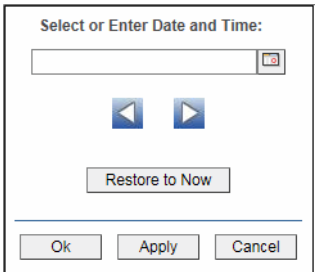
Failed Rate: The number of failed application processes per second.

Avg Exec: The average number of seconds for processes to execute.

Avg Elap: The average amount of elapsed time, in seconds.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



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Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Enable MouseOver

Select this option to make cache details visible upon mouseover.

History Heatmap of Selected Metric

Use the heatmap to view utilization trends for all caches, over time, and quickly identify heavy usage, indicated by a dark color (by default, dark green). Look for a consistently dark horizontal line, which typically indicates constant high utilization. If this level of utilization is unexpected, consider performing a lower level analysis by viewing cache details in the "Single Cache Summary" display.

Also look for a dark vertical line, which indicates that all the caches, nodes or services are being used simultaneously. Typically this indicates further analysis is needed.

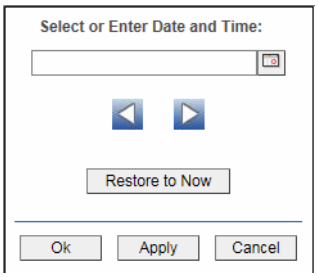
The heatmap shows cache utilization trends for the selected service and metric, for all caches running in the cluster. Each row represents a cache. Cells in a row are sized uniformly and represent one process node. Each column represents a time period (typically in 10 second intervals). The heatmap is grouped vertically by service. The color of the row cells represent the relative value of the selected service Metric, where a darker shade is a larger value.

Use the mouseover tool-tip to see the name of the cache and data for the selected metric.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



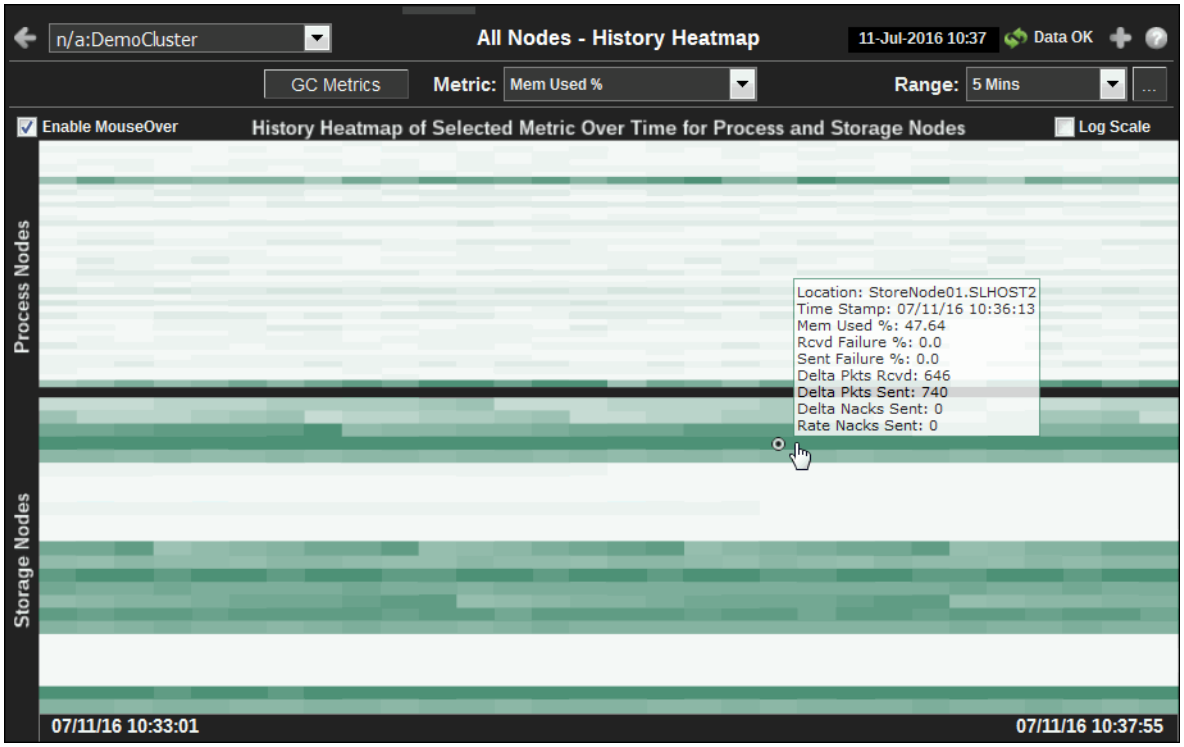
By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

All Nodes History

Use this display to assess capacity utilization, over time, for all nodes in a cluster. Analyze load distribution, check for bottlenecks and quickly identify nodes with high usage. Use the mouseover tool-tip to see the node hostname and data for the selected metric.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cluster: Select a cluster for which to display data in the heatmap.

GC Metrics Click to open the "All Nodes History" display which shows GC Duty Cycle for all the nodes in a cluster.

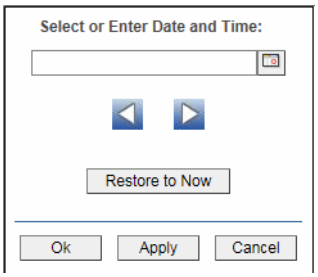
Metric: Select a metric for which to display data in the heatmap.

- **Mem Used%** The percent (%) of memory used by the node.
- **Packets Sent Fail%** The percent (%) of packets that had to be resent by this node.
- **Packets Rcvd Fail%** The percent (%) of packets that failed to be received by this node.

Delta Packets Sent	The number of packets sent by this node since the last data sample.
Delta Packets Rcvd	The number of packets received by this node since the last data sample.
Delta Nacks Sent	The number of TCMP packets sent by this node since the last data sample. Use this data to troubleshoot communication errors.

Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



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Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Enable MouseOver

Select this option to make cache details visible upon mouseover.

History Heatmap of Selected Metric

Use the heatmap to view utilization trends for all nodes, over time, and quickly identify heavy usage, indicated by a dark color (by default, dark green). Look for a consistently dark horizontal line, which typically indicates constant high utilization. If this level of utilization is unexpected, consider performing a lower level analysis by viewing node details in the "Node Summary" display.

Two heatmaps, one for Process Nodes and another for Storage Nodes, show utilization trends for the selected metric, for all nodes running in the cluster. Each row represents a node. Cells in a row are sized uniformly. Each column represents a time period (typically in 10 second intervals). The color of the row cells represent the relative value of the selected service Metric, where a darker shade is a larger value.

Use the mouseover tool-tip to see the node hostname and data for the selected metric.

Process Nodes	Each row represents a node. The color of the cells represents the relative value of the selected Service Metric, where a darker shade is a larger value. The size of the cells are uniform. Use the mouseover tool-tip to see the node hostname and data for the selected metric.

Storage Nodes	Each row represents a node. The color of the cells represents the relative value of the selected Service Metric, where a darker shade is a larger value. The size of the cells are uniform. Use the mouseover tool-tip to see the node hostname and data for the selected metric.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Proxy Services

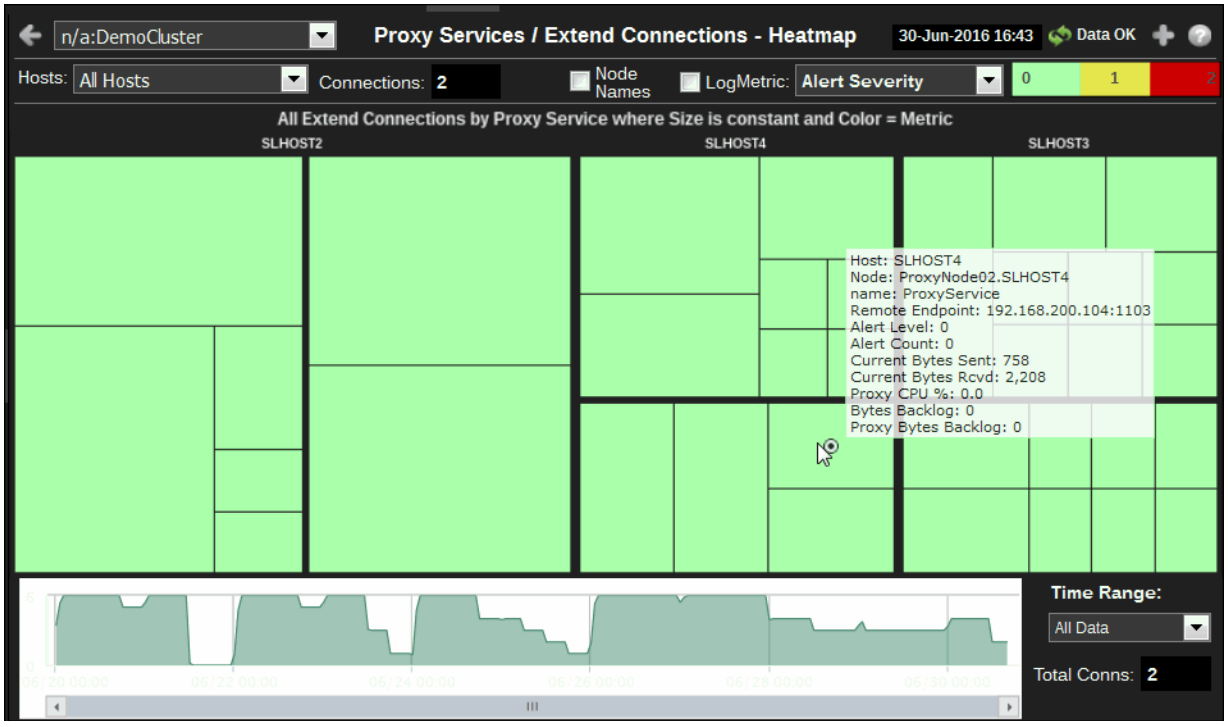
Proxy Services displays present detailed proxy server performance metrics for the cluster. Use the Proxy Services displays to quickly identify overloaded proxy services and locate the extend client connection causing the issue.

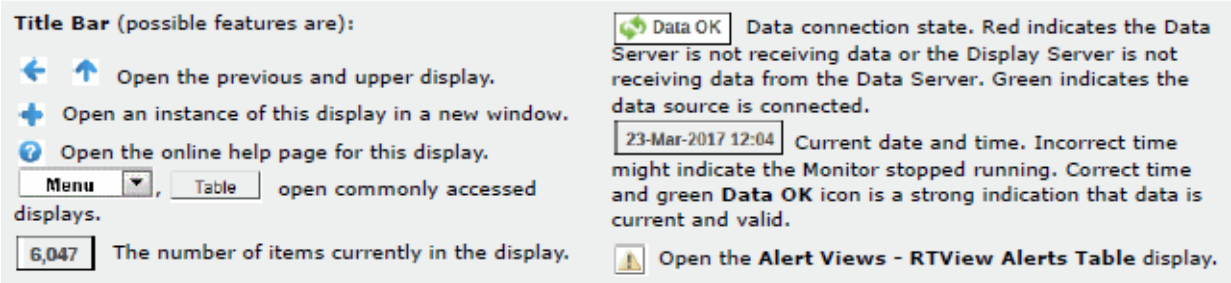
Proxy Services performance metrics include: CPU%, Requests, Request Average Duration, Request Pending Count, Task Backlog and Active Threads.

- "Proxy / Extend Overview": Heatmap shows the extend connections and a trend graph shows the total connections and total bytes transferred across all proxies for the selected host or hosts.
- "Proxy / Extend Connections" on page 631: Table shows proxy services data with trend graphs/tables of extend connection detail for a specified location.
- "Proxy / Extend Detail" on page 637: Table shows data for proxy services and extend client connection data, including remote endpoint, time stamp, connect time and outgoing byte backlog.
- "Proxy Nodes History" on page 641: Heatmap shows performance utilization, over time, for all proxy service nodes in the selected cluster.
- "Extend Connections History" on page 643: Heatmap shows performance utilization, over time, for all extend connections in the selected cluster.

Proxy / Extend Overview

Heatmap shows performance utilization and a trend graph shows the total connections and total bytes transferred for all proxy services for the selected host or hosts.





Cluster: Select a cluster for which to display data in the heatmap.

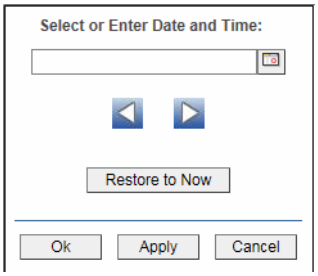
Hosts Click to open display that shows GC Duty Cycle for all the nodes in a cluster.

Metric: Select a metric for which to display data in the heatmap.

- **Alert Severity** The maximum level of alerts in the heatmap rectangle. Values range from 0 - 2, as indicated in the color gradient bar, where 2 is the highest Alert Severity:
- **Alert Count** The total number of critical and warning alerts in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Current Bytes Sent	Total number of bytes sent by the selected proxy in the time range specified.
Current Bytes Received	Total number of bytes received by the selected proxy in the time range specified.
Proxy CPU%	The average percent CPU utilization for the selected proxy.
Bytes Backlog	The number of pending bytes in the Extend outgoing queue.
Proxy Bytes Backlog	The number of pending bytes in the Proxy outgoing queue.

Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



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Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

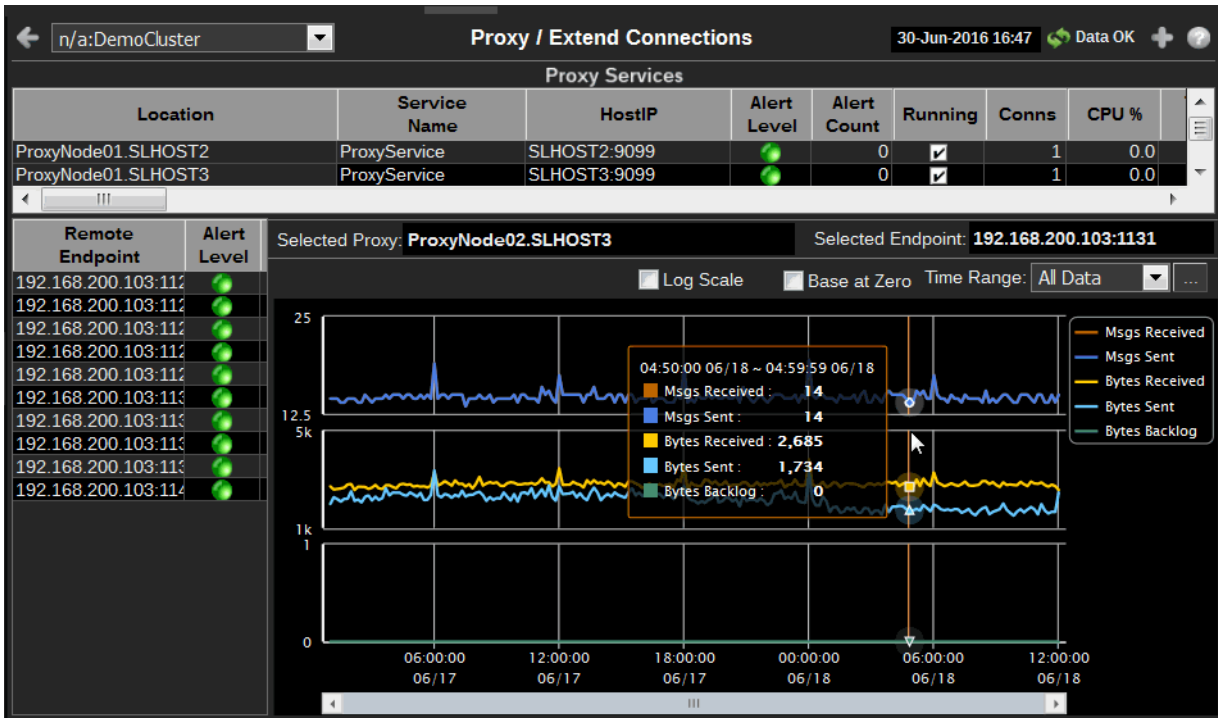
Click **Restore to Now** to reset the time range end point to the current time.

Total Connections The number of extend clients connected to the selected proxy.

Proxy / Extend Connections

Table shows proxy services data, including connections, CPU usage and bytes sent and received, and a trend graph displays messages and bytes sent and received for the selected remote endpoint.

The table data is the result of joins of metric from the following Coherence MBeans: Service and ConnectionManager. For details on attributes of these MBeans go to: http://download.oracle.com/otn_hosted_doc/coherence/350/com/tangosol/net/management/Registry.html.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Cluster: Select a cluster from the drop-down menu.

Proxy Services

Location A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.

HostIP The IP address of the host where the proxy service resides.

Alert Level The maximum level of alerts in the row:
Red indicates that one or more exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more exceeded their WARNING LEVEL threshold.
Green indicates that none have exceeded their alert thresholds.

Alert Count	The number of alerts in the row.
Running	Indicates that the proxy service is running when selected.
Connections	The number of extend clients connected to the selected host or hosts.
CPU%	The average percent CPU utilization for each proxy service in the cluster.
Bytes Sent	The number of bytes sent by the proxy service since the proxy service joined the cluster.
Delta	The number of bytes sent by the proxy service since the last data sample.
Backlog	The size (in kilobytes) of the backlog queue.
Bytes Rcvd	The number of bytes received by the proxy service since the proxy service joined the cluster.
Delta	The number of bytes received by the proxy service since the last data sample.
MsgsSent	The number of messages sent by the proxy service since the proxy service joined the cluster.
Delta	The number of messages sent by the proxy service since the last data sample.
Backlog	The size of the backlog queue that holds messages scheduled to be sent by one of the proxy service pool threads.
Msgs Rcvd	The number of messages received by the proxy service since the proxy service joined the cluster.
Delta	The number of messages received by the proxy service since the last data sample.
Tasks	The number of tasks performed by the proxy service since the last time the statistics were reset.
RequestAverageDuration	The average duration (in milliseconds) of an individual synchronous request issued by the proxy service since the last time the statistics were reset.
RequestMaxDuration	Maximum duration (in milliseconds) of an individual proxy service request since the last time the statistics were reset.
RequestTotalCount	The number of requests issued and received by the proxy service.
TaskAverageDuration	The average duration (in milliseconds) of an individual task execution.
TaskBacklog	The size of the backlog queue that holds tasks scheduled to be executed by one of the proxy service pool threads.
TaskCount	The number of tasks performed by the proxy service since the last time the statistics were reset.
TaskHungCount	The total number of currently executing hung tasks.
TaskHungDuration	The longest currently executing hung task duration in milliseconds.
TaskHungTaskId	The id of the of the longest currently executing hung task.

TaskHungThresholdMillis	The duration (in milliseconds) that a proxy service task can execute before it is considered hung. Note that a posted task that has not yet started is never considered as hung.
TaskMaxBacklog	The maximum size of the proxy service backlog queue since the last time the statistics were reset.
TaskTimeoutCount	The total number of timed-out proxy service tasks since the last time the statistics were reset.
RequestPendingCount	The number of pending proxy service requests.
RequestPendingDuration	The average duration (in milliseconds) that an individual proxy service request waits before being executed.
RequestTimeoutCount	The total number of timed-out proxy service requests since the last time the statistics were reset.
RequestTimeoutMillis	The duration (in milliseconds) for a proxy service request to reach the specified timeout threshold.
TaskTimeoutMillis	The default timeout value (in milliseconds) for tasks that can be timed-out but do not explicitly specify the task execution timeout value.
IncomingBufferPoolSize	**The number of buffers in the incoming pool.**
ThreadAbandonedCount	The number of abandoned threads from the proxy service thread pool. A thread is abandoned and replaced with a new thread if it executes a task for a period of time longer than execution timeout and all attempts to interrupt it fail.
ThreadCount	The number of threads in the proxy service thread pool.
ThreadIdleCount	The number of currently idle threads in the proxy service thread pool.
AverageActiveThreadCount	The average number of proxy service active threads, not currently idle, since the last time the statistics were reset.
ThreadAverageActiveCount	**The average number of active (not idle) threads in the service thread pool since the last time the statistics were reset.**
AverageTaskDuration	The average duration (in milliseconds) to perform a proxy service task since the last time the statistics were reset.
MaximumBacklog	The maximum size of the backlog queue since the last time the statistics were reset.
Throughput	The amount of data (in kilobytes) that is transferred by the proxy service.
Throughput Inbound	The amount of data (in kilobytes) that is transferred from clients to the proxy service.
Throughput Outbound	The amount of data (in kilobytes) that is transferred from the proxy service to clients.
IncomingBufferPoolCapacity	The size (in kilobytes) of the proxy service incoming buffer pool.

	OutgoingBufferPoolCapacity	The size (in kilobytes) of the proxy service outgoing buffer pool.
	OutgoingBufferPoolSize	The number of buffers in the proxy service outgoing pool.
	nodeId	The unique identifier for the proxy service.
	RefreshTime	The timestamp when this model was last retrieved from a corresponding node. For local servers it is the local time.
	HostName	The name of the host where the proxy service resides.
	MemberName	A specified, unique name of the host where the proxy service resides.
	SeniorMemberId	The proxy service senior member id. If the proxy service is not running, it is -1.
	Rate	The number of errors accumulated per second.
Execution	**Min**	The shortest execution time of any process instance, in milliseconds.
	Max	The longest execution time of any process instance, in milliseconds.
	Average	The average execution time for all completed process instances, in milliseconds.
	Current	The amount of time accumulated this update cycle.
	Rate	The amount of time accumulated per second.
Elapsed	**Min**	The shortest elapsed time of any process instance, in milliseconds.
	Max	The longest elapsed time of any process instance, in milliseconds.
	Average	The average elapsed time for all completed process instances, in milliseconds.
	Current	The amount of elapsed time accumulated this update cycle.
	Rate	The amount of elapsed time accumulated per second.
Selected Proxy	**This field is populated by the selection made in the Proxy Services table.**	
Selected Endpoint	This field is populated by the selection made in the Remote Endpoint table.	

Trend Graphs
Select a host from the Proxy Services table and a connection from the Remote Endpoint table. This table is populated by the selection made in the Proxy Services table.
Alert Level shows the maximum level of alerts in row:

- Red indicates that one or more exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more exceeded their WARNING LEVEL threshold.
- Green indicates that none have exceeded their alert thresholds.

Msgs Received: Traces the number of messages received by the selected proxy service from the remote endpoint.

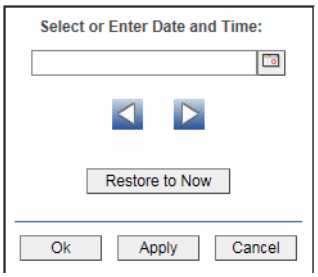
Msgs Sent: Traces the number of bytes received by the selected proxy service from the remote endpoint.

Bytes Received: Traces the rate at which the application is accumulating process execution time, in milliseconds per second.

Bytes Sent: Traces the number of executed activities per second.

All Activities Exec Time/sec: Traces the number of bytes sent by the selected proxy service to the remote endpoint.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ....



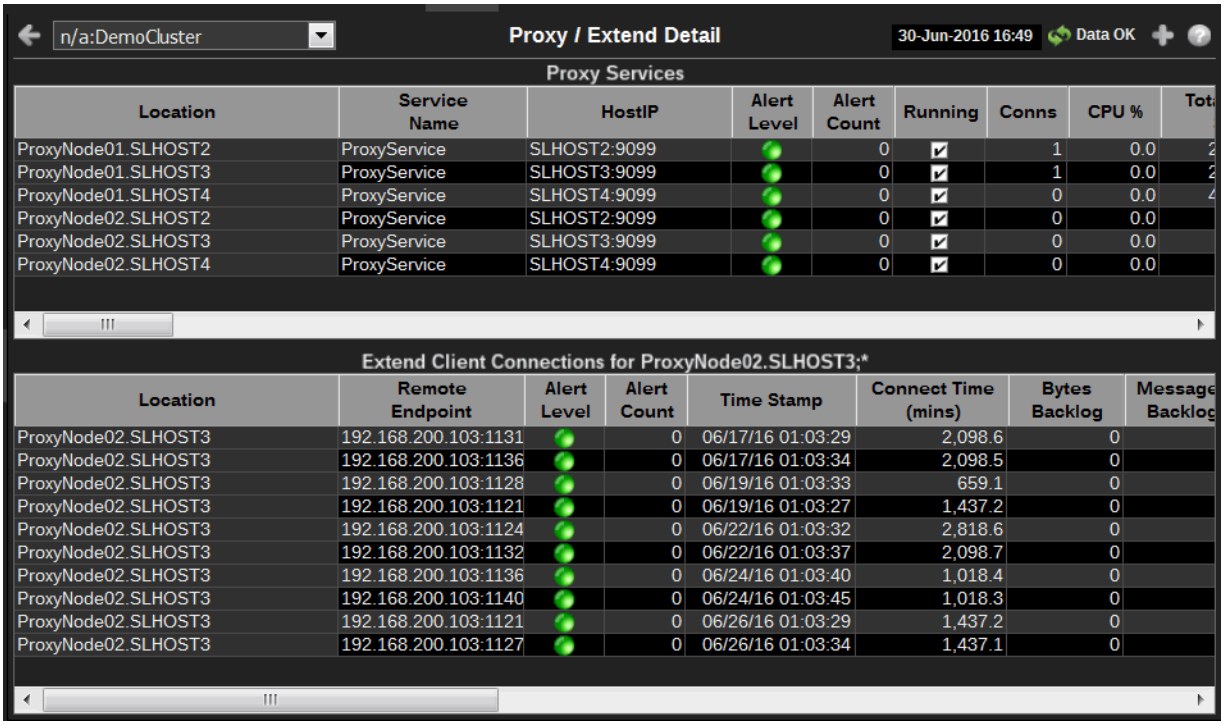
By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

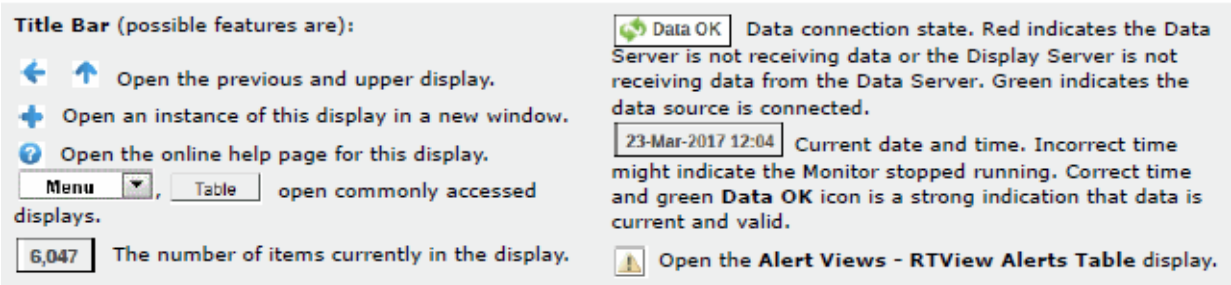
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Proxy / Extend Detail

Table shows data for proxy services and extend client connection data, including remote endpoint, time stamp, connect time and outgoing byte backlog.





Cluster Select a cluster from the drop-down menu.

Proxy Services

Location A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.

HostIP The IP address of the host where the proxy service resides.

Running Indicates that the proxy service is running when selected.

Connections The number of extend clients connected to the selected host or hosts.

CPU% The average percent CPU utilization for each proxy service in the cluster.

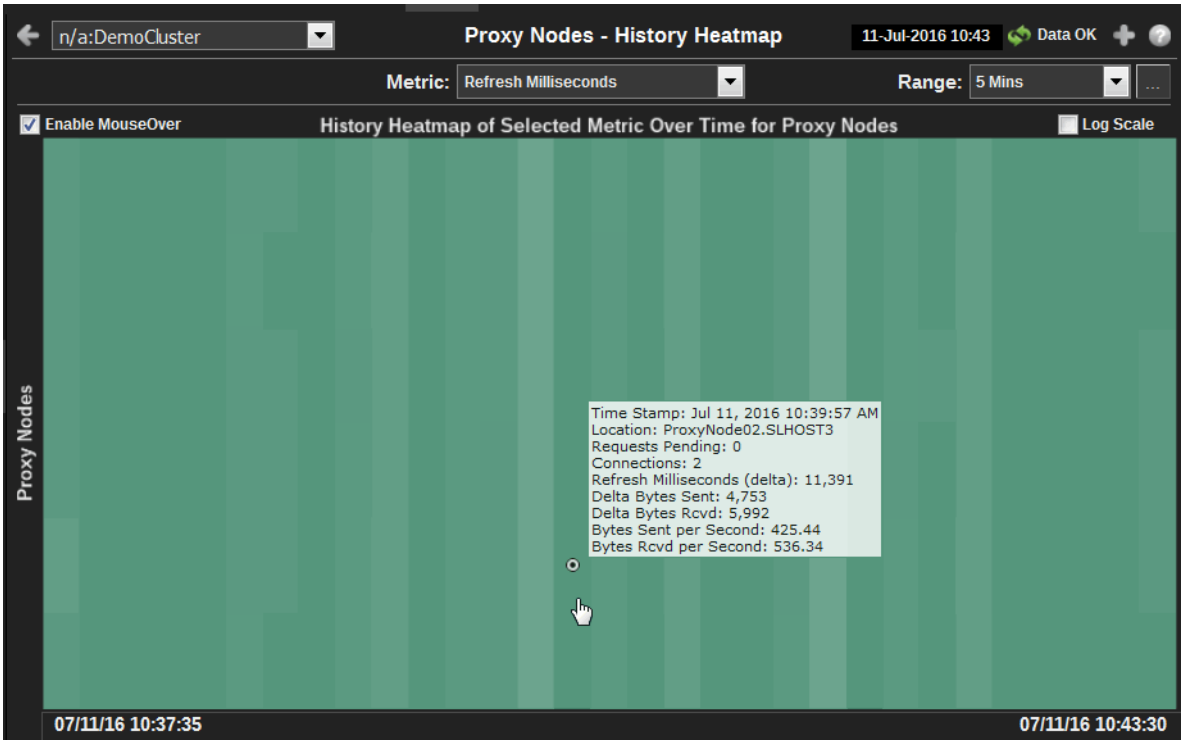
Bytes Sent	The number of bytes sent by the proxy service since the proxy service joined the cluster.
Delta	The number of bytes sent by the proxy service since the last data sample.
Backlog	The size (in kilobytes) of the backlog queue.
Bytes Rcvd	The number of bytes received by the proxy service since the proxy service joined the cluster.
Delta	The number of bytes received by the proxy service since the last data sample.
MsgsSent	The number of messages sent by the proxy service since the proxy service joined the cluster.
Delta	The number of messages sent by the proxy service since the last data sample.
Backlog	The size of the backlog queue that holds messages scheduled to be sent by one of the proxy service pool threads.
Msgs Rcvd	The number of messages received by the proxy service since the proxy service joined the cluster.
Delta	The number of messages received by the proxy service since the last data sample.
Tasks	The number of tasks performed by the proxy service since the last time the statistics were reset.
RequestAverage Duration	The average duration (in milliseconds) of an individual synchronous request issued by the proxy service since the last time the statistics were reset.
RequestMaxDuration	Maximum duration (in milliseconds) of an individual proxy service request since the last time the statistics were reset.
RequestPending Count	The number of pending proxy service requests.
RequestPending Duration	The average duration (in milliseconds) that an individual proxy service request waits before being executed.
RequestTimeout Count	The total number of timed-out proxy service requests since the last time the statistics were reset.
RequestTimeout Millis	The duration (in milliseconds) for a proxy service request to reach the specified timeout threshold.
RequestTotalCount	The number of requests issued and received by the proxy service.
TaskAverageDuration	The average duration (in milliseconds) of an individual task execution.
TaskBacklog	The size of the backlog queue that holds tasks scheduled to be executed by one of the proxy service pool threads.
TaskCount	The number of tasks performed by the proxy service since the last time the statistics were reset.
TaskHungCount	The total number of currently executing hung tasks.
TaskHungDuration	The longest currently executing hung task duration in milliseconds.

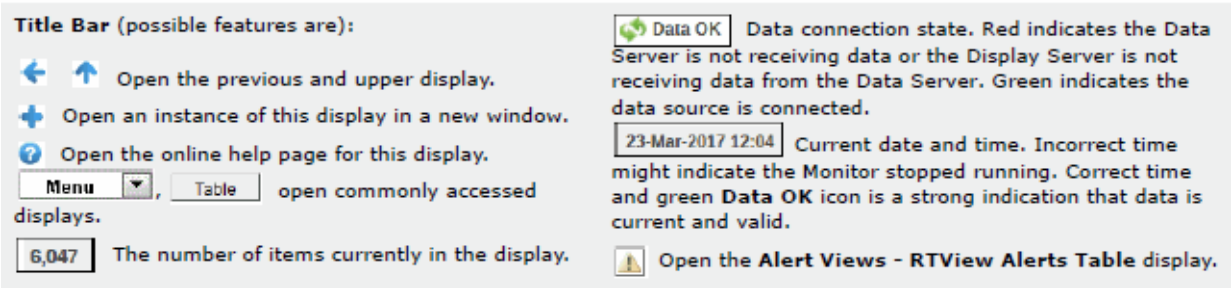
TaskHungTaskId	The id of the of the longest currently executing hung task.
TaskHungThresholdMillis	The duration (in milliseconds) that a proxy service task can execute before it is considered hung. Note that a posted task that has not yet started is never considered as hung.
TaskMaxBacklog	The maximum size of the proxy service backlog queue since the last time the statistics were reset.
TaskTimeoutCount	The total number of timed-out proxy service tasks since the last time the statistics were reset.
TaskTimeoutMillis	The default timeout value (in milliseconds) for tasks that can be timed-out but do not explicitly specify the task execution timeout value.
IncomingBufferPoolSize	The number of buffers in the incoming pool.
ThreadAbandonedCount	The number of abandoned threads from the proxy service thread pool. A thread is abandoned and replaced with a new thread if it executes a task for a period of time longer than execution timeout and all attempts to interrupt it fail.
ThreadCount	The number of threads in the proxy service thread pool.
ThreadIdleCount	The number of currently idle threads in the proxy service thread pool.
AverageActiveThreadCount	The average number of proxy service active threads, not currently idle, since the last time the statistics were reset.
ThreadAverageActiveCount	The average number of active (not idle) threads in the service thread pool since the last time the statistics were reset.
AverageTaskDuration	The average duration (in milliseconds) to perform a proxy service task since the last time the statistics were reset.
MaximumBacklog	The maximum size of the backlog queue since the last time the statistics were reset.
Throughput	The amount of data (in kilobytes) that is transferred by the proxy service.
ThroughputInbound	The amount of data (in kilobytes) that is transferred from clients to the proxy service.
ThroughputOutbound	The amount of data (in kilobytes) that is transferred from the proxy service to clients.
IncomingBufferPoolCapacity	The size (in kilobytes) of the proxy service incoming buffer pool.
OutgoingBufferPoolCapacity	The size (in kilobytes) of the proxy service outgoing buffer pool.
OutgoingBufferPoolSize	The number of buffers in the proxy service outgoing pool.
nodeId	The unique identifier for the proxy service.
RefreshTime	The timestamp when this model was last retrieved from a corresponding node. For local servers it is the local time.
HostName	The name of the host where the proxy service resides.

	MemberName	A specified, unique name of the host where the proxy service resides.
	SeniorMemberId	The proxy service senior member id. If the proxy service is not running, it is -1.
Extend Client Connections	Select a row from the Proxy Services table to populate client data in the table.	
	Location	A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
	RemoteEndpoint	The IP address of the client.
	Timestamp	The date and time (in cluster time) that this client joined the proxy service.
	Connect Time (mins)	The duration (in minutes) the client has been connected to the proxy service.
	OutgoingByteBacklog	The size of the backlog queue (in bytes) that holds outgoing bytes scheduled to be executed by one of the proxy service pool threads for the client.
	OutgoingMessageBacklog	The number of messages in the backlog queue that holds outgoing messages scheduled to be sent to the client by one of the proxy service pool threads.
	TotalBytesReceived	The number of bytes received from the client by the proxy service since the client connected to the proxy service.
	Delta	The number of bytes received from the client by the proxy service since the last data sample.
	TotalBytesSent	The number of bytes sent to the client by the proxy service since the client connected to the proxy service.
	Delta	The number of bytes sent to the client by the proxy service since the last data sample.
	TotalMessagesReceived	The number of messages received from the client by the proxy service since the client connected to the proxy service.
	Delta	The number of messages received from the client by the proxy service since the last data sample.
	TotalMessagesSent	The number of messages sent to the client by the proxy service since the client connected to the proxy service.
	Delta	The number of messages sent to the client by the proxy service since the last data sample.
	UUID	The unique identifier for the extend client application.
	nodeId	The unique identifier for the proxy service the extend client is connected to.

Proxy Nodes History

Heatmap shows performance utilization, over time, for all proxy service nodes in the selected cluster. Use this display to assess performance, over time, for all proxy service nodes in a cluster. Analyze load distribution, check for bottlenecks and quickly identify proxy service nodes with high usage.





Cluster Select a cluster from the drop-down menu.

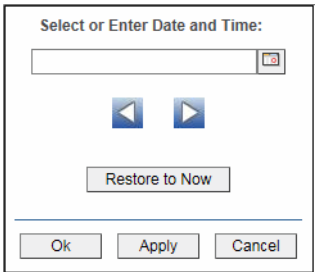
Metric Select a metric from the drop-down menu.

Request Pending	The number of pending requests issued by the node.
Connections	Total number of connection for the node.
Refresh Milliseconds	The amount of time, in milliseconds, since the last data sample.
Delta Bytes Sent	Total number of bytes sent by the node since the last data sample.

Delta Bytes Rcvd	Total number of bytes received by the node since the last data sample.
Bytes Sent Per Second	Total bytes sent, per second, by the node.

Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Enable MouseOver

Select this option to make details visible upon mouseover.

Log Scale

Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

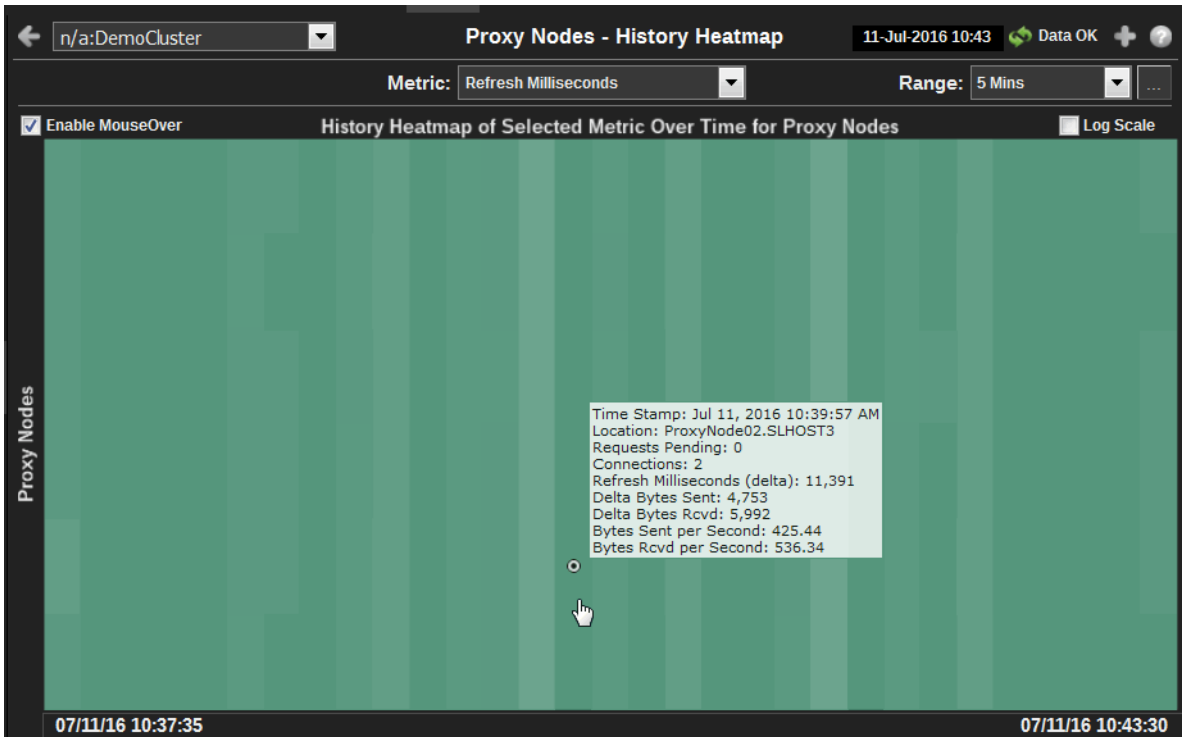
Proxy Nodes Heatmap

Use the heatmap to view utilization trends for all Process and Storage nodes, over time, and quickly identify heavy usage, indicated by a dark color (by default, dark green). Look for a consistently dark horizontal line, which typically indicates constant high utilization. If this level of utilization is unexpected, consider performing a lower level analysis by viewing node details in the "Node Summary" display.

Use the mouseover tool-tip to see the node hostname and data for the selected metric.

Extend Connections History

Heatmap shows performance utilization, over time, for all extend connections in the selected cluster.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Cluster Select a cluster from the drop-down menu.

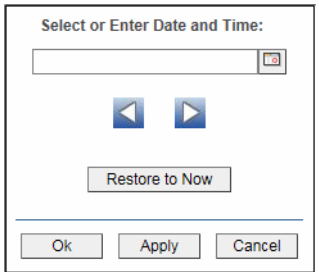
Metric Select a metric from the drop-down menu.

Delta Bytes Sent	Total number of bytes sent by the node since the last data sample.
Delta Bytes Rcvd	Total number of bytes received by the node since the last data sample.
Delta Messages Sent	Total number of messages sent by the node since the last data sample.
Delta Messages Rcvd	Total number of messages received by the node since the last data sample.

Bytes Sent per Second	Total bytes sent, per second, by the node.
Bytes per Second	Total bytes received, per second, by the node.
Msgs Sent per Second	Total messages sent, per second, by the node.
Msgs Rcvd per Second	Total messages received, per second, by the node.

Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Enable MouseOver

Select this option to make details visible upon mouseover.

Log Scale

Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Proxy Nodes Heatmap

Use the heatmap to view utilization trends for all Process and Storage nodes, over time, and quickly identify heavy usage, indicated by a dark color (by default, dark green). Look for a consistently dark horizontal line, which typically indicates constant high utilization. If this level of utilization is unexpected, consider performing a lower level analysis by viewing node details in the Single Node - Summary display.

Use the mouseover tool-tip to see the node hostname and data for the selected metric.

Cache Services

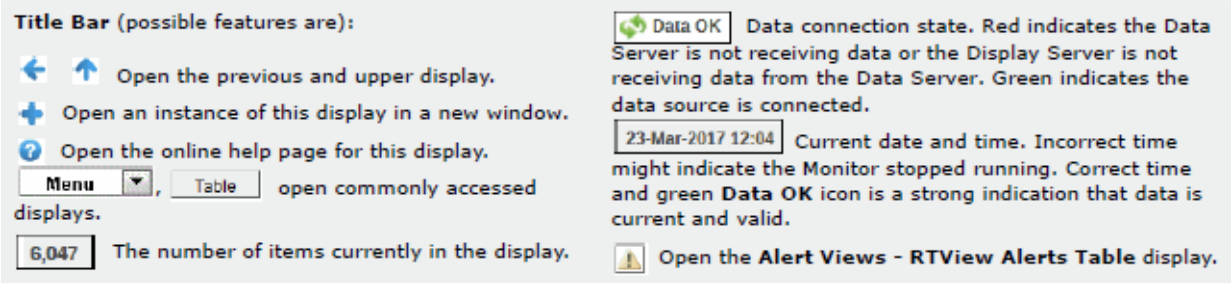
Cache Services displays present detailed service performance metrics for the cluster. Use the Cache Services displays to quickly identify overloaded services and locate the client connection causing the issue.

These displays show metrics for all cache services, including: CPU%, Requests, Request Average Duration, Request Pending Count, Task Backlog and Active Threads.

- "Single Service Summary" on page 645: Trend graphs show performance metrics for a single service aggregated across all nodes.
- "Service Metrics Overview" on page 649: Heatmap shows overview of the current behavior of the cluster, displaying metrics across nodes in the cluster for a selected service or for all services. Enables you to determine if the behavior of the cluster is balanced across all nodes or identify if some nodes are hot spots.
- "Service Metric Heatmap" on page 650: Heatmap shows current value of a selected metric, selected by service, across the cluster. Enables you to determine if the behavior of the cluster, for the selected metric, is balanced or identify if some nodes are hot spots.
- "Single Service History" on page 652: Use this display to perform low-level analysis of service capacity utilization, over time, per node. Heatmap enables you to view the impact of events across the cluster as well as the relative historical performance of nodes across the cluster.
- "Cache Service Detail" on page 654: Table view of attributes of a selected service for a selected host for nodes. Attribute values can be ordered to identify the nodes with the highest and lowest values of interest.

Single Service Summary

This display shows performance metrics for a single service aggregated across all nodes.



Cluster	Select a cluster to display.
Service	Select a service to display.
Storage Nodes	Select to display storage node data in the trend graphs of this display.
Process Nodes	Select to display process node data in the trend graphs of this display.
Caches	The number of caches managed by the service.
Type	The type of cache.
Storage Nodes	The number of storage nodes in the cache.
Process Nodes	The number of process nodes in the cache.
Status	The high availability status of the service: ● ENDANGERED: There is potential data loss in the cluster if a node goes offline. ○ NODE-SAFE: There is no risk of data loss in the cluster if a node goes offline (or is taken offline using kill-9). The data is replicated across multiple nodes and remains available in the cluster. ● MACHINE-SAFE: There is no risk of data loss in the cluster if a machine goes offline (or is taken offline using kill-9). The data is replicated across multiple machines and remains available in the cluster. ● RACK-SAFE: There is no risk of data loss in the cluster if a rack goes offline (or is taken offline using kill-9). The data is replicated across multiple racks and remains available in the cluster. ● SITE-SAFE: There is no risk of data loss in the cluster if a site goes offline (or is taken offline using kill-9). The data is replicated across multiple sites and remains available in the cluster.

Requests

Requests executed by the service.

Total The number of requests executed.

Rate / Delta Use the **Use Rates** checkbox to toggle between two value types: **Rate** and Delta (as labeled in the display upon selection).

When the **Use Rates** (checkbox) is NOT selected the Delta values are shown here and in the trend graphs. Delta is the difference in the value since the last sample. When the **Use Rates** (checkbox) is selected the Rate values are shown here and in the trend graphs. Rate is the value per second. The Rate value is useful when the sampling time period is unknown, has changed, or has a long duration specified. For a given rate, the Rate value does not vary if the sample period changes (whereas the Delta value does vary). The Rate value enables you to directly compare rates on systems with different sample periods.

Pending The number of pending requests.

Messages

Messages executed by the service.

Total The number of messages executed.

Rate / Delta Use the **Use Rates** checkbox to toggle between two value types: **Rate** and **Delta** (as labeled in the display upon selection).

When the **Use Rates** (checkbox) is NOT selected the **Delta** values are shown here and in the trend graphs. **Delta** is the difference in the value since the last sample. When the **Use Rates** (checkbox) is selected the **Rate** values are shown here and in the trend graphs. **Rate** is the value per second. The **Rate** value is useful when the sampling time period is unknown, has changed, or has a long duration specified. For a given rate, the **Rate** value does not vary if the sample period changes (whereas the **Delta** value does vary). The **Rate** value enables you to directly compare rates on systems with different sample periods.

Req Avg Duration The average amount of time to process messages.

Tasks

Tasks performed by the service.

Count The number of tasks performed.

Backlog The number of tasks scheduled to be executed by one of the service threads.

Queue The Write Back Queue total across all caches on the service.

Threads

Threads on the service.

Count The number of threads on the service.

Active The number of threads in the service not currently idle.

Avg CPU% The average amount of CPU usage (%) for the service.

Storage / Process Node Totals

The trend graphs show aggregated performance metrics for storage or process nodes. Choose **Storage Nodes** or **Process Nodes** at the top of this display.

Use Rates Select to show **Rate** values in the **Requests and Messages** fields and trend graphs.

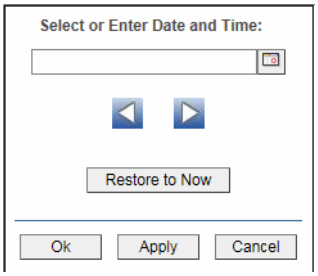
Rate is the value per second. The **Rate** value is useful when the sampling time period is unknown, has changed, or has a long duration specified. For a given rate, the **Rate** value does not vary if the sample period changes (whereas the **Delta** value does vary). The **Rate** value enables you to directly compare rates on systems with different sample periods. Deselect **Use Rates** to show the **Delta** values in the **Activity - Current (Delta)** fields and trend graphs. **Delta** is the difference in the value since the last sample.

Log Scale Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero for the Y axis minimum for all graphs.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



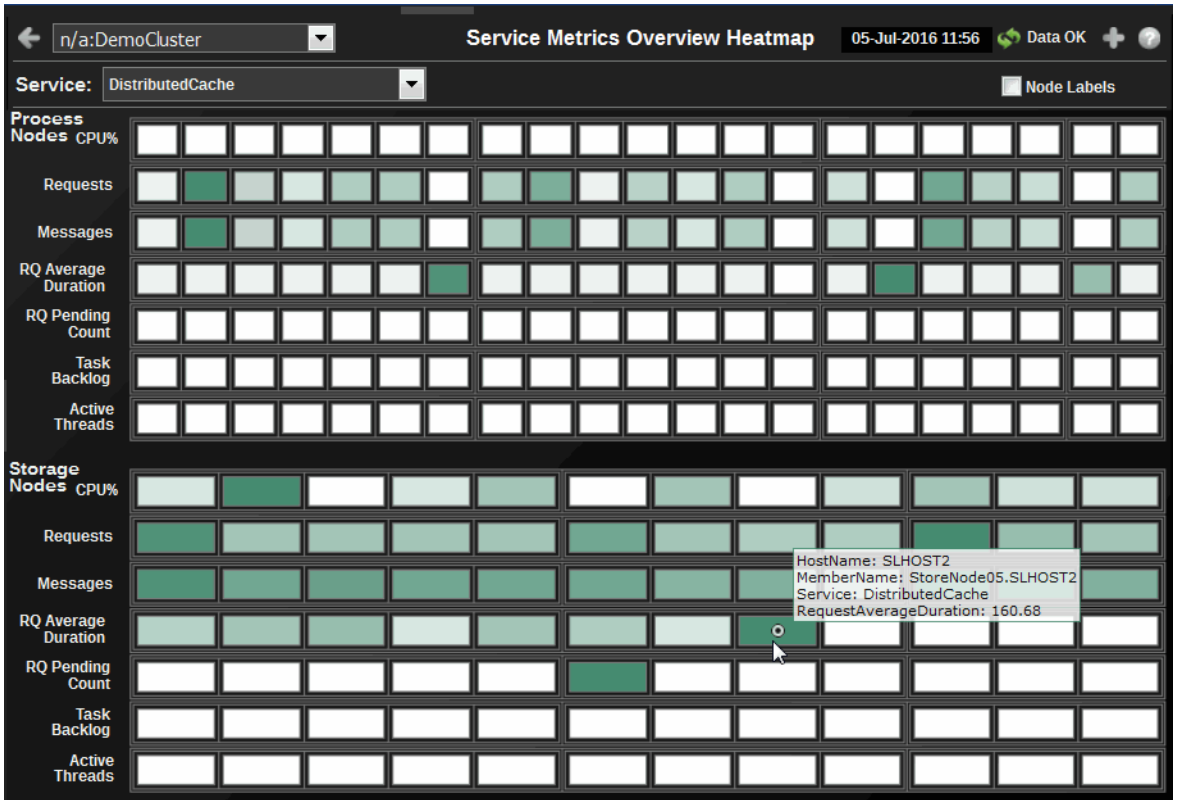
By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Service Metrics Overview

Heatmap of Process (non-storage enabled) Nodes and Storage (enabled) Nodes. Size = One Node. Color = Relative Value of Selected Metric.



Title Bar (possible features are):

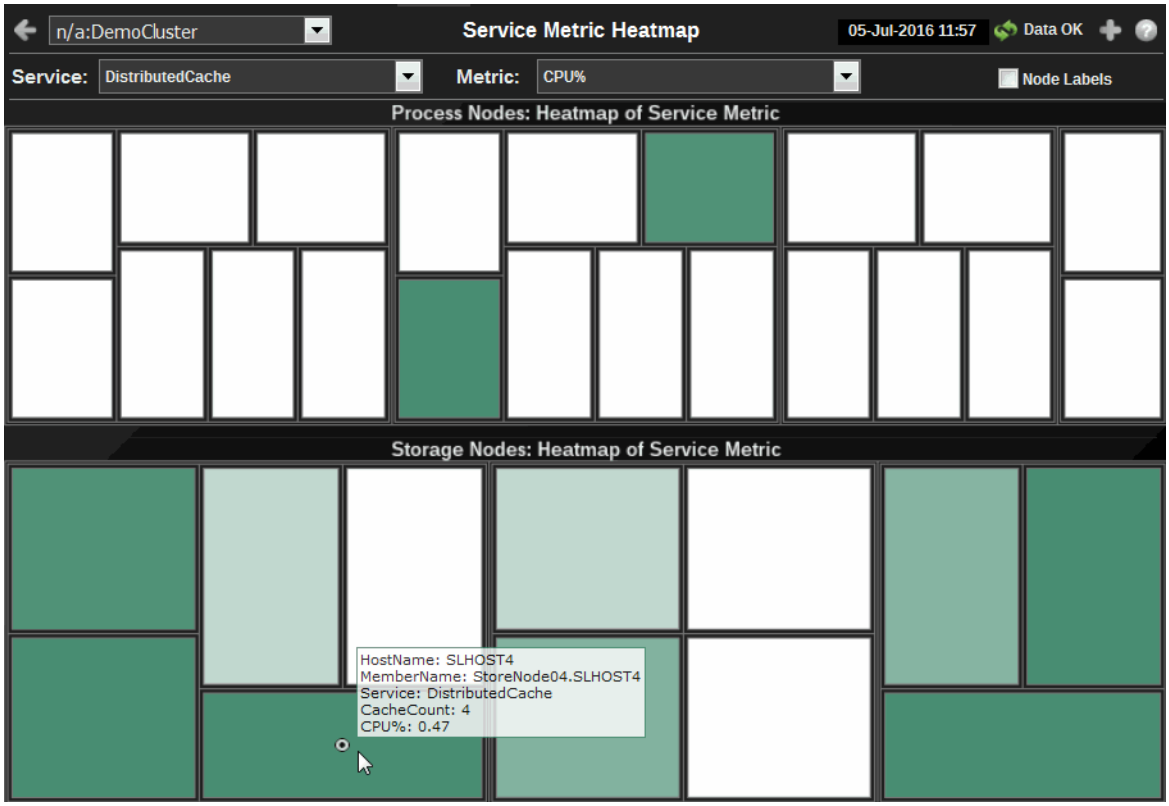
- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

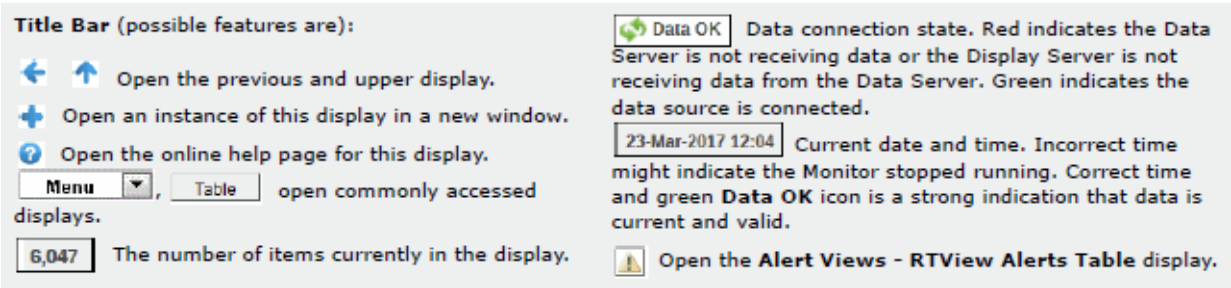
Cluster	Select a cluster to display.
Service	Select a service to display.

Node Labels	Select to display node labels.
Process Nodes **Storage Nodes**	Color of the cells represents the relative value of the selected Metric; a darker shade is a larger value. The size of all cells is identical as they each represent one process node. **CPU**% Percent of CPU utilization on the given node. **Requests** Number of requests issued by the service in the measured period. **Messages** The number of messages for the given node in the measured interval. **Request Average Duration** Average duration (in milliseconds) of an individual request issued by the service since the last time the statistics were reset. **Request Pending Count** Number of pending requests issued by the service. **Task Backlog** Size of the backlog queue that holds tasks scheduled to be executed by one of the service threads. **Active Threads** Number of threads in the service thread pool, not currently idle.

Service Metric Heatmap

Heatmap of Process (non-storage enabled) Nodes and Storage (enabled) Nodes. Size = Number of Caches in Selected Service, Color = Relative Value of Selected Metric.

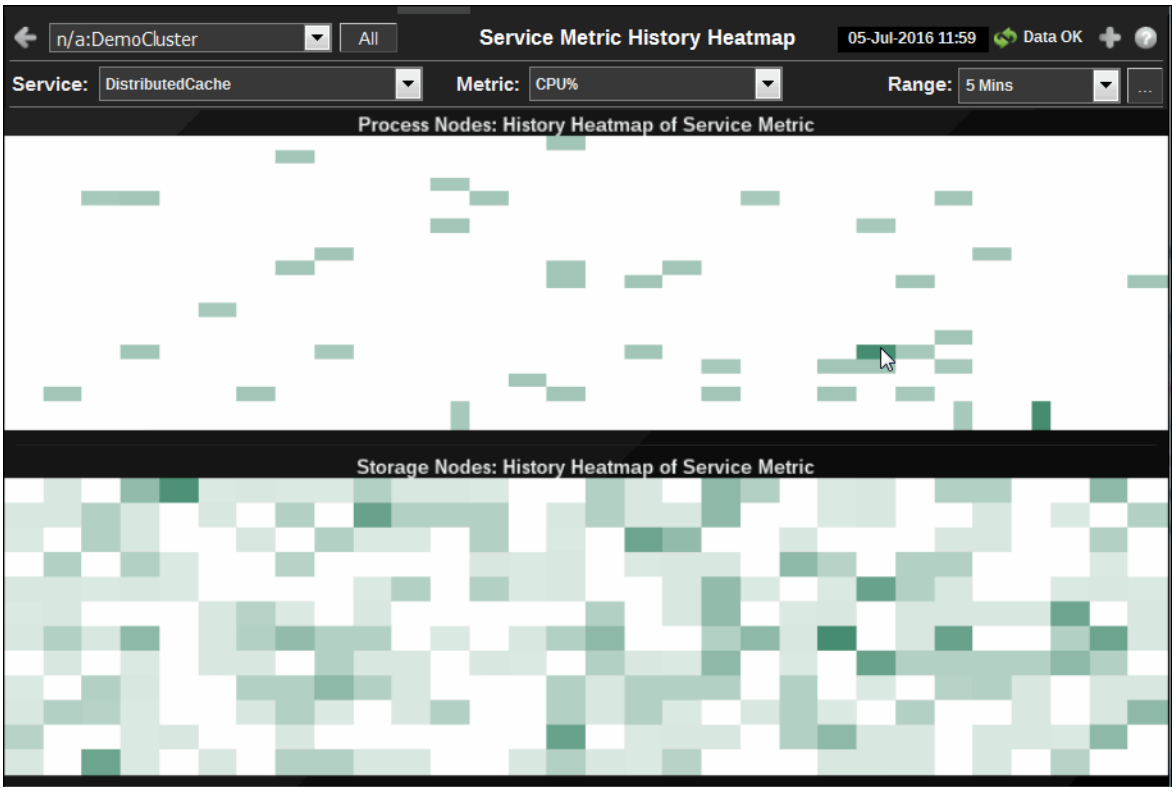




Cluster	Select a cluster to display.
Service	Select a service to display.
Node Labels	Select to display node labels.
Metric	**CPU%** Percent of CPU utilization on the given node. **Requests** Number of requests issued by the service in the measured period. **Request Average Duration** Average duration (in milliseconds) of an individual request issued by the service since the last time the statistics were reset. **Request Pending Count** Number of pending requests issued by the service. **Task Backlog** Size of the backlog queue that holds tasks scheduled to be executed by one of the service threads. **Active Threads** Number of threads in the service thread pool, not currently idle.
Node Labels	Select to view node locations. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Process Nodes: Heatmap of Service Metric	Color of the cells represents the relative value of the selected Metric for a given process node; a darker shade is a larger value. Size of the cells is based the number of caches in the selected Service for that process node.
Storage Nodes: Heatmap of Service Metric	Color of the cells represents the relative value of the selected Metric for a given process node; a darker shade is a larger value. Size of the cells is based the number of caches in the selected Service for that process node.

Single Service History

Use this display to perform low-level analysis, node-by-node, of service capacity utilization. Heatmap of Process (non storage enabled) Nodes and Storage (enabled) Nodes. Color = Relative Value of Selected Metric.



Title Bar (possible features are):

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Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
All	Click to view the "All Services History" display.
Service	Select a service to display.

Metric

CPU% CPU Utilization (as a percent) on the given node.

Requests Number of requests issued by the service in the measured period.

Request Average Duration Average duration (in milliseconds) of an individual request issued by the service since the last time the statistics were reset.

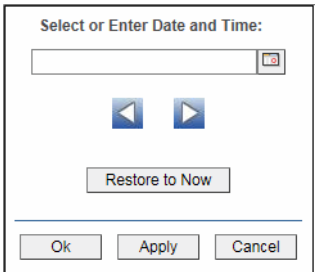
Request Pending Count Number of pending requests issued by the service.

Task Backlog Size of the backlog queue that holds tasks scheduled to be executed by one of the service threads.

Active Threads Number of threads in the service thread pool, not currently idle.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Process Nodes: History Heatmap of Service Metric

Color of the cells represents the relative value of the selected Metric for a given process node; a darker shade is a larger value.

The value of the Metric is displayed over the specified History for all process nodes in the selected Service.

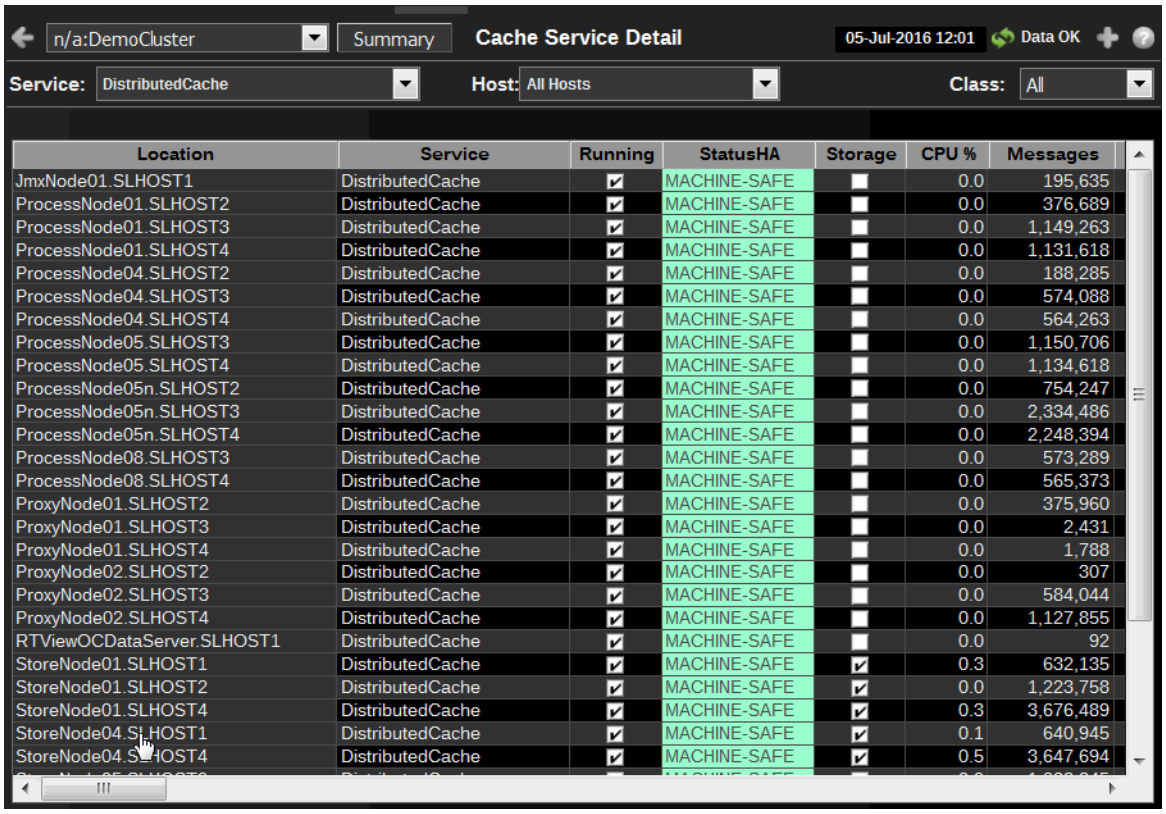
Storage Nodes: History Heatmap of Service Metric

Color of the cells represents the relative value of the selected Metric for a given storage node; a darker shade is a larger value.

The value of the Metric is displayed over the specified History for all storage nodes in the selected Service.

Cache Service Detail

This display provides a table view of attributes of a selected service for a selected host for nodes. Attribute values can be ordered to identify the nodes with the highest and lowest values of interest.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Summary	Click to view the "Single Service Summary" display.
Service	Select a service to display.
Host	Select a host.
Class	Select the type of node to display: All, Storage or Process nodes.

Cache Service Detail by Node:
The columns in this table, with the exception of **Location**, come from Service and Node MBeans. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.

For details on attributes of these MBeans go to: http://download.oracle.com/otn_hosted_doc/coherence/350/com/tangosol/net/management/Registry.html.

Location A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.

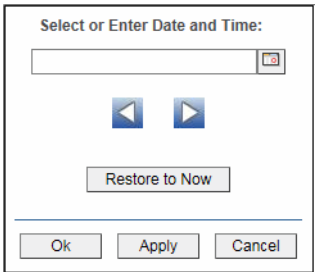
Service The name of the service.

Running Indicates that the service is running when checked.

Metric The high availability status of the service:

- ENDANGERED: There is potential data loss in the cluster if a node goes offline.
- NODE-SAFE: There is no risk of data loss in the cluster if a node goes offline (or is taken offline using kill-9). The data is replicated across multiple nodes and remains available in the cluster.
- MACHINE-SAFE: There is no risk of data loss in the cluster if a machine goes offline (or is taken offline using kill-9). The data is replicated across multiple machines and remains available in the cluster.
- RACK-SAFE: There is no risk of data loss in the cluster if a rack goes offline (or is taken offline using kill-9). The data is replicated across multiple racks and remains available in the cluster.
- SITE-SAFE: There is no risk of data loss in the cluster if a site goes offline (or is taken offline using kill-9). The data is replicated across multiple sites and remains available in the cluster.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Process Nodes: History Heatmap of Service Metric	Color of the cells represents the relative value of the selected Metric for a given process node; a darker shade is a larger value. The value of the Metric is displayed over the specified History for all process nodes in the selected Service.
Storage Nodes: History Heatmap of Service Metric	Color of the cells represents the relative value of the selected Metric for a given storage node; a darker shade is a larger value. The value of the Metric is displayed over the specified History for all storage nodes in the selected Service.

Federated Clusters

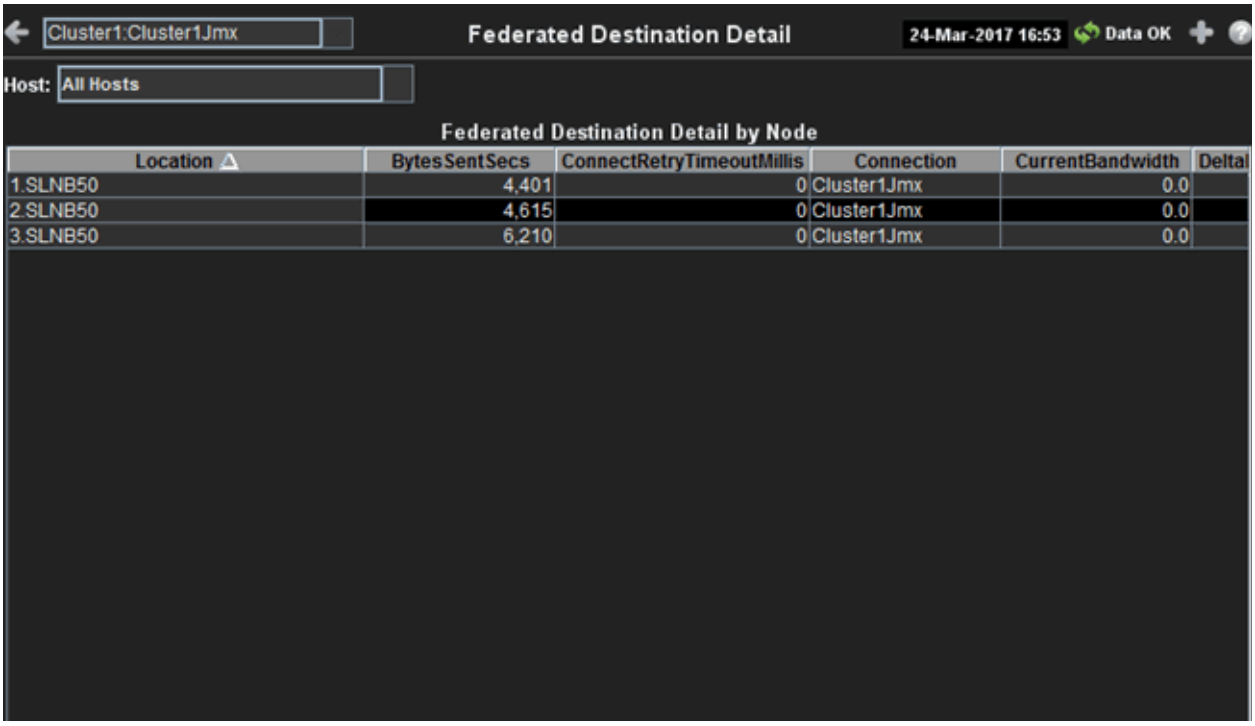
Federated Clusters displays present high-level and detailed cache performance metrics for the cluster. Performance statistics are derived from the cluster Destination and Origin MBeans. Destination information shows how efficiently each node in the local cluster participant is sending data to each destination cluster participant. Origin information shows how efficiently each node in the local cluster participant is receiving data from destination cluster participants.

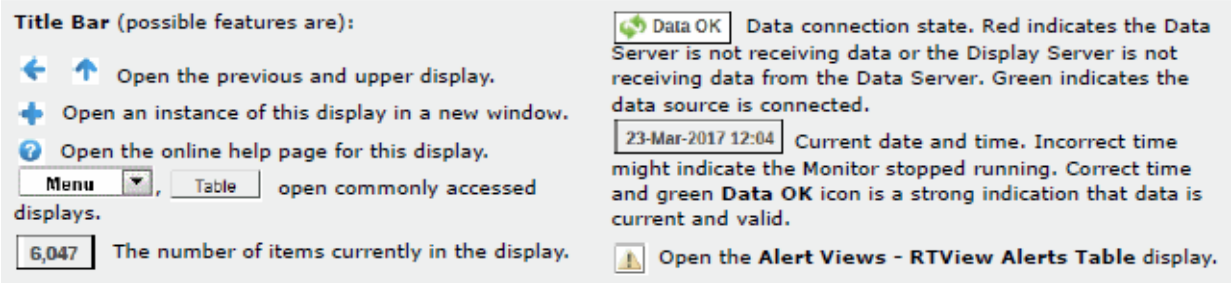
Use these displays to quickly assess total utilization and throughput metrics for all caches in the cluster.

- "Federated Destination Detail" on page 657: Shows current information for all participating nodes for a selected cluster.
- "Federated Destination Summary" on page 660: Shows current information and trended historical rate information.
- "Federated Origin Detail" on page 662: Shows current information for all participating nodes for a selected cluster.
- "Federated Origin Summary" on page 665: Shows current information and trended historical rate information.

Federated Destination Detail

Table shows performance and utilization data, such as bandwidth usage and bytes sent, for Federated Destinations on the selected cluster. Use this display to do high level utilization analysis. Each row is a different Destination MBean. Click a row to see details in the "Federated Destination Summary" display. Sort data by the highest and lowest values of interest by clicking on the column heading.





Filter By:

Cluster:	Select a cluster from the drop-down menu.
Host:	Select a host from the drop-down menu.

Federated Destination Detail by Node

Location	A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
BytesSentSecs	The number of bytes sent per second.
ConnectRetryTimeoutMillis	The configured connect retry timeout.

Connection	The name of the JMX connection used to access the cluster data.
CurrentBandwidth	The current amount of bandwidth being used, in megabits per second, for sending replicate message.
DeltaReplicateAllTotalTime	The difference in the total amount of time the **replicateAll** request took since the last data sample.
DeltaTIME_STAMP	The amount of time since the last data sample.
DeltaTotalBytesSent	The difference in the total number of bytes sent since the last data sample.
DeltaTotalEntriesSent	The difference in the total number of entries sent since the last data sample.
DeltaTotalErrorResponses	The difference in the total number of error responses since the last data sample.
DeltaTotalMsgSent	The difference in the total number of messages sent since the last data sample.
DeltaTotalMsgUnacked	The difference in the total number of unacknowledged messages since the last data sample.
DeltaTotalRecordsSent	The difference in the total number of records sent since the last data sample.
ErrorDescription	A description of the error. A value exists only if the sender is in an error state.
EstimatedReplicateAllRemainingTime	The estimated remaining time, in milliseconds, to complete the **replicateAll** request.
Expired	When checked, this connection is expired due to inactivity.
GeoIp	The Geo-IP metadata
HostName	The name of the host.
MaxBandwidth	The maximum amount of bandwidth per second, in megabits, for sending replicate message, where **-1.0** means the maximum bandwidth is not specified.
Member	The member information of the destination node.
MemberName	The name of the member.
MsgApplyTimePercentileMillis	The 90-percentile value, in milliseconds, of the time taken to apply the replication messages on the destination.
MsgNetworkRoundTripTimePercentileMillis	The 90-percentile value, in milliseconds, of the time taken by transmission of replication messages and the corresponding ack messages over the network.
MsgSentSecs	The number of messages sent per second.
Name	The sender name.
ParticipantType	The participant type. Valid types are **cluster** and **interceptor**.
RateReplicateAllTotalTime	The number of **replicateAll** requests per second.
RateTotalBytesSent	The total number of bytes sent per second.
RateTotalEntriesSent	The total number of entries sent per second.
RateTotalErrorResponses	The total number of error responses per second.
RateTotalMsgSent	The total number of messages sent per second.

RateTotalMsgUnacked	The total number of unacknowledged messages per second.
RateTotalRecordsSent	The total number of records sent per second.
RecordBacklogDelayTimePercentileMillis	The 90-percentile value , in milliseconds, of the time the journal records are in the cache waiting to be replicated.
ReplicateAllPercentComplete	The percent of work completed for a **replicateAll** request.
ReplicateAllTotalTime	The total amount of time the **replicateAll** request took, in milliseconds.
SendTimeoutMillis	The configured send timeout.
State	The participant state, where: **0** is Ok **1** is Warning **2** is Error
Status	The participant status.
TIME_STAMP	The date and time of the data update.
TotalBytesSent	The total number of bytes sent.
TotalEntriesSent	The total number of cache entries sent.
TotalErrorResponses	The total number of responses with an error.
TotalMsgSent	The total number of replication messages sent. A replication message might contain multiple journal records
TotalMsgUnacked	The total number of unacknowledged replication messages.
TotalRecordsSent	The total number of journal records sent. A journal record might consist of multiple cache entries that are part of the same transaction.
name	The destination cluster name.
nodeid	The unique identifier for the node.
service	The Federated Service name.
subType	The Federated Service sub-type.
type	The Coherence MBean type (Federation, in this case).

Federated Destination Summary

Detailed performance and utilization data, such as bandwidth usage and bytes sent per second, for a Federated Destinations location. Use this display to do low level utilization analysis. Check the metrics for to determine whether more capacity is needed.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cluster: Select a cluster from the drop-down menu.

Host: Select a host from the drop-down menu.

Location: Select a location from the drop-down menu. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.

Id:	The unique identifier for the node.
Participant Type	The participant type. Valid types are **cluster** and **interceptor**.
State	The participant state, where: **0** is Ok **1** is Warning **2** is Error
Bytes Sent Secs	The number of bytes sent per second.
Connect Retry Timeout (ms)	The configured connect retry timeout.
Current Bandwidth	The current amount of bandwidth being used, in megabits per second, for sending replicate message.
Estimated Replicate All Remaining Time	The estimated remaining time, in milliseconds, to complete the **replicateAll** request.
Geo IP	The Geo-IP metadata
Max Bandwidth	The maximum amount of bandwidth per second, in megabits, for sending replicate message, where **-1.0** means the maximum bandwidth is not specified.
Status	The participant status.
Name	The sender name.
Msg Apply Time Percentile (ms)	The 90-percentile value, in milliseconds, of the time taken to apply the replication messages on the destination.
Msgs Sent Secs	The number of messages sent per second.
Record Backlog Delay Time Percentile (ms)	The 90-percentile value, in milliseconds, of the time the journal records are in the cache waiting to be replicated.
Replicate All Percentile Complete	The percent of work completed for a **replicateAll** request.
Replicate All Total Time	The total amount of time the **replicateAll** request took, in milliseconds.
Send Timeout (ms)	The configured send timeout.
Error Description	A description of the error. A value exists only if the sender is in an error state.

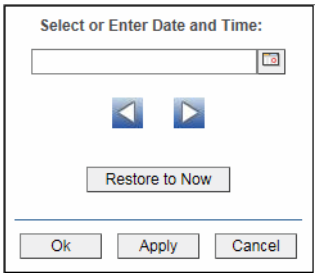
Trend Graph
Select a location from the drop-down menu to populate the trend graph. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.

RateReplicateAllTotalTime: Traces the total number of **replicateAll** requests per second.
RateTotalBytesSent: Traces the total number of bytes sent per second.
RateTotalEntriesSent: Traces the total number of entries sent per second.
RateTotalErrorResponses: Traces the total number of error responses per second.
RateTotalMsgSent: Traces the total number of messages sent per second.
RateTotalMsgUnacked: Traces the total number of unacknowledged messages per second.
RateTotalRecordsSent: Traces the total number of records sent per second.
ReplicateAllPercentComplete: Traces the percent of completed **replicateAll** requests.

Start Time The date and time the location was started. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.

Base at Zero Use zero for the Y axis minimum for all graphs.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



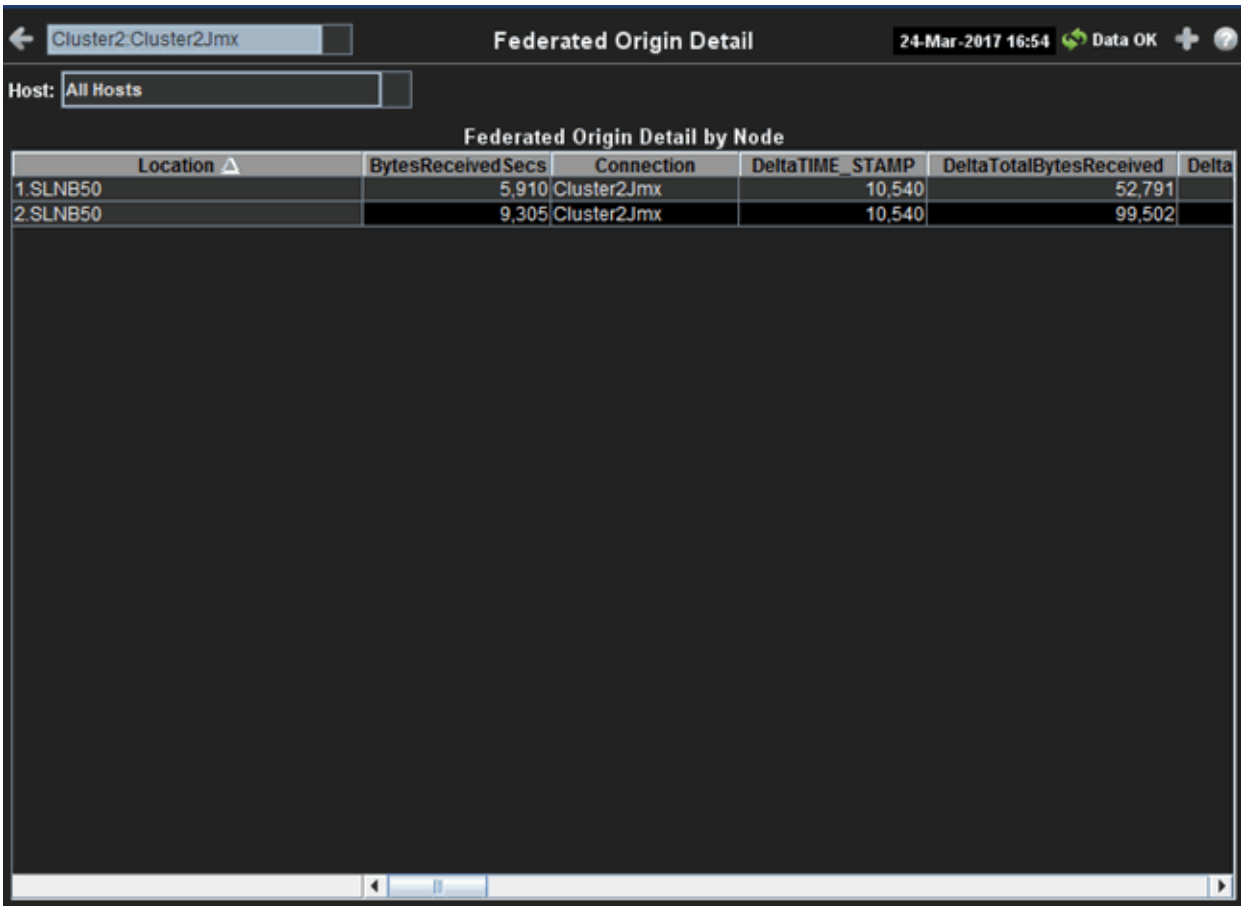
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Federated Origin Detail

Table shows performance and utilization data, such as bandwidth usage and bytes sent, for Federated Origins on the selected cluster. Use this display to do high level utilization analysis. Each row is a different Origin MBean. Click a row to see details in the "Federated Origin Summary" display. Sort data by the highest and lowest values of interest by clicking on the column heading.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Cluster: Select a cluster from the drop-down menu.

Host: Select a host from the drop-down menu.

Federated Origin Detail by Node

Location A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.

BytesReceivedSecs The number of bytes received per second.

Connection	The name of the JMX connection used to access the cluster data.
DeltaTIME_STAMP	The amount of time since the last data sample.
DeltaTotalBytesReceived	The difference in the total number of bytes received since the last data sample.
DeltaTotalEntriesReceived	The difference in the total number of entries received since the last data sample.
DeltaTotalMsgReceived	The difference in the total number of messages received since the last data sample.
DeltaTotalMsgUnacked	The difference in the total number of unacknowledged messages since the last data sample.
DeltaTotalRecordsReceived	The difference in the total number of records received since the last data sample.
Expired	When checked, this connection is expired due to inactivity.
HostName	The name of the host.
Member	The member information of the destination node.
MemberName	The name of the member.
MsgApplyTimePercentileMillis	The 90-percentile value, in milliseconds, of the time taken to apply the replication messages on the origin.
MsgReceivedSecs	The number of messages received per second.
RateReplicateAllTotalTime	The number of **replicateAll** requests per second.
RateTotalBytesReceived	The total number of bytes received per second.
RateTotalEntriesReceived	The total number of entries received per second.
RateTotalMsgReceived	The total number of messages received per second.
RateTotalMsgUnacked	The total number of unacknowledged messages per second.
RateTotalRecordsReceived	The total number of records received per second.
RecordBacklogDelayTimePercentileMillis	The 90-percentile value, in milliseconds, of the time the journal records are in the cache waiting to be replicated.
TIME_STAMP	The date and time of the data update.
TotalBytesReceived	The total number of bytes received.
TotalEntriesReceived	The total number of cache entries received.
TotalErrorResponses	The total number of responses with an error.
TotalMsgReceived	The total number of replication messages received. A replication message might contain multiple journal records
TotalMsgUnacked	The total number of unacknowledged unacknowledged messages.
TotalRecordsReceived	The total number of journal records received. A journal record might consist of multiple cache entries that are part of the same transaction.
name	The destination cluster name.
nodeid	The unique identifier for the node.
service	The Federated Service name.

subType	The Federated Service sub-type.
type	The Coherence MBean type (Federation, in this case).

Federated Origin Summary

Detailed performance and utilization data, such as bandwidth usage and received per second, for a Federated Origin location. Use this display to do low level utilization analysis. Check the metrics for to determine whether more capacity is needed.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Cluster:	Select a cluster from the drop-down menu.
Host:	Select a host from the drop-down menu.
Location:	Select a location from the drop-down menu. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Bytes Received Secs	The number of bytes received per second.
Msg Apply Time Percentile (ms)	The 90-percentile value, in milliseconds, of the time taken to apply the replication messages on the origin.
Msgs Received Secs	The number of messages received per second.
Record Backlog Delay Time Percentile (ms)	The 90-percentile value, in milliseconds, of the time the journal records are in the cache waiting to be replicated.
Total Bytes Received	The total number of bytes received.
Total Entries Received	The total number of cache entries received.
Total Msg Received	The total number of replication messages received. A replication message might contain multiple journal records.
Total Msg Unacked	The total number of unacknowledged replication messages.
Total Records Received	The total number of journal records received. A journal record might consist of multiple cache entries that are part of the same transaction.

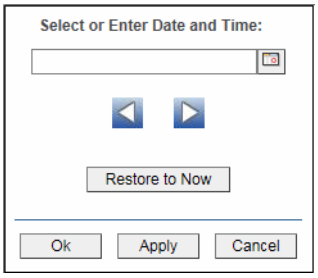
Trend Graph
Select a location from the drop-down menu to populate the trend graph. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.

RateReplicateAllTotalTime: Traces the total number of **replicateAll** requests per second.
RateTotalBytesReceived: Traces the total number of bytes received per second.
RateTotalEntriesReceived: Traces the total number of entries received per second.
RateTotalErrorResponses: Traces the total number of error responses per second.
RateTotalMsgReceived: Traces the total number of messages received per second.
RateTotalMsgUnacked: Traces the total number of unacknowledged messages per second.
RateTotalRecordsReceived: Traces the total number of records received per second.
ReplicateAllPercentComplete: Traces the percent of completed **replicateAll** requests.

Start Time	The start date and time.

Base at Zero Use zero for the Y axis minimum for all graphs.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

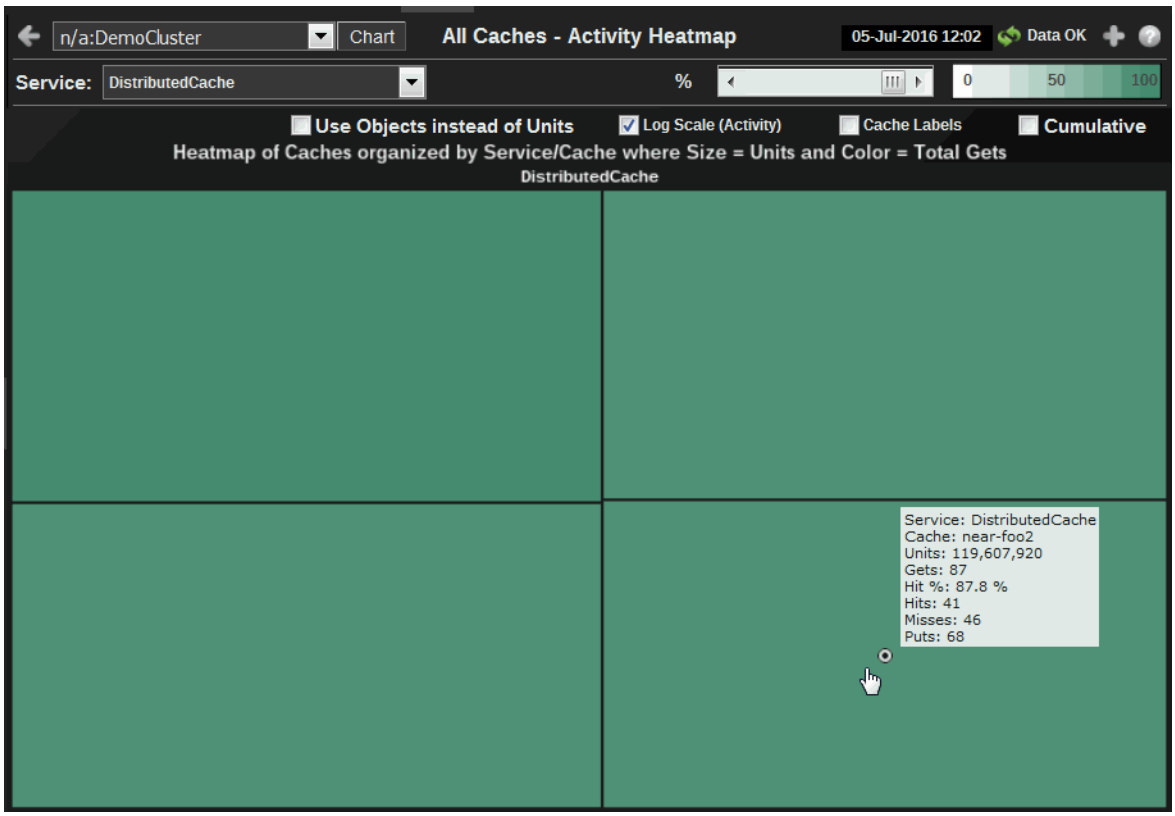
All Caches

All Caches displays present high-level cache performance metrics for the cluster. Use the All Caches displays to quickly assess total utilization metrics for all caches in the cluster.

- "All Caches Heatmap" on page 668: Heatmap of caches by service where size represents Units and color represents Total Gets%.
- "Storage Nodes Cache Map" on page 669: Heatmap of memory usage on storage nodes by service where size represents Units and color represents Units Used%.
- "Current Size Chart" on page 671: Bar chart/table sorted by caches with largest size displays current size/capacity metrics.
- "Current Activity Chart" on page 672: Bar chart/table sorted by caches with greatest activity displays current activity metrics.

All Caches Heatmap

Heatmap of cache size and activity organized by service: Size = Number of Units or Objects, Color = Percent of Total Gets.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

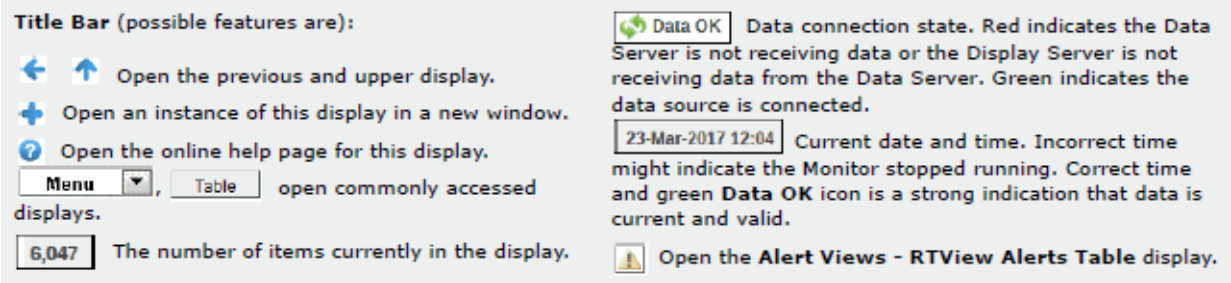
Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Chart	Toggle between heatmap view and chart view.
Service	Select a service to display.
%	Set the activity percentage that maps to the maximum color value. Percentages greater than this value map to the maximum color value.
Use Objects Instead of Units	Select to use Objects instead of Units for heatmap cell sizing and mouseover tool-tips.

Log Scale (Activity)	Color of the cells represents the relative value of the selected Metric for a given process node; a darker shade is a larger value. The value of the Metric is displayed over the specified History for all process nodes in the selected Service.
Storage Nodes: History Heatmap of Service Metric	Color of the cells represents the relative value of the selected Metric for a given storage node; a darker shade is a larger value. The value of the Metric is displayed over the specified History for all storage nodes in the selected Service.
Cache Labels	Select to display cache labels.
Cumulative	Select to show cumulative statistics for each cache.
Heatmap of Caches organized by Service/Cache	Activity heatmap where the activity metric is TotalGets. The levels of this heatmap are Service>Cache. The size of the cells is based on Units. The size of aggregate cells is based on the sum of the Units used by its component cells. The color of the cache cells is based on TotalGets.

Storage Nodes Cache Map

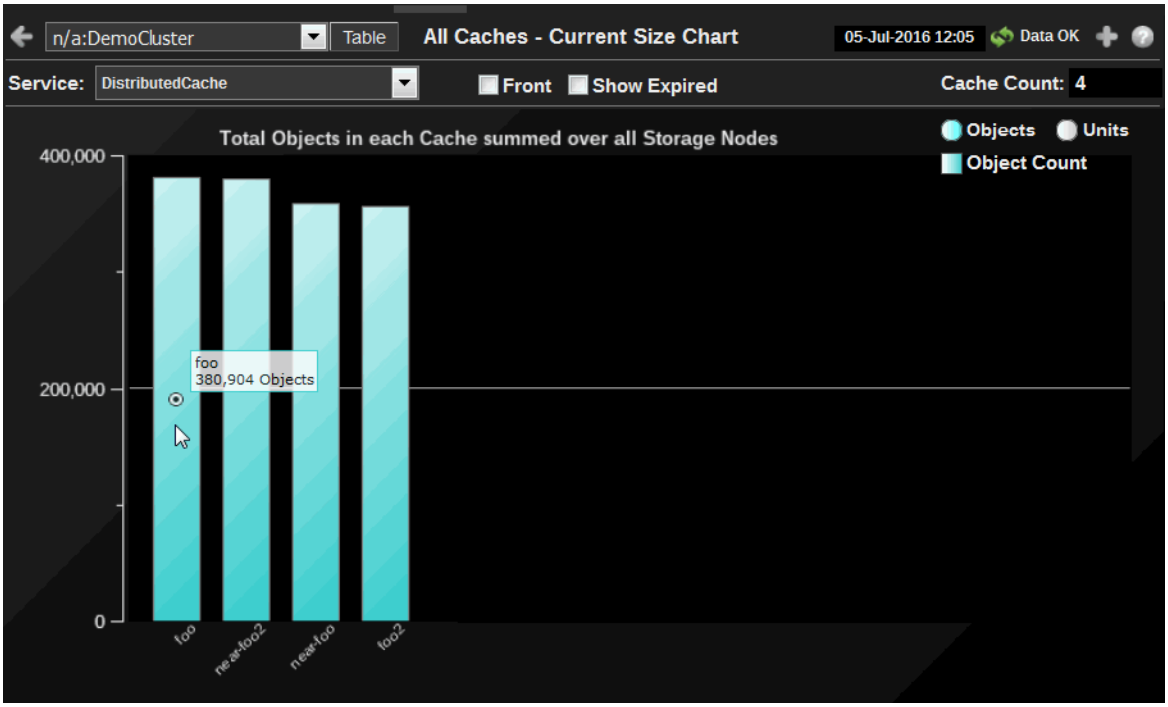
Heatmap of memory usage on all storage nodes organized by service: Size = Number of Units, Color = Percent of Units Used.

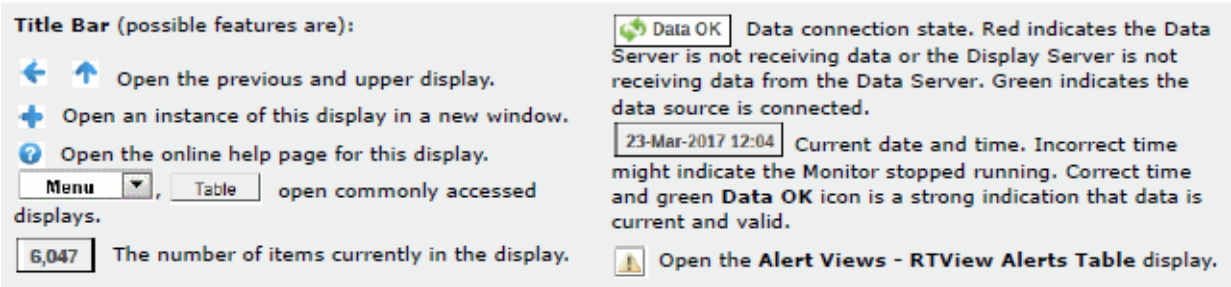


Cluster	Select a cluster to display.
Host to Show	Select a host to display.
Memory Used%	Set the memory used percentage that maps to the maximum color value. Percentages greater than this value map to the maximum color value.
Service	Select a service to display, or select All Services. NOTE: When you select a specific service, only data for nodes running that service is displayed. This enables you to view services that only run on a subset of nodes.
Ignore High Units	Select to remove High Units from calculations. This results in all caches having 100% units used. The color of cache cells represents units used instead of percent Units used when this option is selected.
Log Scale	Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Cell Borders	Select to display heatmap cell borders.
Node Labels	Select to display node labels.
Heatmap of Nodes organized by Service/Cache	A heatmap of memory usage. The levels of this heatmap are **Host>Node>Service>Cache**. The size of the cells is based on Units. The size of aggregate cells is based on the sum of the Units used by its component cells. The color of cache cells is based on the percent of Units used unless Ignore High Units is selected.

Current Size Chart

Toggle between bar chart and table views that present the latest values of total objects and total nits for each cache in the selected service.



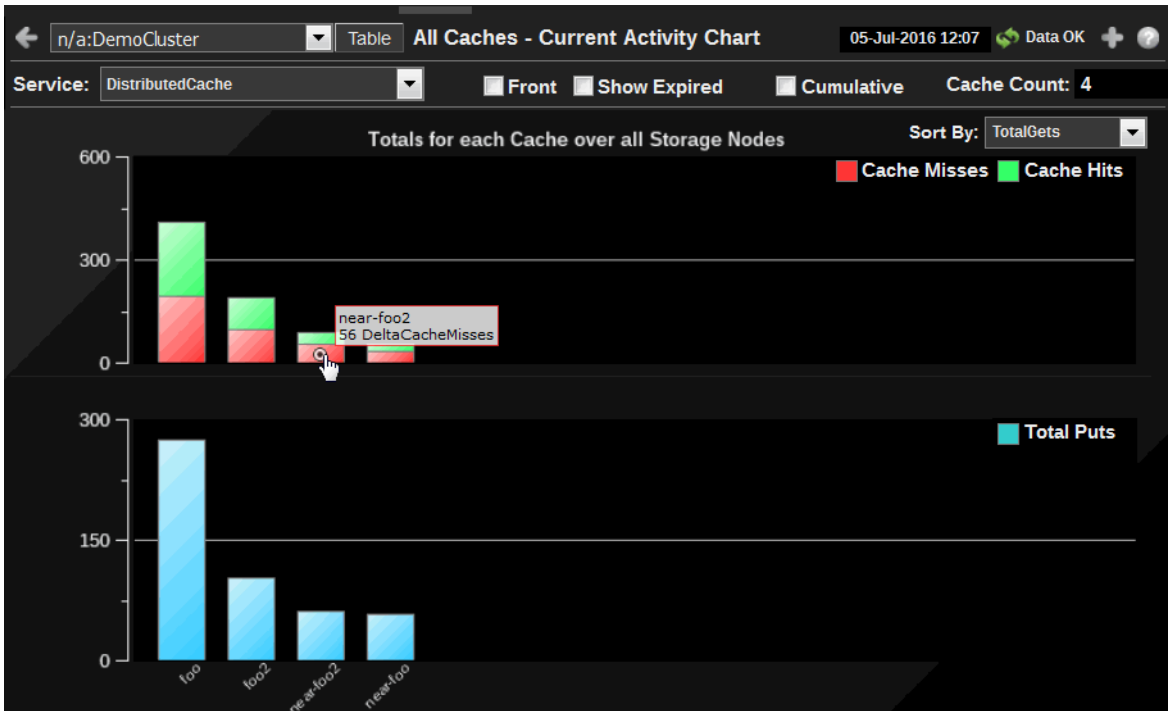


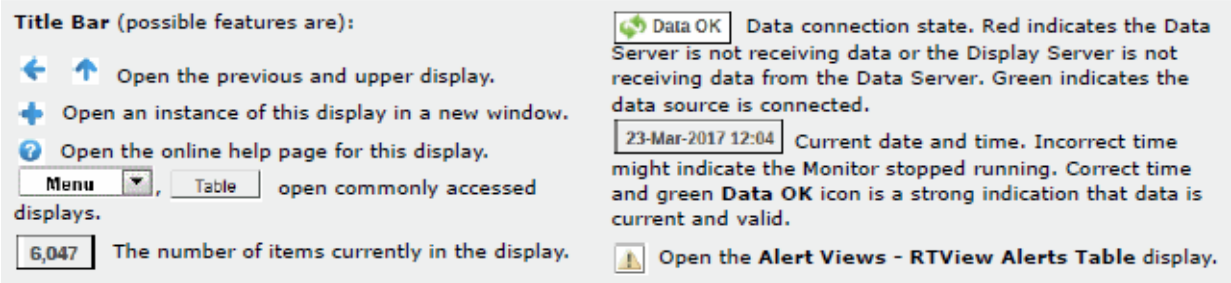
Cluster	Select a cluster to display.
Table	Toggle between chart view and table view.
Service	Select a service to display.
Front	Select for front tier, deselect for back tier.
Cache Count	Number of caches in the selected server. This is not available in the Table view.

Current Size Chart	Total Objects in each Cache summed over all Storage Nodes. This is the default view. Toggle between totals for Object Count and Units Used. Click the **Table** to view Current Size Table. **Objects** shows the total number of objects in this cache (Object Count). **Units** shows the highest number of units before evictions occur. **Ignore High Units** removes High Units bars from view.
Current Size Table	Totals for each Cache over all Storage Nodes. Click Chart to view Current Size Chart. **shortCacheName** Abbreviated name of cache **tier** Front or back **Objects** Total number of objects in this cache **Units** Total number of units (typically bytes) in this cache **LowUnits** Low limit for cache evictions **HighUnits** Highest number of units before evictions occur **Service Name** of selected service(s). **Name** Full name of cache

Current Activity Chart

Toggle between bar chart and table views that present the latest values for activity metrics for each cache in the selected service.





Cluster	Select a cluster to display.
Table	Toggle between chart view and table view.
Service	Select a service to display.
Front	Select for front tier, deselect for back tier.
Cache Count	Number of caches in the selected server. This is not available in the Table view.
Cumulative	Select to show cumulative statistics for each node since the start of the node.
Current Activity Chart	Totals for Cache summed over all Storage Nodes. This is the default view. Toggle to Table view. Sort by: **Objects** shows the total number of objects in this cache (Object Count). **Units** shows the highest number of units before evictions occur. **Ignore High Units** removes High Units bars from view.
Current Activity Table	Totals for each Cache over all Storage Nodes. Toggle to Chart view. Sort by: **Cache** Abbreviated name of cache **tier** Front or back **Hits** Total number of successful gets **Misses** Total number of failed gets **Gets** Total requests for data from this cache **Puts** Total data stores into this cache **Hit%** Ratio of hits to gets **Service** Service Name **Cache Full Name** Full name of cache

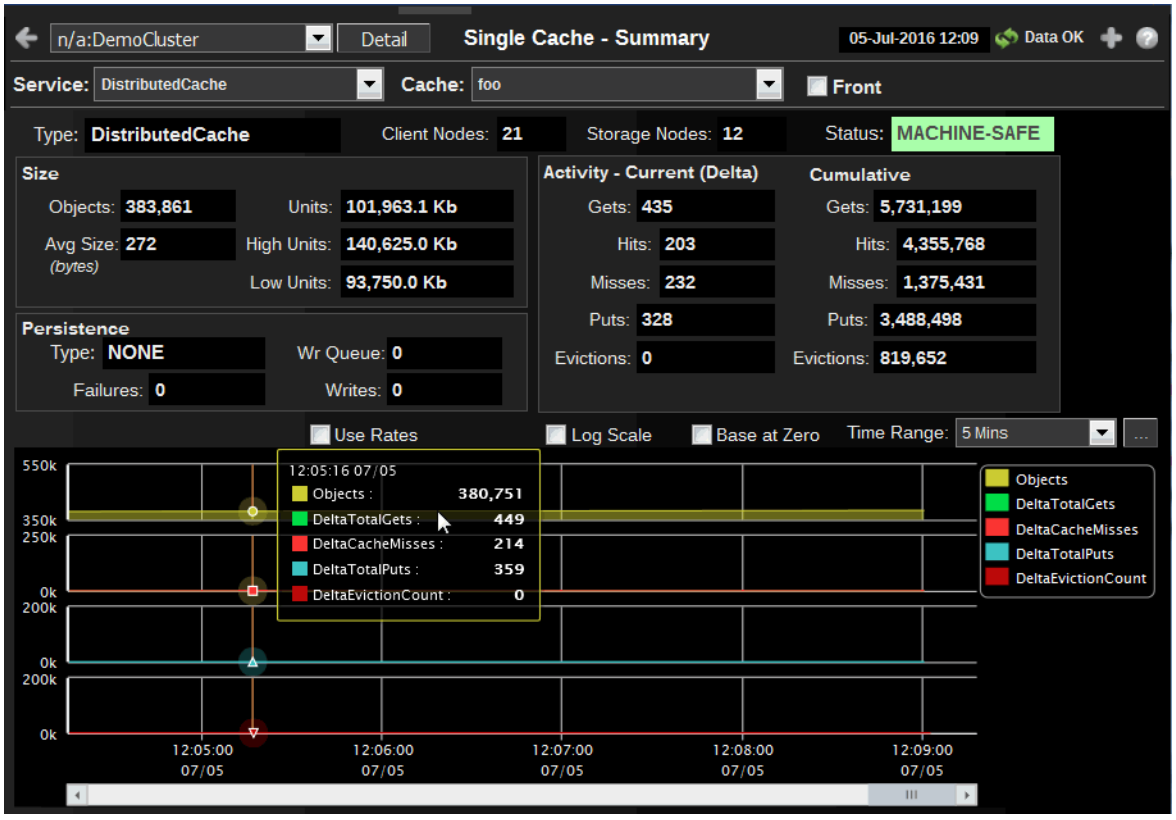
Single Cache

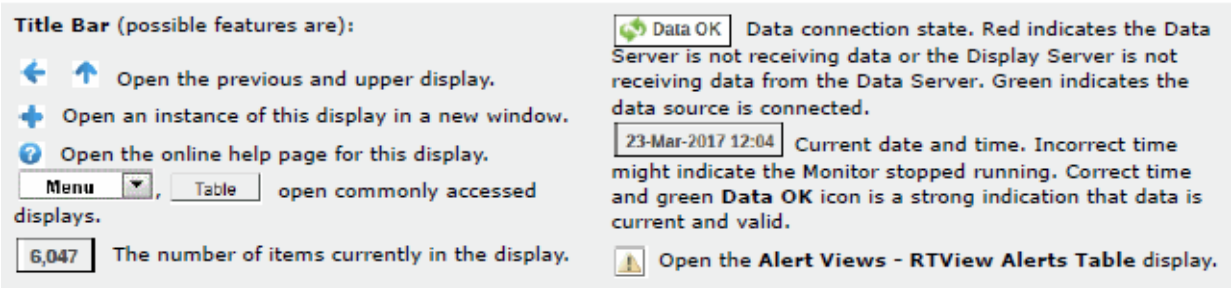
Single Cache displays present detailed cache performance metrics for a single cache. Use the Single Cache displays to perform cache utilization analysis. The data in these displays can be sorted and viewed by service or cache.

- "Single Cache Summary" on page 674: Perform low level utilization analysis on a single cache.
- "Size Trends" on page 677: Trend chart displays size/capacity metrics.
- "Activity Trends" on page 680: Trend chart displays activity metrics.
- "Cache Detail Tables" on page 682: Table showing current detailed cache statistics by node.
- "Storage Manager Detail" on page 684: Table showing store manager metrics.
- "Node/Group Distribution" on page 686: Bar chart displays metrics showing distribution across cluster nodes or groups.
- "Front/Back Analysis" on page 688: Displays metrics for the front and back tiers of a selected cache.

Single Cache Summary

Use Single Cache - Summary display to do low level cache utilization analysis. Check the metrics for Size, Evictions and Misses to determine whether more capacity is needed. Cache Summary provides summary information about an individual cache.





Cluster	Select a cluster to display.
Service	Select a service to display.
Cache	Select a cache. Click the Detail button to get information specific to the selected cache.
Front	Select for front tier, deselect for back tier.
Type	The type identifier string from the ServiceMBean (ReplicatedCache, DistributedCache, etc.).
Client Nodes	The number of cluster nodes that do not have storage enabled.
Storage Nodes	Select to display storage node data in the trend graphs of this display.
Type	The type of cache.
Storage Nodes	The number of storage nodes in the cache.
Status	The high availability status of the service: ● ENDANGERED: There is potential data loss in the cluster if a node goes offline. ○ NODE-SAFE: There is no risk of data loss in the cluster if a node goes offline (or is taken offline using kill-9). The data is replicated across multiple nodes and remains available in the cluster. ● MACHINE-SAFE: There is no risk of data loss in the cluster if a machine goes offline (or is taken offline using kill-9). The data is replicated across multiple machines and remains available in the cluster. ● RACK-SAFE: There is no risk of data loss in the cluster if a rack goes offline (or is taken offline using kill-9). The data is replicated across multiple racks and remains available in the cluster. ● SITE-SAFE: There is no risk of data loss in the cluster if a site goes offline (or is taken offline using kill-9). The data is replicated across multiple sites and remains available in the cluster.

Size

Units indicates memory usage for the back tier and number of objects for the front tier.

Objects The number of objects in the selected cache. The value is the total across all storage nodes.

Avg Size The average size of objects in the selected cache (in bytes if it is the back tier).

Units The memory usage if back tier, or number of objects if front tier. The value is the total across all storage nodes.

High Units Maximum memory, or number of objects allowed before Coherence starts to evict objects from the selected cache. The value is the total across all storage nodes.

Low Units The level of memory, or number of objects to which Coherence will reduce the cache during the eviction process. The value is the total across all storage nodes.

Persistence

Type The persistence type for the cache. Possible values include: **NONE**, **READ-ONLY**, **WRITE-THROUGH**, and **WRITE-BEHIND**.

Failures The number of write (cache store) failures, including load, store and erase operations. NOTE: This value is **-1** if the persistence type is **NONE**.

Wr Queue The size of the queue, in kilobytes, that holds data scheduled to be written to the cache store.

Writes The number of objects (cache entries) written to the cache store.

Activity

Current:
Use the **Use Rates** checkbox to toggle between two value types: **Activity - Current (Rate) and Activity - Current (Delta)** (as labeled in the display upon selection).When the Use Rates (checkbox) is NOT selected the Delta values are shown in the Activity - Current (Delta) fields and trend graphs. Delta is the difference in the value since the last sample. When the Use Rates (checkbox) is selected the Rate values are shown in the Activity - Current (Rate) fields and trend graphs. Rate is the value per second. The Rate value is useful when the sampling time period is unknown, has changed, or has a long duration specified. For a given rate, the Rate value does not vary if the sample period changes (whereas the Delta value does vary). The Rate value enables you to directly compare rates on systems with different sample periods.

Cumulative:
The total since the service was started for the selected cache, or since statistics were reset.

Gets The number of requests for data from this cache.

Hits The number of successful gets.

Misses The number of failed gets.

Puts The number of data stores into this cache.

Evictions The number of objects removed to make room for other objects.

Use Rates

Select **Use Rates** to show the Rate values in the Activity - Current (Rate) fields and trend graphs. Rate is the value per second. The Rate value is useful when the sampling time period is unknown, has changed, or has a long duration specified. For a given rate, the Rate value does not vary if the sample period changes (whereas the Delta value does vary). The Rate value enables you to directly compare rates on systems with different sample periods.

Deselect Use Rates to show the Delta values in the **Activity - Current (Delta)** fields and trend graphs. Delta is the difference in the value since the last sample.

Log Scale

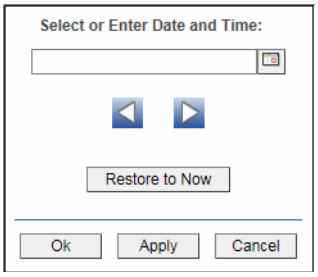
Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Use zero for the Y axis minimum for all graphs.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Trend Graphs

Use the Use Rates checkbox to toggle between two value types: Activity - Current (Rate) and Activity - Current (Delta) (as labeled in the display upon selection).

Objects The number of objects in the selected cache. The value is the total across all storage nodes.

TotalGets Total requests for data from this cache.

CacheMisses Total number of failed gets.

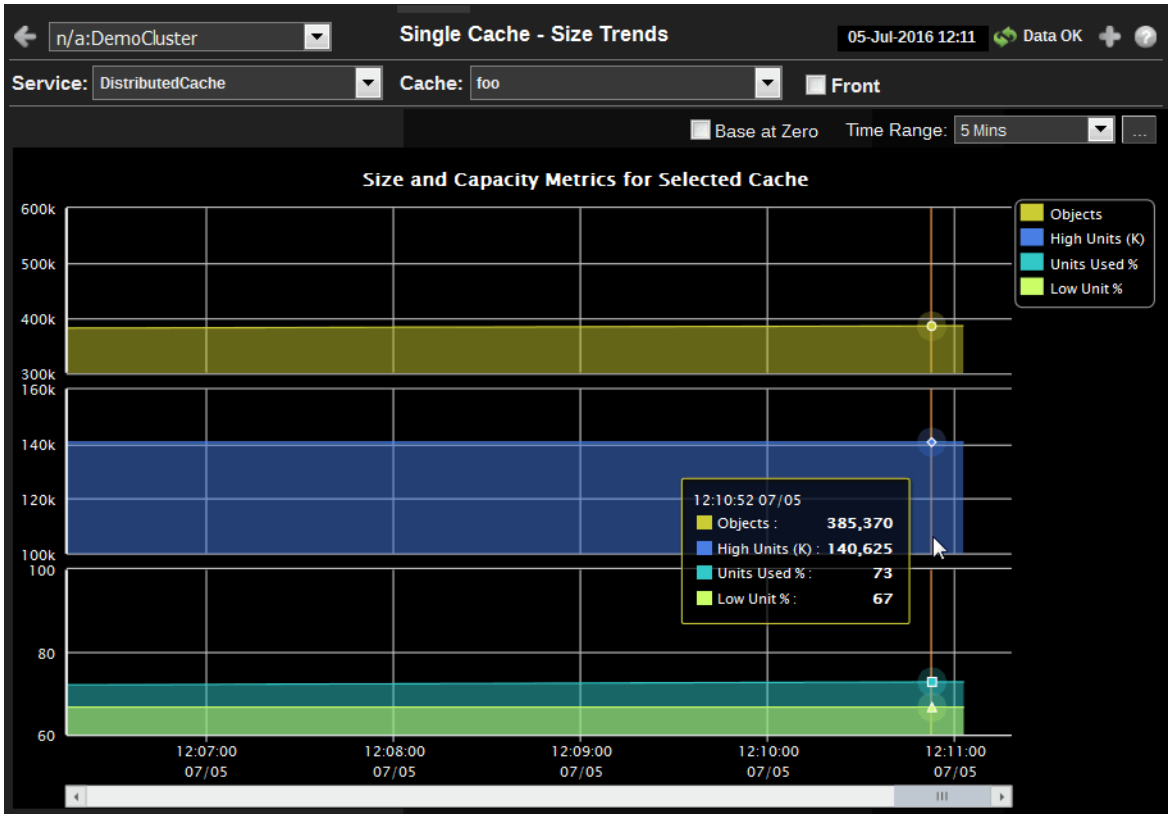
TotalPuts Total data stores into this cache.

EvictionCounts Number of objects removed from the cache to make room for other objects.

Size Trends

Size Trends provides a method of viewing the degree to which available cache size has been consumed. Under normal operations the cache will evict and reload objects into the cache. This will be displayed as a significant drop in the Units Used trend. However, if these drops are too frequent the application might not be performing optimally. Adding capacity and examining or modifying application usage patterns might be required. The data displayed here is a sum of all storage nodes in the cache filtered by the selected service and cache.

Try changing the High Units setting in the Cache Administration page to something like 100,000 and then see the effect on these trend charts.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

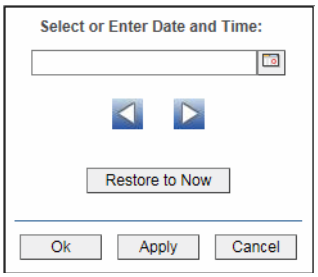
23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Service	Select a service to display.
Cache	Select a cache. Click the Detail button to get information specific to the selected cache.
Front	Select for front tier, deselect for back tier.

Base at Zero Use zero for the Y axis minimum for all graphs.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



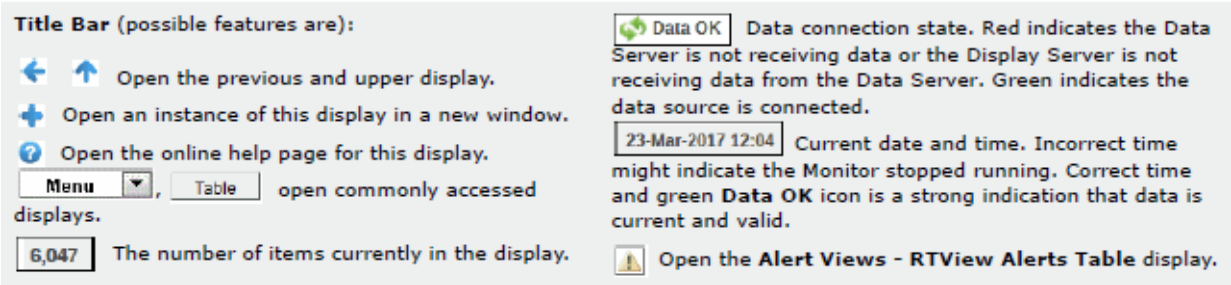
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Activity Trends

Activity Trends provides a set of trend graphs that show the magnitude of the cache usage and the effectiveness of the implementation. If the overall effectiveness is not as desired, increasing capacity, preloading the cache and increasing the eviction time may result in improvements in cache hits. The data displayed here is a sum of all storage nodes in the cache filtered by the selected service and cache.



Cluster	Select a cluster to display.
Service	Select a service to display.
Cache	Select a cache. Click the Detail button to get information specific to the selected cache.
Front	Select for front tier, deselect for back tier.

Log Scale

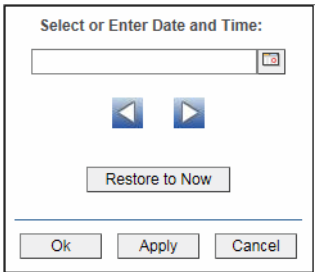
Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero

Use zero for the Y axis minimum for all graphs.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Activity Metrics for Selected Cache

Hits The number of successful gets from this cache.

Total Gets Requests for data from this cache.

Cache Misses The number of failed gets by this cache.

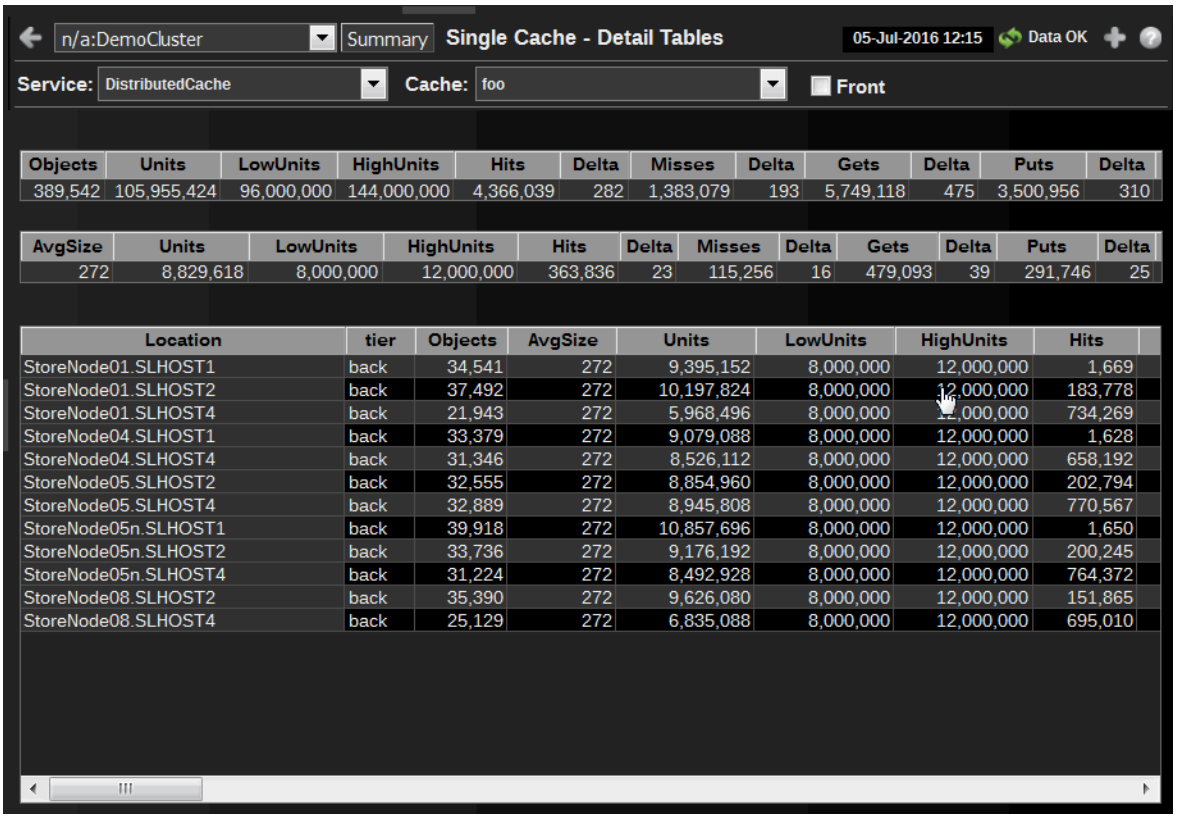
Total Puts The number of data stores into this cache.

Evictions The number of objects removed from the cache to make room for other objects.

Write Queue The size of the queue, in kilobytes, that holds data scheduled to be written to the cache store.

Cache Detail Tables

This display presents detailed information about the contribution that each storage node makes to the cache. Select a node in the Statistics By Node for Selected Cache table to drill down to the "Node Summary" display for that node. The data displayed here is broken down for each storage nodes in the cache filtered by the selected service and cache.



Title Bar (possible features are):

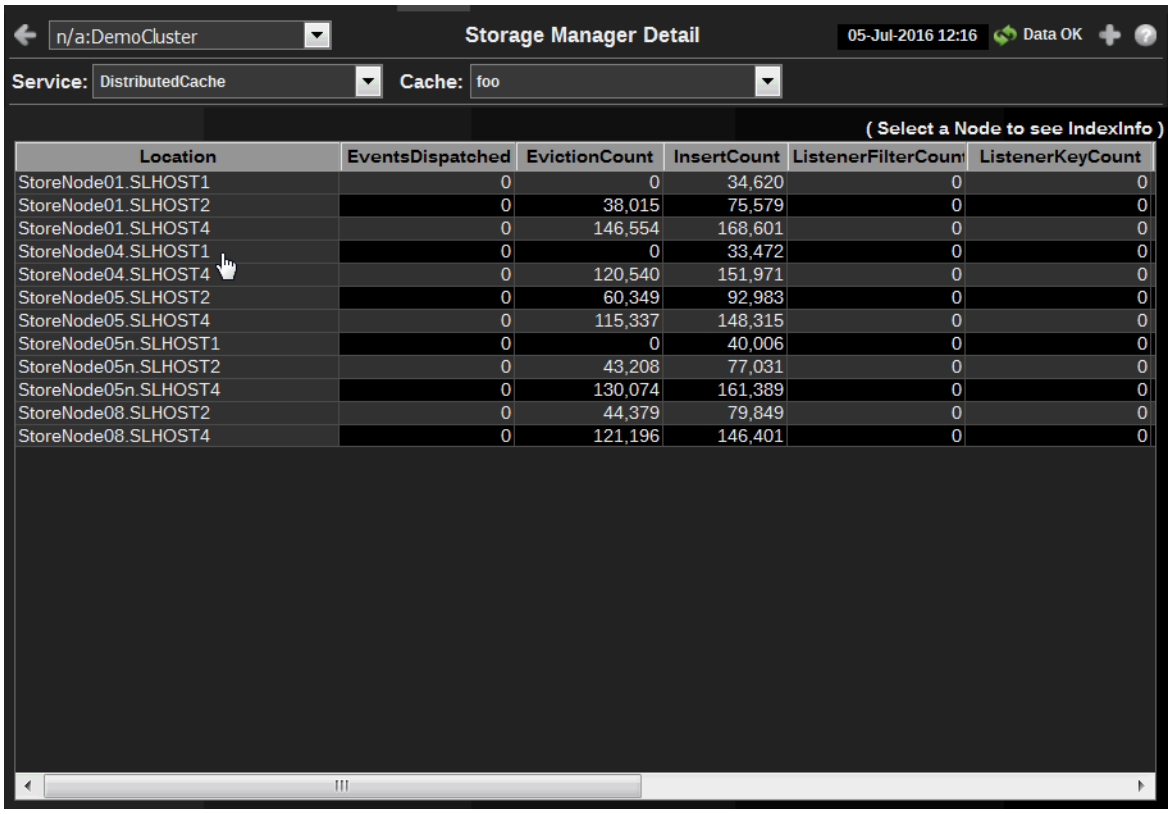
- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Summary	Toggle between this display and Single Cache - Summary display.
Service	Select a service to display.
Cache	Select a cache. Click the Detail button to get information specific to the selected cache.
Front	Select for front tier, deselect for back tier.

Totals for Selected Cache	**Objects** Number of objects in this cache. **Units** Total number of units (typically bytes) in this cache. **LowUnits** Low limit for cache evictions. **HighUnits** Highest number of units before evictions occur. **Hits** Total number of successful gets. **Misses** Total number of failed gets. **Gets** Total requests for data from this cache. **Puts** Total data stores into this cache.
Average for Selected Cache	**Objects** Number of objects in this cache. **AvgSize** Average size of objects in this cache. **Units** Average number of units (typically bytes) in this cache. **LowUnits** Low limit for cache evictions. **HighUnits** Highest number of units before evictions occur. **Hits** Average number of successful gets. **Misses** Average number of failed gets. **Gets** Average requests for data from this cache. **Puts** Average data stores into this cache.
Statistics By Node for Selected Cache	The columns in this table, with the exception of **Location**, come from Cache and Node MBeans. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**. For details about attributes of these MBeans go to: http://download.oracle.com/otn_hosted_doc/coherence/350/com/tangosol/net/management/Registry.html.

Storage Manager Detail

This display presents detailed information about the Storage Manager. The data displayed here is queried from the Coherence StorageManagerMBean, filtered by the selected service and cache. Click on a row in the table to open the "Storage IndexInfo View" window.



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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

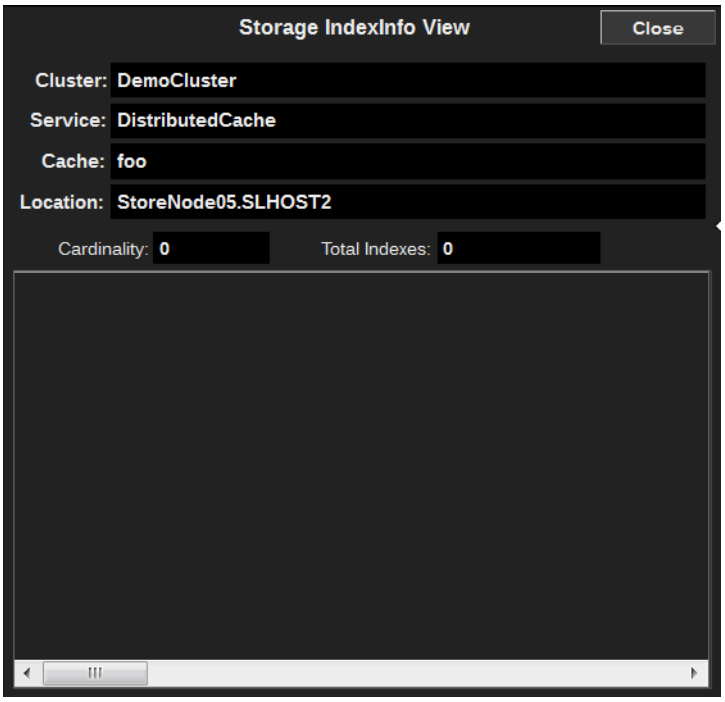
Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Service	Select a service to display.

Cache	Select a cache. Click the Detail button to get information specific to the selected cache.
Storage Manager Data	**Location** A unique identifier for each node. It is defined as **member_name.machine.rack.site**. **EventsDispatched** The total number of events dispatched by the Storage Manager since the last time the statistics were reset. **EvictionCount** The number of evictions from the backing map managed by this Storage Manager caused by entries expiry or insert operations that would make the underlying backing map to reach its configured size limit. **InsertCount** The number of inserts into the backing map managed by this Storage Manager. In addition to standard inserts caused by put and invoke operations or synthetic inserts caused by get operations with read-through backing map topology, this counter is incremented when distribution transfers move resources `into` the underlying backing map and is decremented when distribution transfers move data `out`. **ListenerFilterCount** The number of filter-based listeners currently registered with the Storage Manager. **ListenerKeyCount** The number of key-based listeners currently registered with the Storage Manager. **ListenerRegistrations** The total number of listener registration requests processed by the Storage Manager since the last time the statistics were reset. **LocksGranted** The number of locks currently granted for the portion of the partitioned cache managed by the Storage Manager. **LocksPending** The number of pending lock requests for the portion of the partitioned cache managed by the Storage Manager. **RemoveCount** The number of removes from the backing map managed by this Storage Manager caused by operations such as clear, remove or invoke.

Storage IndexInfo View

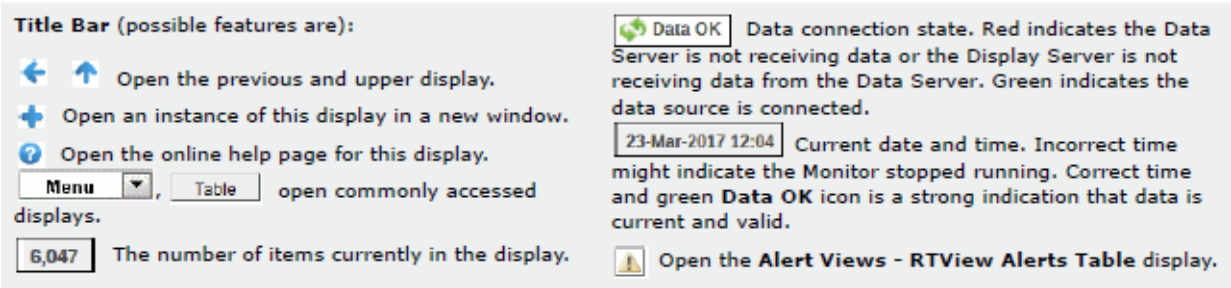
Click on a row in the Storage Manager Data table to open the Storage IndexInfo View window.



Service	The name of the service.
Cache	The name of the cache.
Location Manager Data	The location of the node associated with the cache. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
(Index Table)	Each row in the table represents a unique index, where: **Extractor** = the index name. **Ordered** = true/false to indicate whether or not the data is sorted (false means the data is not sorted). **Size** = the number of entries in that cache whose value matches that extractor.

Node/Group Distribution

This display presents the distribution of cache activity across all storage nodes in the cluster. The buttons on the left may be used to select the metric by which all six bar charts are to be sorted. Note that the Gets, Hits, Misses, and Puts are shown in the same color as on the other Cache Analysis displays. The data displayed here is broken down for each storage nodes in the cache filtered by the selected service and cache.



Cluster Select a cluster to display.

Service Select a service to display.

Cache Select a cache. Click the Detail button to get information specific to the selected cache.

Group By Select the node group by which the data are totaled.

Location A unique identifier for each node, defined as **member_name.machine.rack.site**. This is the default setting.

Gets Requests for data from this cache.

Hits Number of successful gets.

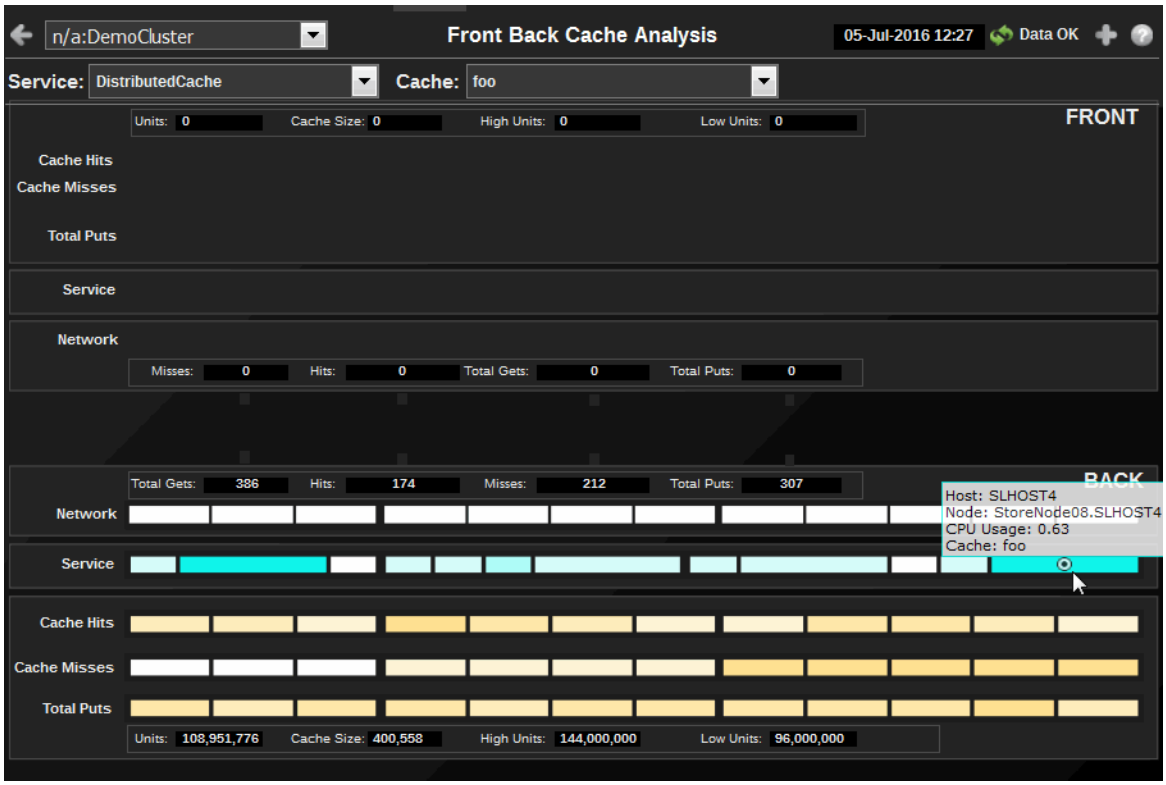
Misses Number of failed gets.

Puts Data stores into this cache.

Mem% Calculated percent of memory used divided by total memory.

K Units Units in thousand bytes.

Front/Back Analysis



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Service	Select a service to display.
Cache	Select a cache. Click the Detail button to get information specific to the selected cache.

FRONT/BACK	**Units:** **Front** Number of objects. The value is the total across all storage nodes for the given tier. **Back** Memory usage. The value is the total across all storage nodes for the given tier. **Cache Size:** Total number of objects in the cache for the given tier (Front or Back). NOTE: Same value as Units for Front tier. **High Units:** **Front** Number of objects allowed before Coherence starts to evict objects from the selected cache. The value is the total across all storage nodes for the given tier. **Back** Maximum memory allowed before Coherence starts to evict objects from the selected cache. The value is the total across all storage nodes for the given tier. **Low Units:** **Front** Number of objects to which Coherence will reduce the cache during the eviction process. The value is the total across all storage nodes for the given tier. **Back** The level of memory to which Coherence will reduce the cache during the eviction process. The value is the total across all storage nodes for the given tier.
Cache Hits	Number of successful gets
Cache Misses	Number of failed gets
Total Puts	Data stores into this cache
Service	CPU usage (%) for the node.
Network	**Front** Sent Packet Failure Rate (%) for the node. **Back** Received Packet Failure Rate (%) for the node.
Misses	Number of failed gets.
Hits	Number of successful gets.
Total Gets	Total requests for data from this cache.
Total Puts	Total data stores into this cache.

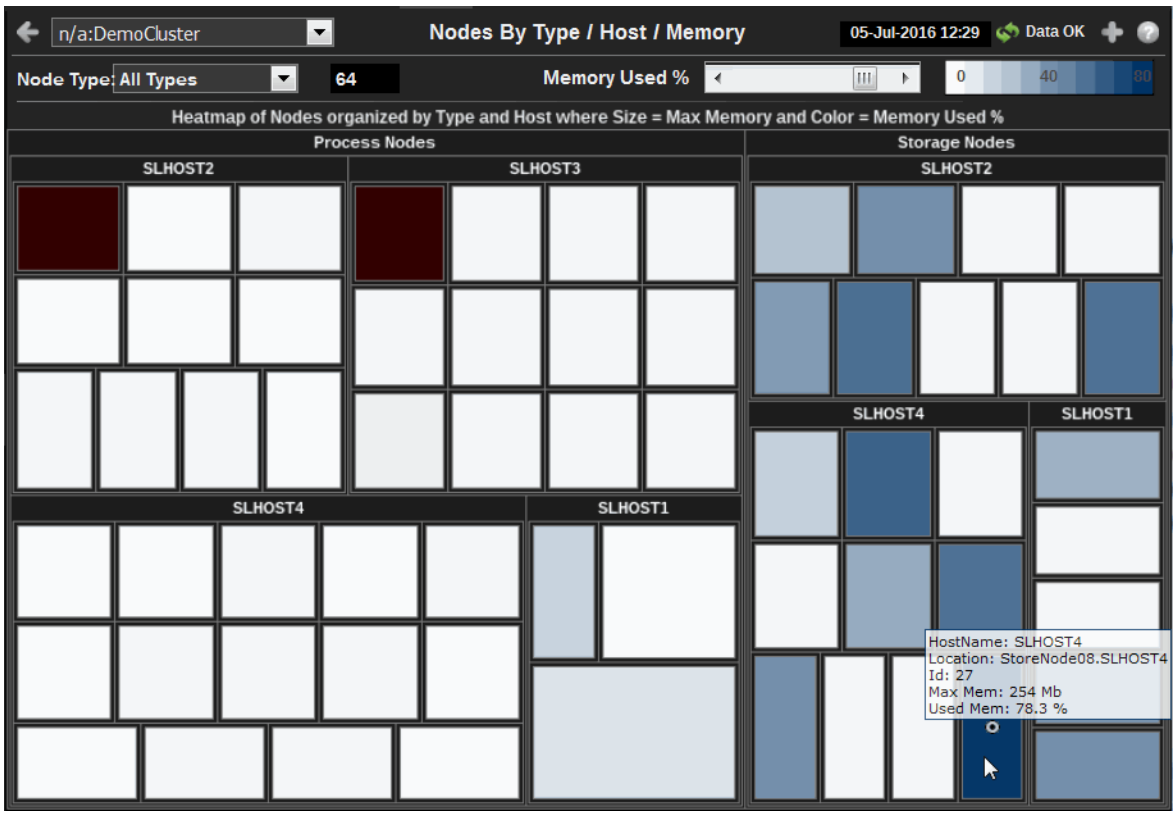
All Nodes

All Nodes displays present high-level node performance metrics for the cluster. Use the All Nodes displays to quickly assess total utilization metrics for all nodes in the cluster.

- "All Nodes by Type/Host/Memory" on page 690: Heatmap of caches by service where size represents Max Memory and color represents percent of Memory Used.
- "All Nodes CPU" on page 691: Heatmap shows CPU utilization for all nodes in the cluster.
- "All Nodes Grid View" on page 692: Grid view showing information about all nodes.
- "Communication Issues" on page 693: Bar chart displays current communication issues for all nodes.
- "All Nodes - Detail" on page 695: Table shows current detailed statistics for all nodes.
- "Invocation Service Detail" on page 697: Table shows invocation service detail for all nodes.

All Nodes by Type/Host/Memory

Heatmap of nodes organized by Type and Host: Size = Max Memory, Color = Percent of Memory Used.



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- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Nodes Type	Select the type of node to display: Storage Nodes, Process Nodes or All Types.
Memory Used%	Set the memory used percentage that maps to the maximum color value. Percentages greater than this value map to the maximum color value.
Heatmap of Nodes organized by Type/Host	A heatmap of memory usage per host.

All Nodes CPU

Heatmap shows CPU utilization for all nodes in the cluster organized by Type and Host: Size = Max Memory, Color = Percent of CPU Used.

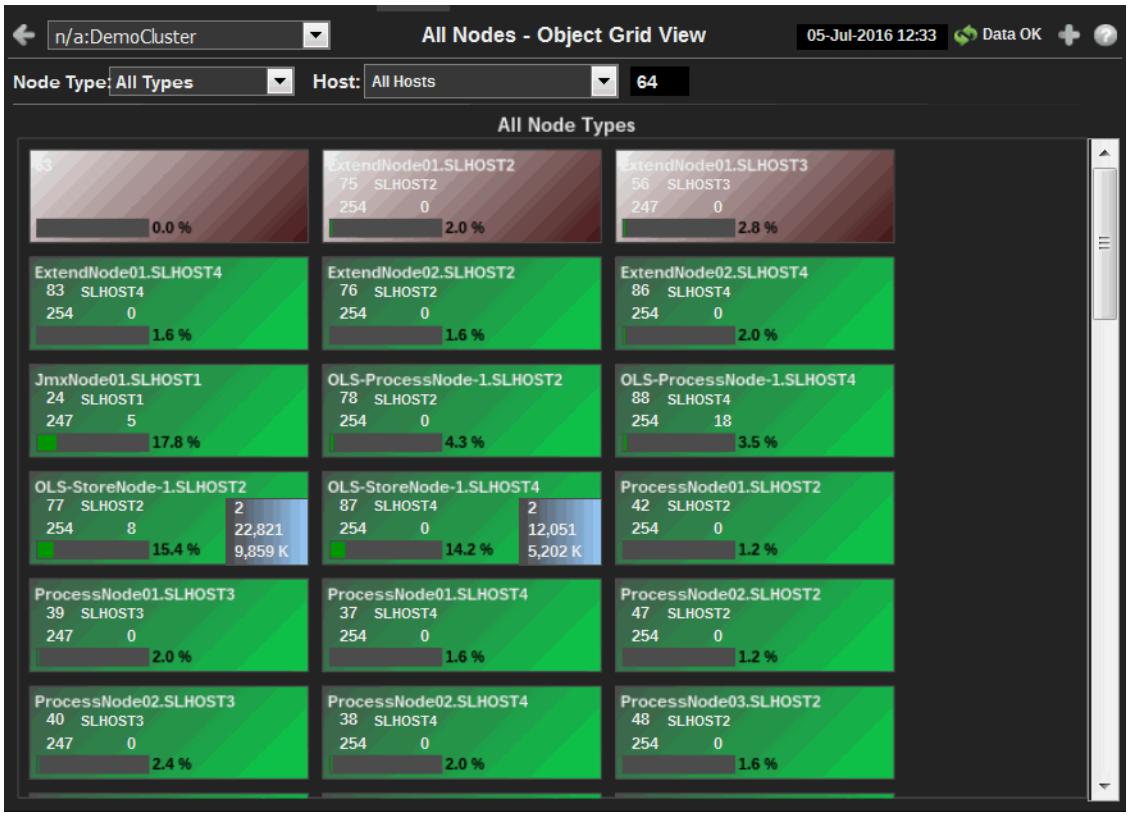
Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Node Type	Select the type of node to display: Storage Nodes, Process Nodes or All Types.
CPU Used%	Set the CPU used percentage that maps to the maximum color value. Percentages greater than this value map to the maximum color value.
Heatmap of Nodes organized by Type/Host	A heatmap of CPU usage per host.

All Nodes Grid View

This display shows a grid view of all of the nodes in the selected Node Type.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
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- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Node Type	Select the type of node to display: Storage Nodes, Process Nodes or All Types.
Host	Select a host to display.
Heatmap of Nodes organized by Type/Host	A heatmap of CPU usage per host.

The following icon is shown for each node in the cluster:

The icon describes the node:

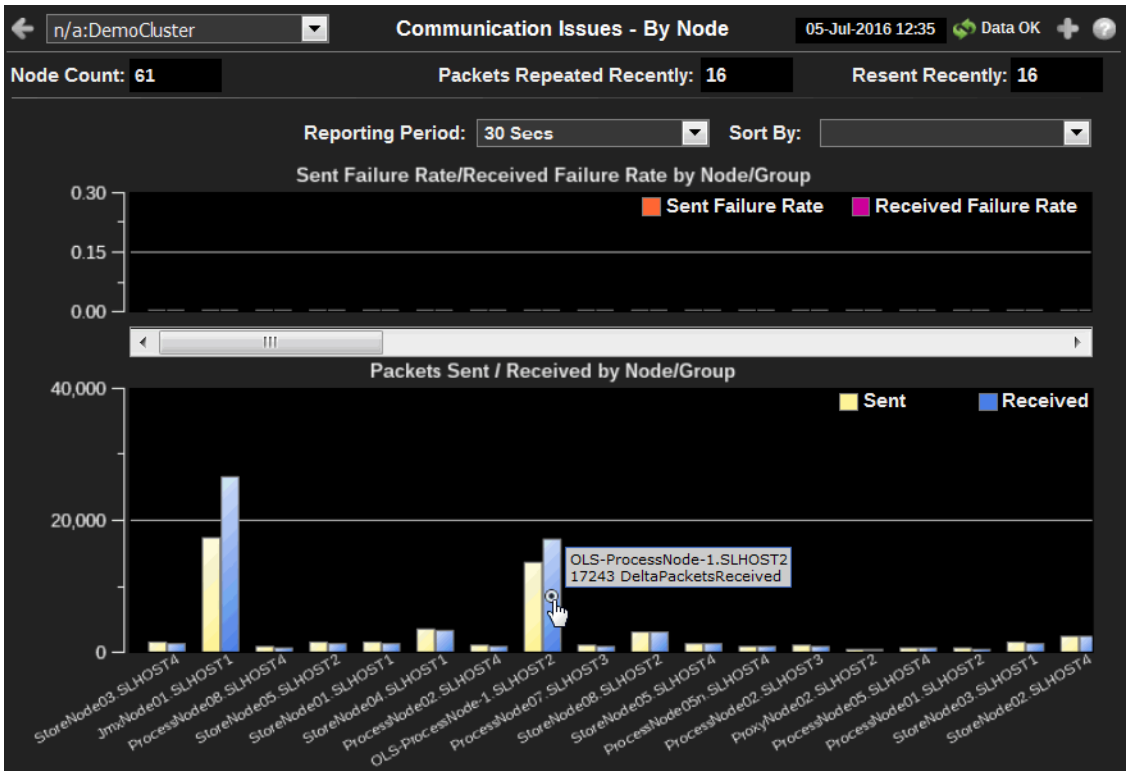
- Location (**StoreNode04.VMXP-7**) A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
- Id (**4**)
- Host name or IP (**vmpx-7**)
- Max megabytes (**247**)
- Messages queued (**0**)
- Meter and label indicating the percent of memory utilization(**12.1%**)

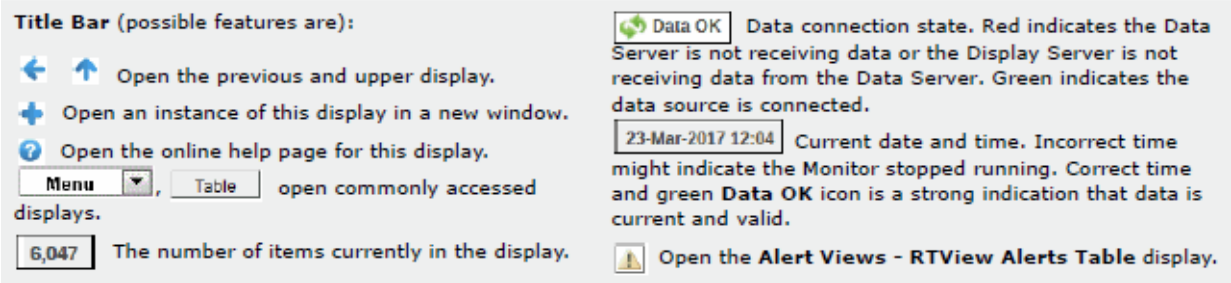
For storage nodes, the following are also shown (in the lower right portion of the icon):

- Number of supported caches (**13**),
- Number of objects (**32,944**)
- Amount of memory used (**8,935 K**).

Communication Issues

This display presents detail information about communication issues by node or group. Both bar charts show the same data as the Packet Detail table. Click on a bar in either chart to drill down to the "Node Summary" display for that node.

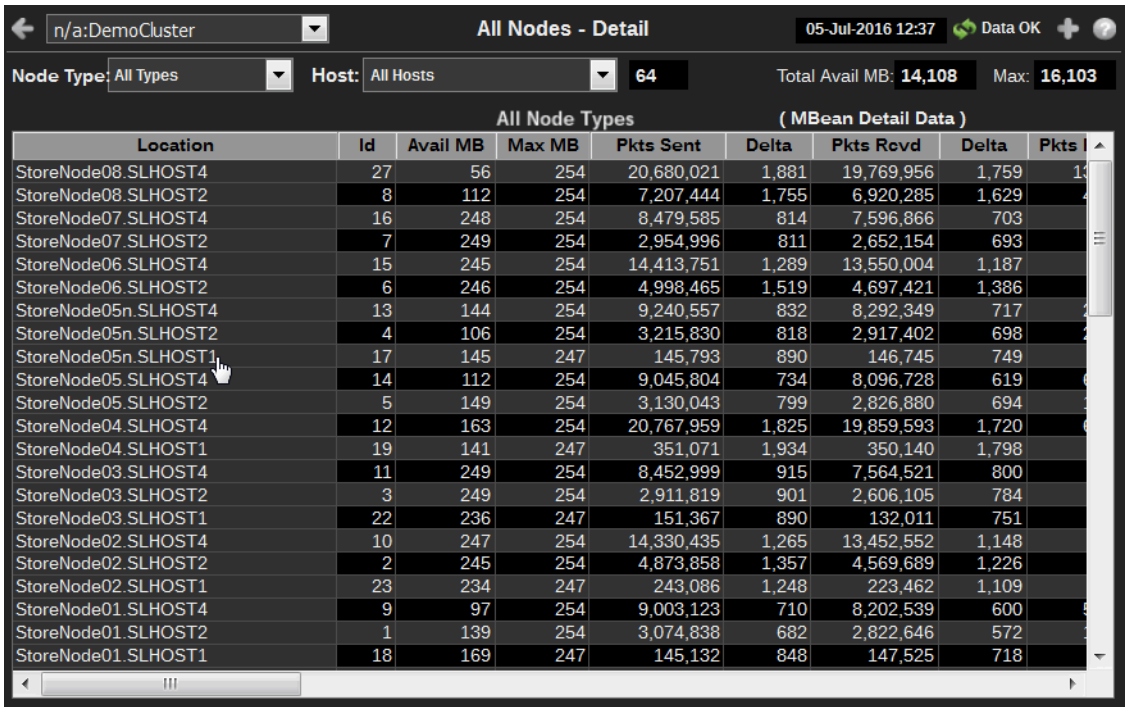


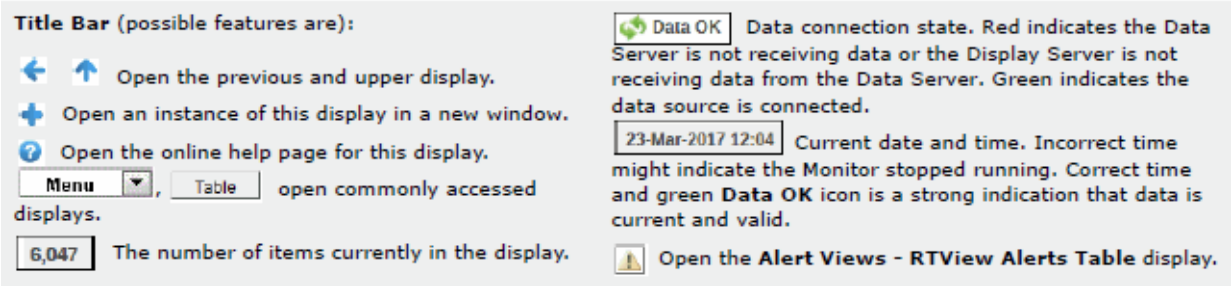


Cluster	Select a cluster to display.
Node Count	Number of nodes in the cluster.
Packets Repeated Recently	Total number of repeated packets since the last update. The update rate is set by the Reporting Period.
Resent Recently	Total number or resent packets since the last update. The update rate is set by the Reporting Period.
Reporting Period	Select period varying from 30 Seconds to Last 7 Days, or display All Data.
Sort By	Select Packets Sent, Packets Received, Sent Failure Rate or Received Failure Rate.
Sent Failure Rate/Received Failure Rate by Node/Group	Packets failed to be sent by each node. Packets failed to be received by each node.
Packets Sent/ Received by Node/Group	Packets sent by each node. Packets received by each node.

All Nodes - Detail

This display presents detailed information about each node. This display includes information from the Coherence ClusterNodeMBean for both storage and processing nodes. Select a node in the All Node Data table to drill down to the "Node Summary" display for that node.





Cluster	Select a cluster to display.
Node Type	Select the type of nodes for which to display data: Storage Nodes, Process Nodes or All Types.
Host	Select the host for which to display data, or select All Hosts.
Node Count	Number of nodes for which data is currently displayed.
Total Avail MB	Total available memory of all nodes in the cluster.
Max	Total max memory of all nodes in the cluster.

All Node Types (MBean Detail Data)

- **Location** A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
- **Id** The short member id that uniquely identifies this member.

- **Avail MB** The amount of available memory for this node in MB.
- **Max MB** The maximum amount of memory for this node in MB.
- **Pkts Sent** The cumulative number of packets sent by this node since the node statistics were last reset.
- **Delta** The number of packets sent by this node since the last update.
- **Pkts Rcvd** The cumulative number of packets received by this node since the node statistics were last reset.
- **Delta** The number of packets received by this node since the last update.
- **Pkts Rptd** The cumulative number of duplicate packets received by this node since the node statistics were last reset.
- **Delta** The number of duplicate packets received by this node since the last update.
- **Pkts Resent** The cumulative number of packets resent by this node since the node statistics were last reset.
- **Delta** The number of packets resent by this node since the last update.
- **Timestamp** The date and time (in cluster time) that this member joined the cluster.
- **Pub Succ Rate** The publisher success rate for this node since the node statistics were last reset. Publisher success rate is a ratio of the number of packets successfully delivered in a first attempt to the total number of sent packets. A failure count is incremented when there is no ACK received within a timeout period. It could be caused by either very high network latency or a high packet drop rate.
- **Rec Succ Rate** The receiver success rate for this node since the node statistics were last reset. Receiver success rate is a ratio of the number of packets successfully acknowledged in a first attempt to the total number of received packets. A failure count is incremented when a re-delivery of previously received packet is detected. It could be caused by either very high inbound network latency or lost ACK packets.
- **Member** The member name for this node.
- **Machine** The machine name for this node.
- **Rack** The rack name for this node.
- **Site** The site name for this node.
- **Process** The process name for this node.
- **Uni Addr** The unicast address. This is the IP address of the node's DatagramSocket for point-to-point communication.
- **Uni Port** The unicast port. This is the port of the node's DatagramSocket for point-to-point communication.
- **RoleName** The role name for this node.
- **ProductEdition** The product edition this node is running. Possible values are: Standard Edition (SE), Enterprise Edition (EE), Grid Edition (GE).
- **Send Queue** The number of packets currently scheduled for delivery, including packets sent and still awaiting acknowledgment. Packets that do not receive an acknowledgment within the ResendDelay interval are automatically resent.

Packet Transmission Totals

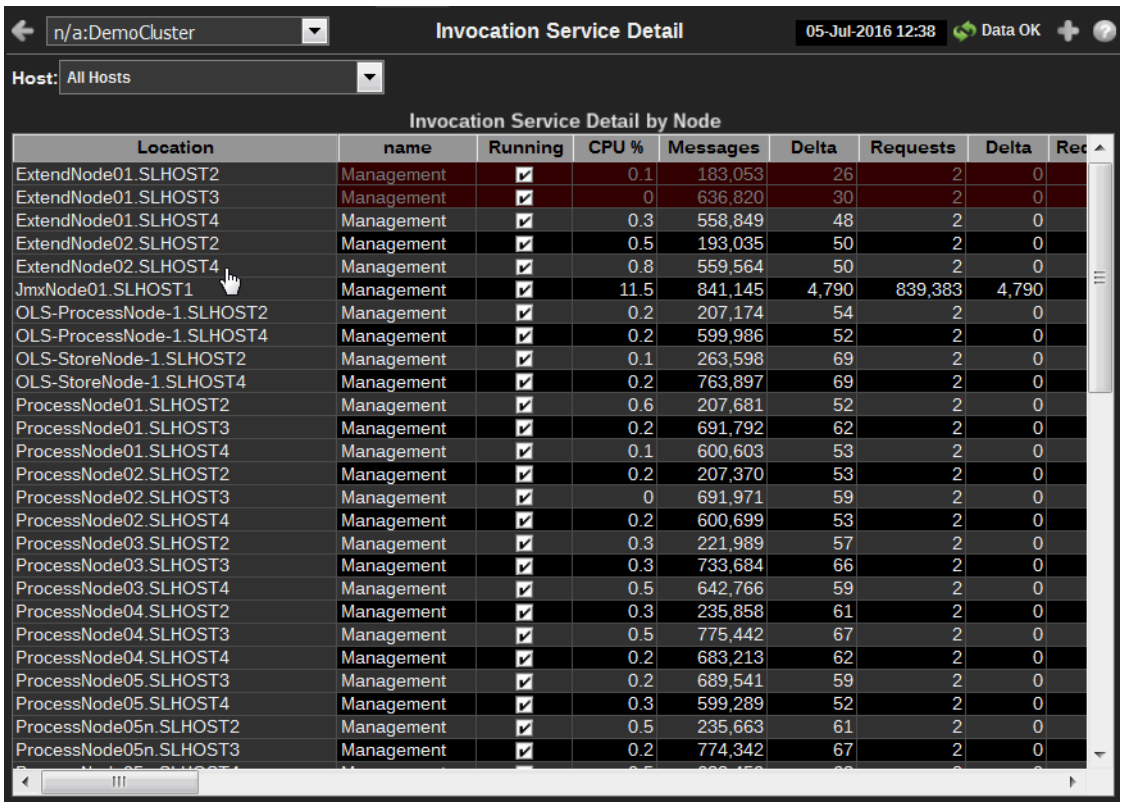
- **Pkts Sent** - Total cumulative packets sent by all nodes in the cluster since the node statistics were last reset.
- **Delta** - Total packets sent by all nodes in the cluster since the last update.
- **Pkts Rcvd** - Total cumulative packets received by all nodes in the cluster since the node statistics were last reset.
- **Delta** - Total packets received by all nodes in the cluster since the last update.
- **Pkts Rptd** - Total cumulative packets repeated by all nodes in the cluster since the node statistics were last reset.
- **Delta** - Total packets repeated by all nodes in the cluster since the last update.

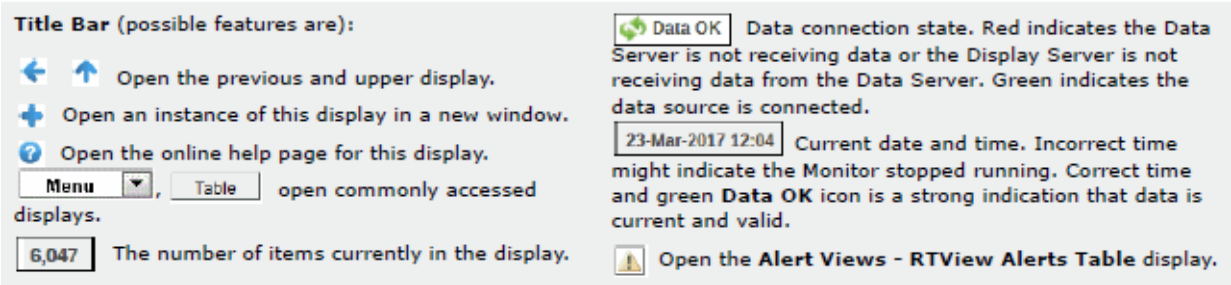
- **Pkts Resent** - Total cumulative packets resent by all nodes in the cluster since the node statistics were last reset.

Delta - Total packets resent by all nodes in the cluster since the last update.

Invocation Service Detail

This display presents detailed information about invocation services. The data displayed here is queried from the Coherence ServiceMBean filtered to only display services of type Invocation. Click on a node in the table to drill down to the "Node Summary" display for that node.





Cluster	Select a cluster to display.
Host	Select the host for which to display data, or select All Hosts.

Invocation Service Information

- **Location** A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.

- **name** The name of the invocation service.
- **Running** Indicates that the invocation service is running when checked.
- **CPU%** The percent (%) of CPU used by the node.
- **Messages** The number of messages issued by the service to the node in a given time period.
- **Delta** The number of messages received by the node since the last update.
- **Requests** The number of requests issued by the service to the node in a given time period.
- **Delta** The number of requests received by the node since the last update.
- **RequestAverageDuration** The average duration (in milliseconds) of an individual synchronous request issued by the service since the last time the statistics were reset.
- **RequestMaxDuration** The maximum duration (in milliseconds) of a synchronous request issued by the service since the last time the statistics were reset.
- **RequestPendingCount** The number of pending synchronous requests issued by the service.
- **RequestPendingDuration** The duration (in milliseconds) of the oldest pending synchronous request issued by the service.
- **RequestTimeoutCount** The total number of timed-out requests since the last time the statistics were reset.
- **RequestTimeoutMillis** The default timeout value in milliseconds for requests that can be timed-out (e.g. implement the com.tangosol.net.PriorityTask interface), but do not explicitly specify the request timeout value.
- **TaskAverageDuration** The average duration (in milliseconds) of an individual task execution.
- **TaskBacklog** The size of the backlog queue that holds tasks scheduled to be executed by one of the service pool threads.
- **TaskCount** The total number of executed tasks since the last time the statistics were reset.
- **TaskHungCount** The total number of currently executing hung tasks.
- **TaskHungDuration** The longest currently executing hung task duration in milliseconds.
- **TaskHungTaskId** The id of the of the longest currently executing hung task.
- **TaskHungThresholdMillis** The amount of time in milliseconds that a task can execute before it is considered hung. Note that a posted task that has not yet started is never considered as hung.
- **TaskMaxBacklog** The maximum size of the backlog queue since the last time the statistics were reset.
- **TaskTimeoutCount** The total number of timed-out tasks since the last time the statistics were reset.
- **TaskTimeoutMillis** The default timeout value in milliseconds for tasks that can be timed-out (e.g. implement the com.tangosol.net.PriorityTask interface), but do not explicitly specify the task execution timeout value.
- **ThreadAbandonedCount** The number of abandoned threads from the service thread pool. A thread is abandoned and replaced with a new thread if it executes a task for a period of time longer than execution timeout and all attempts to interrupt it fail.
- **ThreadAverageActiveCount** The average number of active (not idle) threads in the service thread pool since the last time the statistics were reset.
- **ThreadCount** The number of threads in the service thread pool.
- **ThreadIdleCount** The number of currently idle threads in the service thread pool.
- **HostName** Name of the host machine on which the service resides.
- **Throughput** The amount of data (in kilobytes) that is transferred by the service to the node.

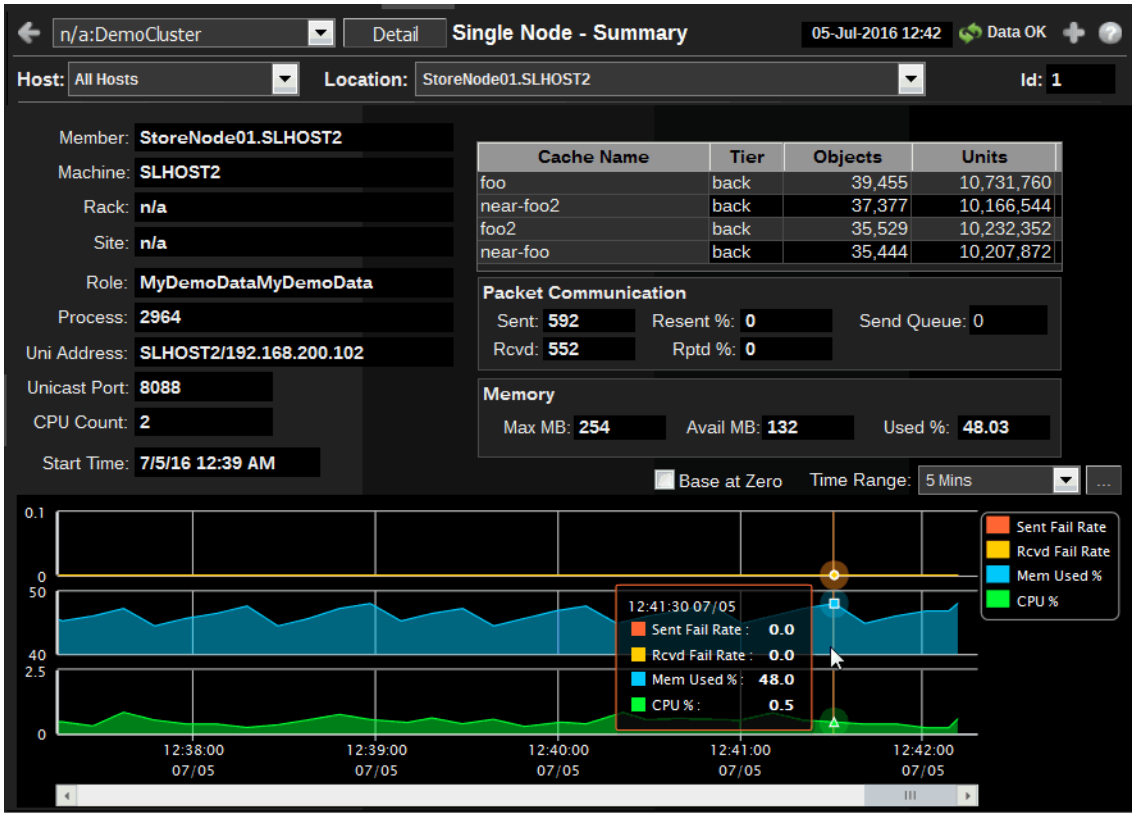
Single Node

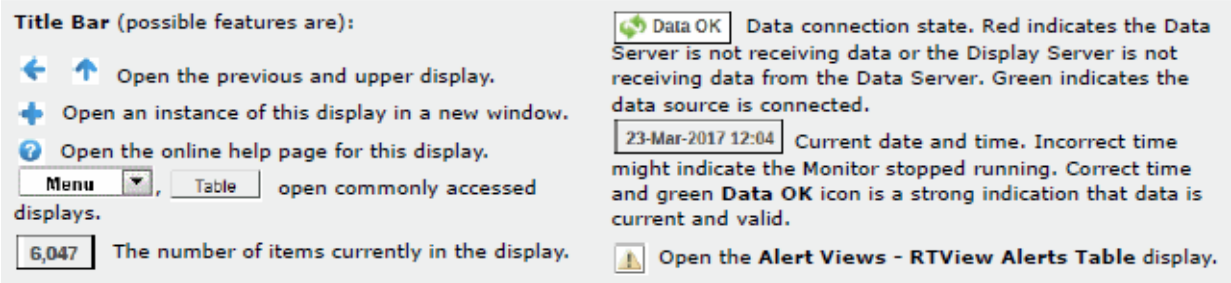
Single Node displays present detailed node performance metrics for a single node. Use the Single Node displays to perform node utilization analysis.

- "Node Summary": Summary view showing details about a single node.
- "Service Trends": Trend graphs showing metrics on a selected node of a selected service. Allows you to visually compare the behavior of metrics over time, for a given node.
- "Node Detail": Tables showing metrics for Node, Cache, Invocation Service, Cache Service, and Storage Manager MBeans.
- "JVM Summary": Runtime, class loader, thread, OS and input arguments.
- "JVM Memory Trends": Heap and non-heap memory trends.
- "JVM GC Trends": Memory usage before and after garbage collection and Garbage Collector activity.
- "System Properties": Table of Java properties for a selected node.

Node Summary

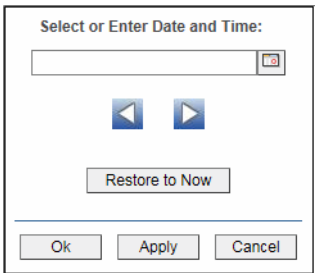
This display presents summary information about an individual node.





Cluster	Select a cluster to display.
Detail	View "Node Detail" display.
Host	Select a host from the drop-down menu.
Location	Select a location from the drop-down menu. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Id	The id for the selected node.
Member	The member name for this node.
Machine	The machine name for this node.
Rack	The rack name for this node.
Site	The site name for this node.
Role	The role name for this node.
Process	The process name for this node.
Uni Address	The unicast address. This is the IP address of the node's DatagramSocket for point-to-point communication.
Unicast Port	The unicast port. This is the port of the node's DatagramSocket for point-to-point communication.
CPU Count	Number of CPU cores for the machine this node is running on.
Start Time	The date and time that the selected node joined the cluster.
Cache Data	**Cache Name** Name of Cache. **Tier** Front or Back. **Objects** Number of objects. **Units** Number of units (typically bytes).

Packet Communication	**Sent** Cumulative number of packets sent by this node since the node statistics were last reset. **Rcvd** Cumulative number of packets received by this node since the node statistics were last reset. **Resent%** Cumulative number of packets resent by this node since the node statistics were last reset. **Rptd%** Cumulative number of packets repeated by this node since the node statistics were last reset. **Send Queue** The number of packets currently scheduled for delivery, including packets sent and still awaiting acknowledgment. Packets that do not receive an acknowledgment within the ResendDelay interval are automatically resent.
Memory	**Max MB** Total memory allocated. **Avail MB** Total memory available. **Used%** Percent of allocated memory being used.
Base at Zero	Use zero as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Sent Fail Rate	Percentage of communication packages on this node that failed and needed to be resent.
Rcvd Fail Rate	Percentage of received communication packages that failed and needed to be repeated.
Mem Used%	Percent of memory used by the node.
CPU%	Percent of CPU used by the node.

Service Trends

Trend graphs showing metrics on a selected node of a selected service. Allows you to visually compare the behavior of metrics over time, for a given node.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

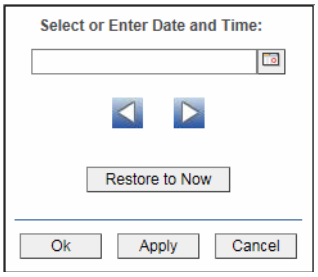
23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Service	Select a service to display.
Host	Select a host to display.
Location	Select a location to display. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Base at Zero	Use zero as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Metrics for Service selected by Location

Trend chart displays the values of labeled Metrics for the selected **Location** over the specified **Time Range**. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.

CPU% CPU Utilization (as a percent) on the selected **Location** (for example, node).

Requests Number of requests issued by the service in the measured period.

Messages The number of messages for the given node in the measured interval.

Request Average Duration Average duration (in milliseconds) of an individual request issued by the service since the last time the statistics were reset.

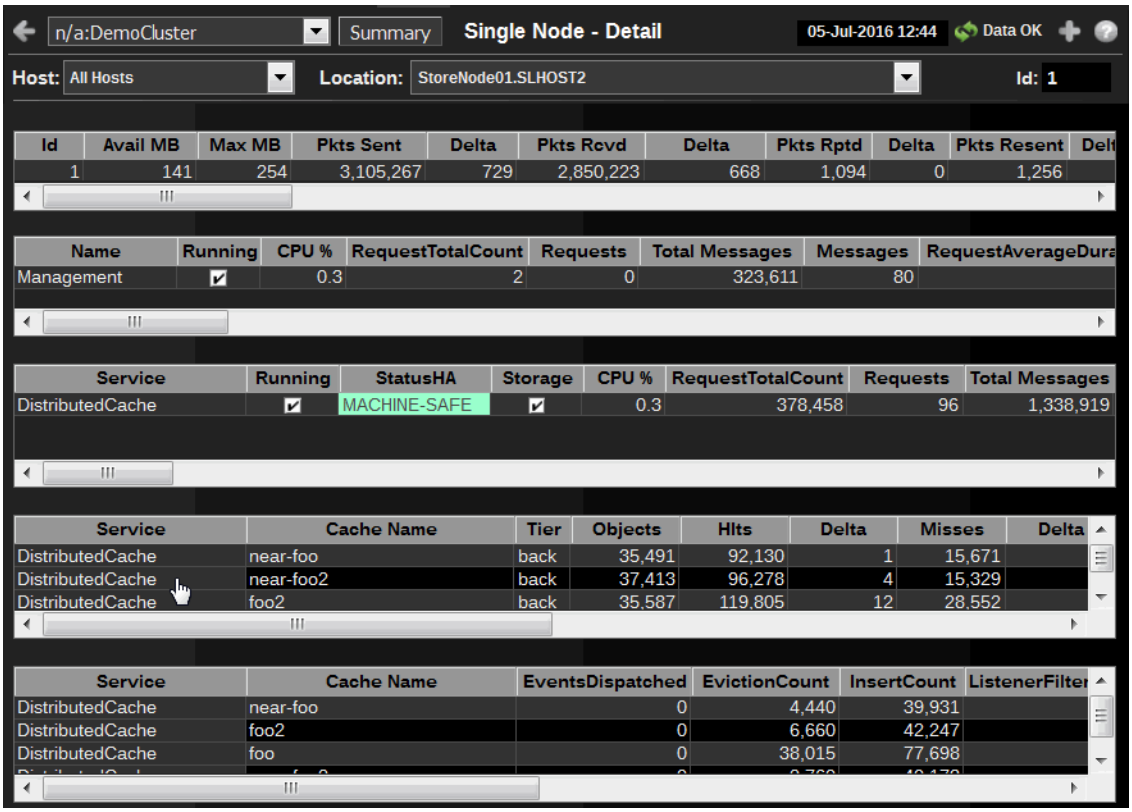
Request Pending Count Number of pending requests issued by the service.

Task Backlog Size of the backlog queue that holds tasks scheduled to be executed by one of the service threads.

Active Threads Number of threads in the service thread pool, not currently idle.

Node Detail

This display presents detailed information about invocation services per node. The data on this display is queried from the Coherence MBeans. NOTE: For details on attributes of these MBeans go to: http://download.oracle.com/otn_hosted_doc/coherence/350/com/tangosol/net/management/Registry.html.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

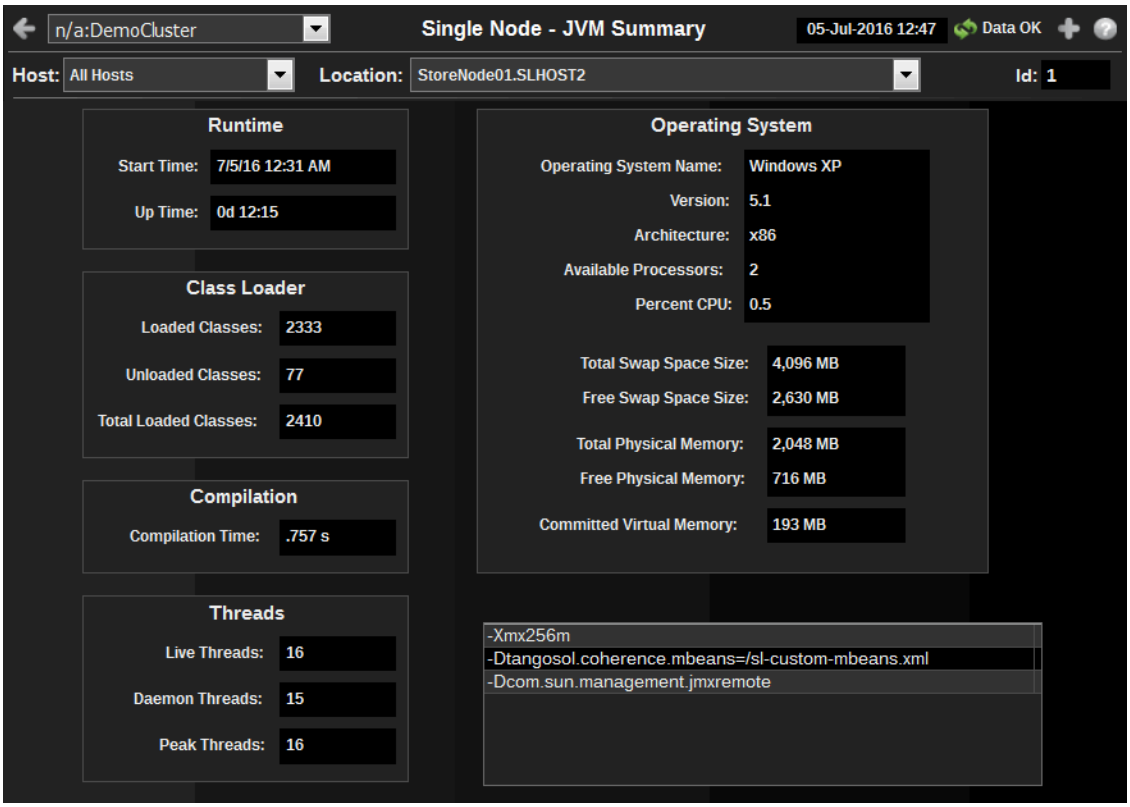
Open the **Alert Views - RTView Alerts Table** display.

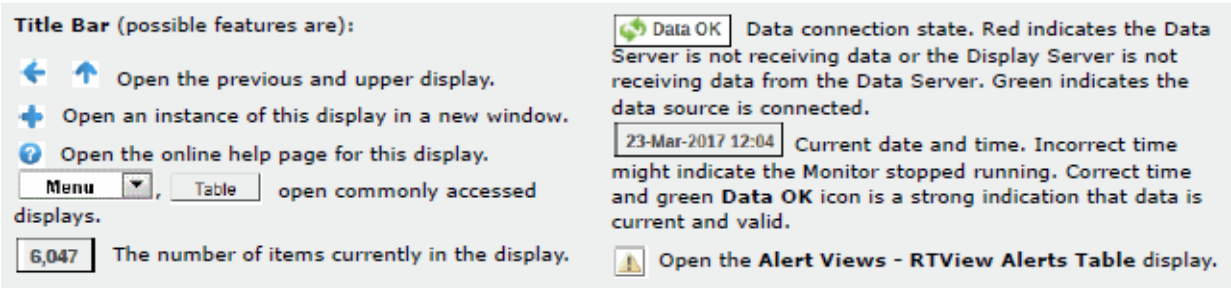
Cluster	Select a cluster to display.
Summary	View "Node Summary" display.
Host	Select a host.
Location	Select a location. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Node MBean Data	This table contains data from the Node MBean for the selected node.

Invocation Service MBean Data	This table contains data from the Invocation Services MBean for the selected node. **StatusHA:** The high availability status of the service: ● ENDANGERED: There is potential data loss in the cluster if a node goes offline. ● NODE-SAFE: There is no risk of data loss in the cluster if a node goes offline (or is taken offline using kill-9). The data is replicated across multiple nodes and remains available in the cluster. ● MACHINE-SAFE: There is no risk of data loss in the cluster if a machine goes offline (or is taken offline using kill-9). The data is replicated across multiple machines and remains available in the cluster. ● RACK-SAFE: There is no risk of data loss in the cluster if a rack goes offline (or is taken offline using kill-9). The data is replicated across multiple racks and remains available in the cluster. ● SITE-SAFE: There is no risk of data loss in the cluster if a site goes offline (or is taken offline using kill-9). The data is replicated across multiple sites and remains available in the cluster.
Cache Service MBean Data	This table contains data from the Cache Service and Node MBeans associated with the selected node, as well as the following data.
Cache MBean Data	This table contains data from the Cache MBeans associated with the selected node.
Storage Manager MBean Data	This table contains data from the Storage Manager MBeans associated with the selected node.

JVM Summary

Runtime, class loader, thread, OS and input arguments. NOTE: Platform MBean information is available at: http://java.sun.com/javase/6/docs/api/java/lang/management/package-summary.html#package_description.



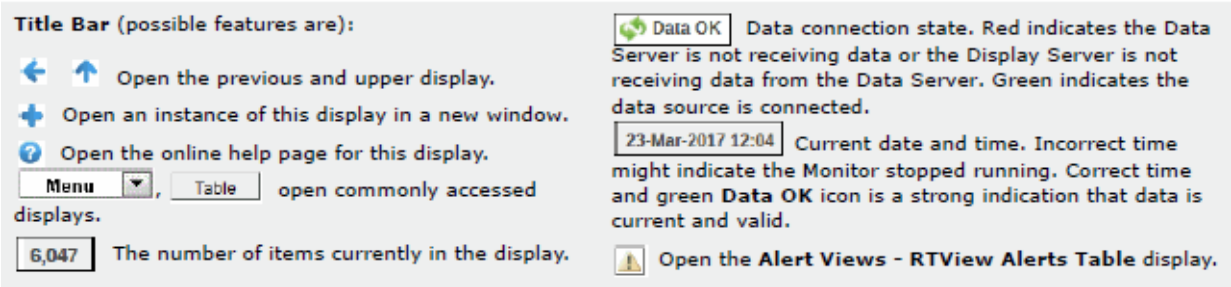


Cluster	Select a cluster to display.
Host	Select a host to display.
Location	Select a location to display. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Id	This table contains data from the Node MBean for the selected node.
Runtime	**Start Time** The date and time that the JVM started. **Up Time** The uptime of the JVM.

Class Loader	**Loaded Classes** The number of classes that are currently loaded in the JVM. **Unloaded Classes** The total number of classes unloaded since the JVM started execution. **Total Loaded Classes** The total number of classes that have been loaded since the JVM started execution.
Compilation Time	The approximate accumulated elapsed time (in milliseconds) spent in compilation. If multiple threads are used for compilation, then this value is a summation of the approximate time that each thread spent in compilation. NOTE: Compilation Time monitoring may not be supported depending on the platform (for example, a Java virtual machine implementation).
Threads	**Live Threads** The number of live threads. **Daemon Threads** The number of live daemon threads. **Peak Threads** The peak live thread count since the Java virtual machine started or peak was reset.
Operating System	**Operating System Name** The operating system name. **Version** The operating system version. **Architecture** The operating system architecture. **Available Processors** The number of processors available to the JVM. **Percent CPU** Percent of CPU used by the JVM. T**otal Swap Space Size** The value of the OperatingSystemMXBean's TotalSwapSpaceSize attribute. **Free Swap Space Size** The value of the OperatingSystem MXBean's FreeSwapSpaceSize attribute. **Total Physical Memory** The value of the OperatingSystemMXBean's TotalPhysicalMemorySize attribute **Free Physical Memory** The value of the OperatingSystemMXBean's FreePhysicalMemorySize attribute **Committed Virtual Memory** The value of the OperatingSystemMXBean's CommittedVirtualMemorySize attribute
Input Arguments	The list of JVM arguments in the RuntimeMXBean's InputArguments attribute.

JVM Memory Trends

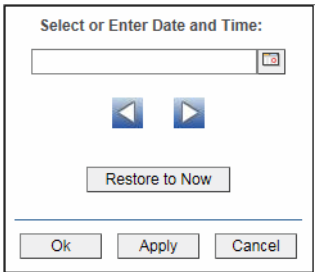
Heap and non-heap memory trends. NOTE: Platform MBean information is available at: http://java.sun.com/javase/6/docs/api/java/lang/management/package-summary.html#package_description.



Cluster	Select a cluster to display.
Host	Select a host to display.
Location	Select a location to display. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Id	This table contains data from the Node MBean for the selected node.
Base at Zero	Use zero as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Heap Memory

Maximum The value of the max field within the MemoryMXBean HeapMemoryUsage attribute.

Committed The value of the committed field within the MemoryMXBean HeapMemoryUsage attribute.

Used The value of the used field within the MemoryMXBean HeapMemoryUsage attribute.

Peak Tenured Used The value of the used field within the TenuredGen MemoryPoolMXBean PeakUsage attribute.

Non-Heap Memory

Maximum The value of the max field within the MemoryMXBean NonHeapMemoryUsage attribute.

Committed The value of the committed field within the MemoryMXBean NonHeapMemoryUsage attribute.

Used The value of the used field within the MemoryMXBean NonHeapMemoryUsage attribute.

Objects Pending Finalization The value of the MemoryMXBean ObjectPendingFinalizationCount attribute.

Verbose The value of the MemoryMXBean Verbose attribute.

Garbage Collection

name Name of the Garbage Collector MBean.

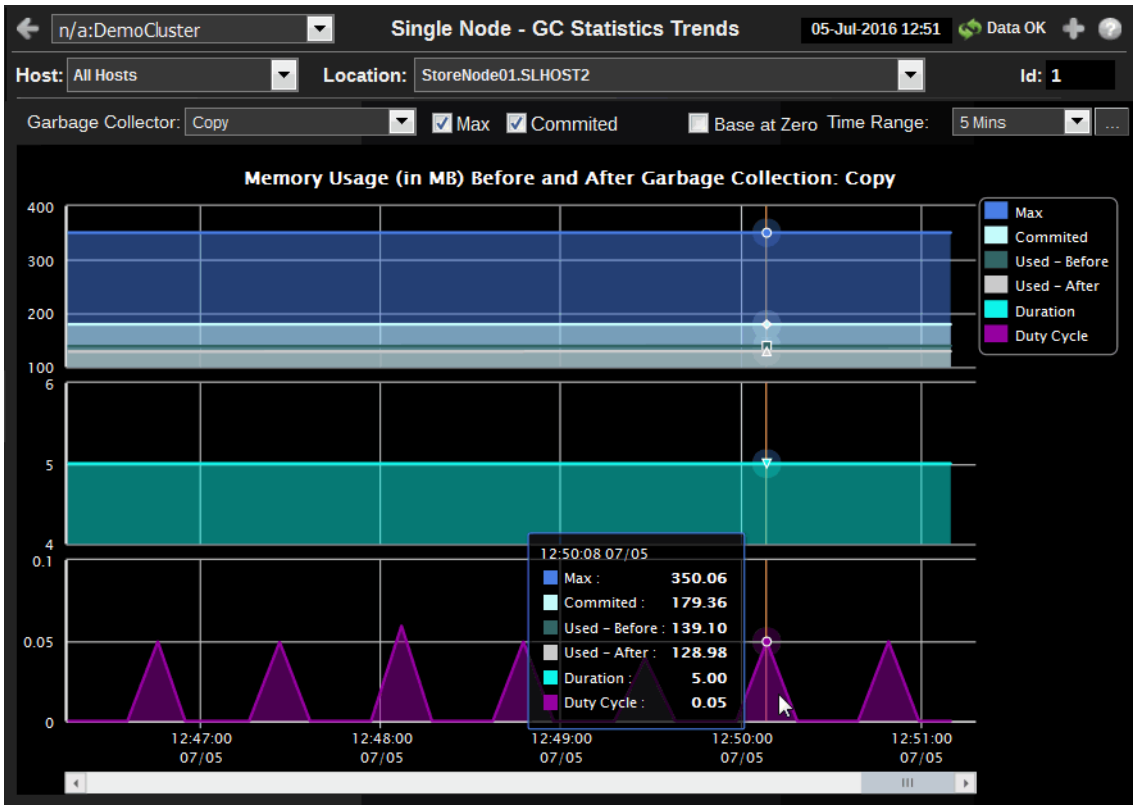
LastGcInfo.Count The GcThreadCount from the Garbage Collector's LastGcInfo MBean.

LastGcInfo.Duration The Duration from the Garbage Collector's LastGcInfo MBean.

Operations Run Garbage Collector Executes the MemoryMXBean garbage collection operation, Reset Peak Usage Executes the TenuredGen resetPeakUsage operation.

JVM GC Trends

Memory usage before and after garbage collection and Garbage Collector activity. NOTE: Platform MBean information is available at: http://java.sun.com/javase/6/docs/api/java/lang/management/package-summary.html#package_description.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

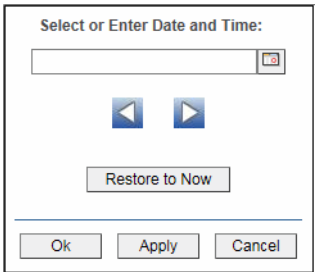
Open the **Alert Views - RTView Alerts Table** display.

Cluster	Select a cluster to display.
Host	Select a host to display.
Location	Select a location to display. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Id	This table contains data from the Node MBean for the selected node.
Garbage Collector	Select a Garbage Collector.
Max	Select to add the Max trace (graph will rescale if necessary).

Committed Select to add the Committed trace (graph will rescale if necessary).

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Memory Usage (in MB) Before and After Garbage Collection

Max The maximum amount of memory used by the node or nodes.

Committed The amount of memory guaranteed to be available for use by the JVM.

Used - Before The amount of memory used by the node or nodes before garbage collection.

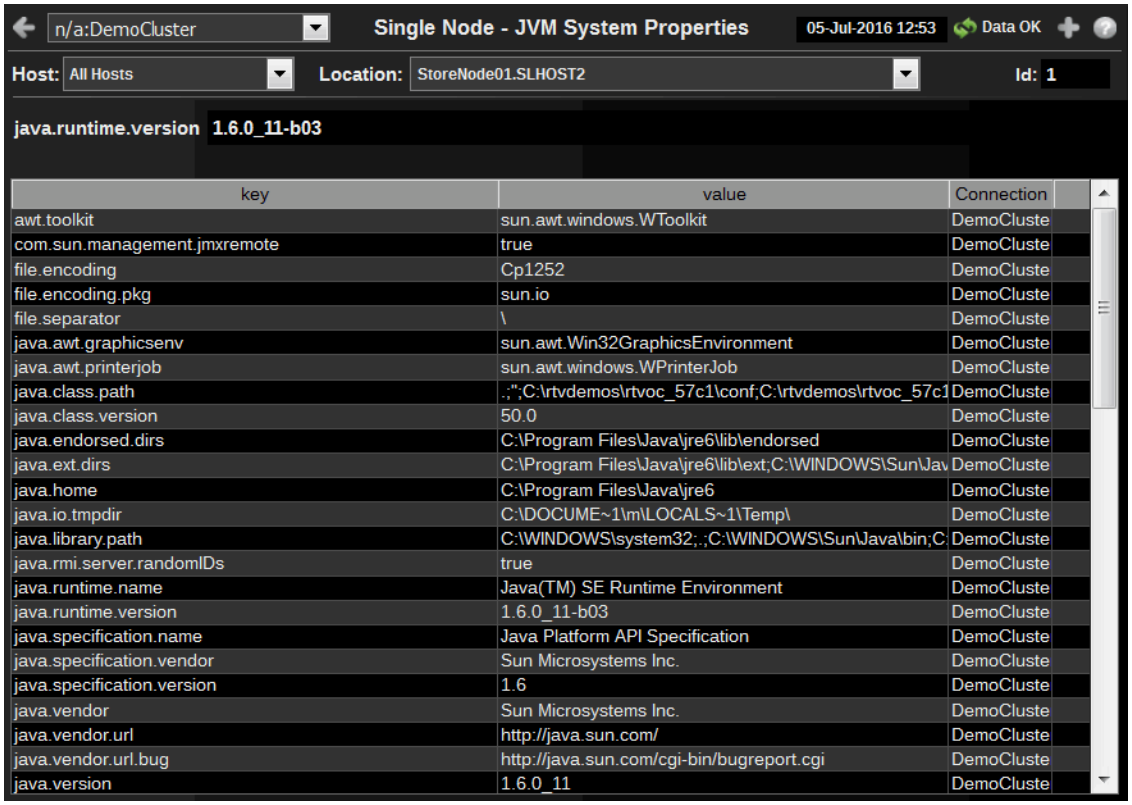
Used - After The amount of memory used by the node or nodes after garbage collection.

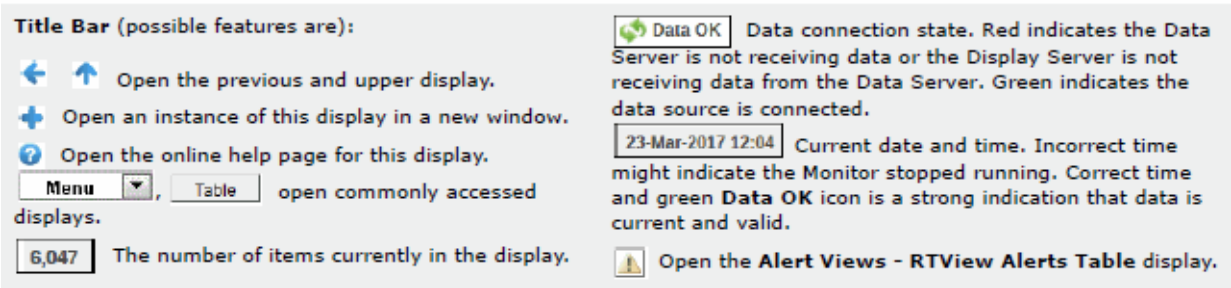
Duration The duration, in seconds, that memory is used by the node or nodes.

Duty Cycle Percent of time spent by the node or nodes in garbage collection.

System Properties

Table of Java properties for a selected node.





Cluster	Select a cluster to display.
Host	Select a host to display.
Location	Select a location to display. **Location** is a unique identifier for each node and defined as: **member_name.machine.rack.site**.
Id	This table contains data from the Node MBean for the selected node.
java.runtime.version	The value of the RuntimeMXBeans's VmVersion attribute.
System Properties	This table contains the attribute/value pairs from the RuntimeMXBean's SystemProperties attribute.

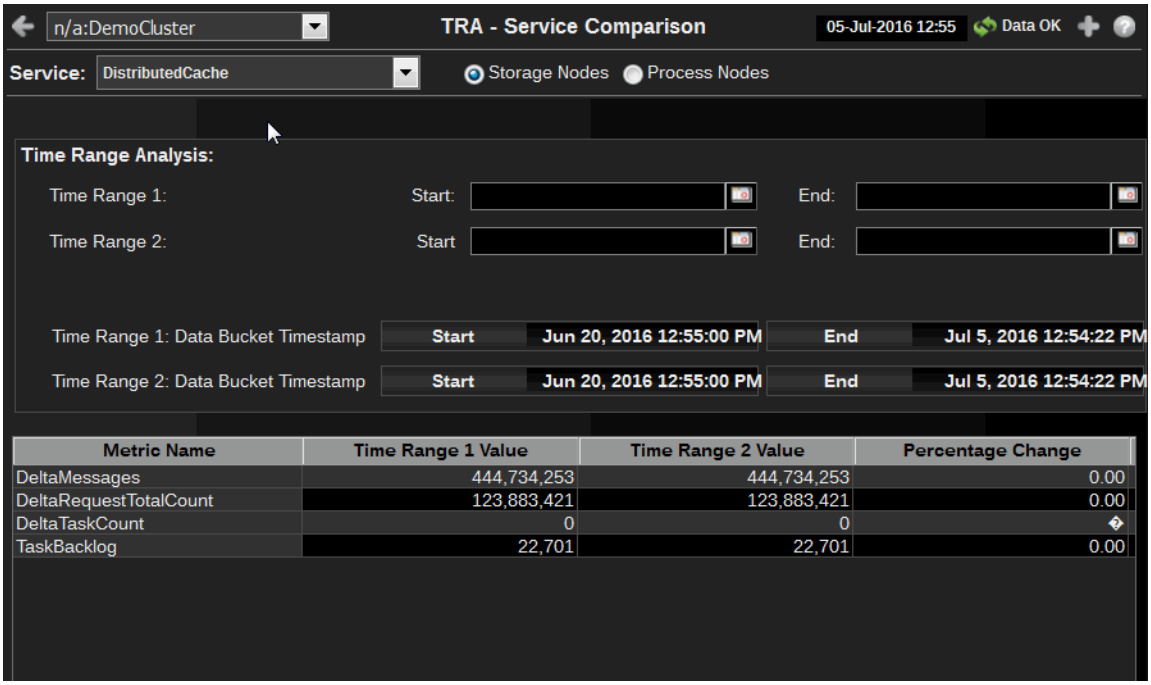
Time Range Analysis

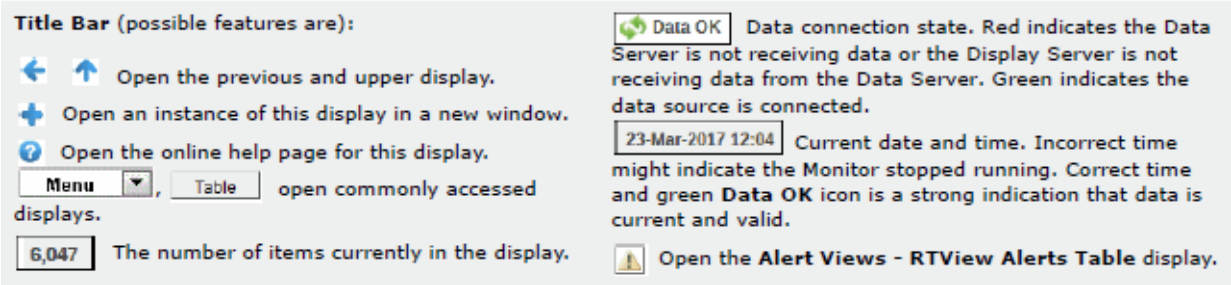
These displays allow you to compare data between two sets of time ranges.

- "Service Comparison" on page 713: Analyze service data for two sets of time ranges.
- "Cache Comparison" on page 714: Analyze cache data for two sets of time ranges.

Service Comparison

This display allows for analysis of service data for two sets of time ranges.





Cluster	Select a cluster to display.
Service	Select a service to display.
Storage Nodes	Select to display storage node data in the trend graphs of this display.
Process Nodes	Select to display process node data in the trend graphs of this display.

Time Range Analysis

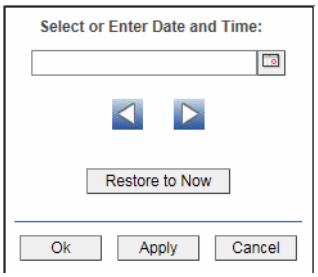
Time Range 1: Set Start and End times for Time Range 1

Time Range 2: Set Start and End times for Time Range 2

Time Range 1: Data Bucket Timestamp and Time Range 2: Data Bucket Timestamp displays the Start and End timestamps for the actual data buckets used in the comparison, since data may be compacted into buckets with different Start and End times from the specified values.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



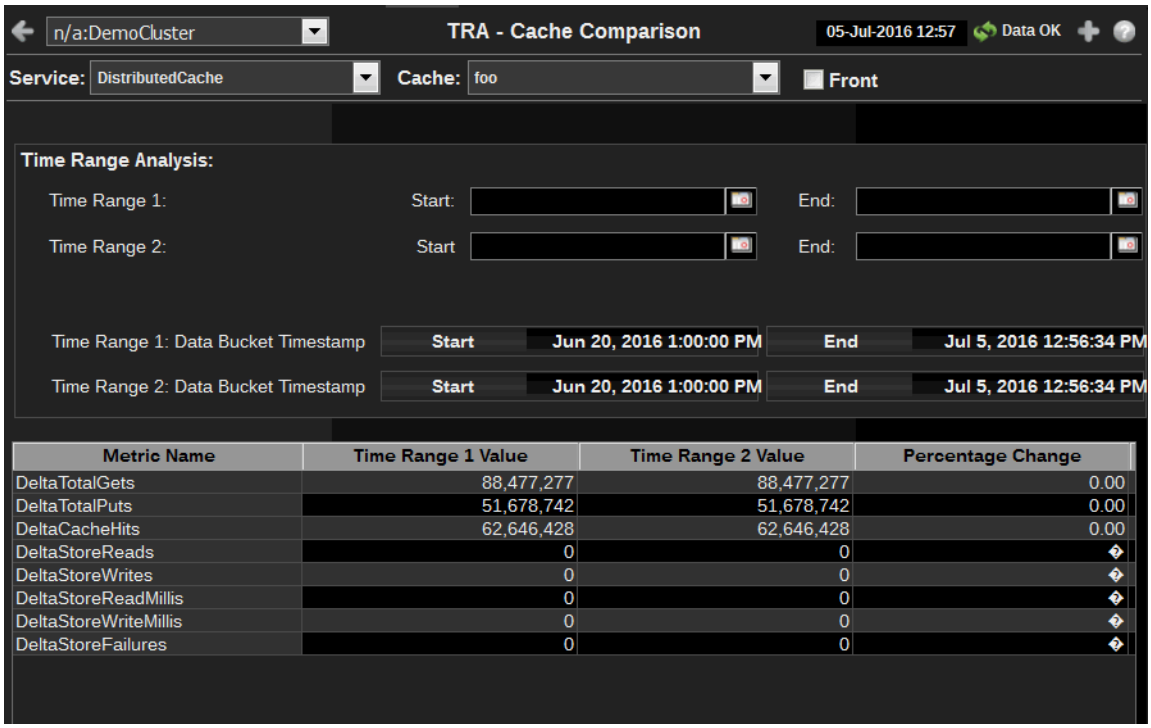
By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

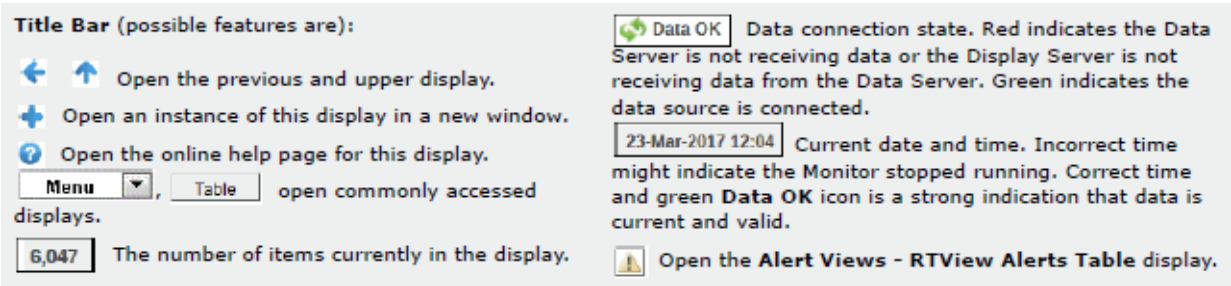
Click **Restore to Now** to reset the time range end point to the current time.

Cache Comparison

This display allows for analysis of cache data for two sets of time ranges.



Metric Name	Time Range 1 Value	Time Range 2 Value	Percentage Change
DeltaTotalGets	88,477,277	88,477,277	0.00
DeltaTotalPuts	51,678,742	51,678,742	0.00
DeltaCacheHits	62,646,428	62,646,428	0.00
DeltaStoreReads	0	0	
DeltaStoreWrites	0	0	
DeltaStoreReadMillis	0	0	
DeltaStoreWriteMillis	0	0	
DeltaStoreFailures	0	0	



Cluster Select a cluster to display.

Service Select a service to display.

Storage Nodes Select to display storage node data in the trend graphs of this display.

Process Nodes Select to display process node data in the trend graphs of this display.

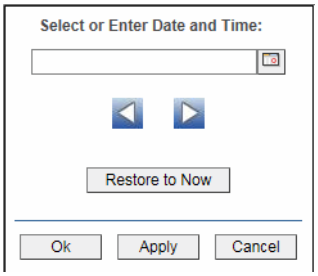
Time Range Analysis

Time Range 1: Set Start and End times for Time Range 1

Time Range 2: Set Start and End times for Time Range 2

Time Range 1: Data Bucket Timestamp and Time Range 2: Data Bucket Timestamp displays the Start and End timestamps for the actual data buckets used in the comparison, since data may be compacted into buckets with different Start and End times from the specified values.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ....



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Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

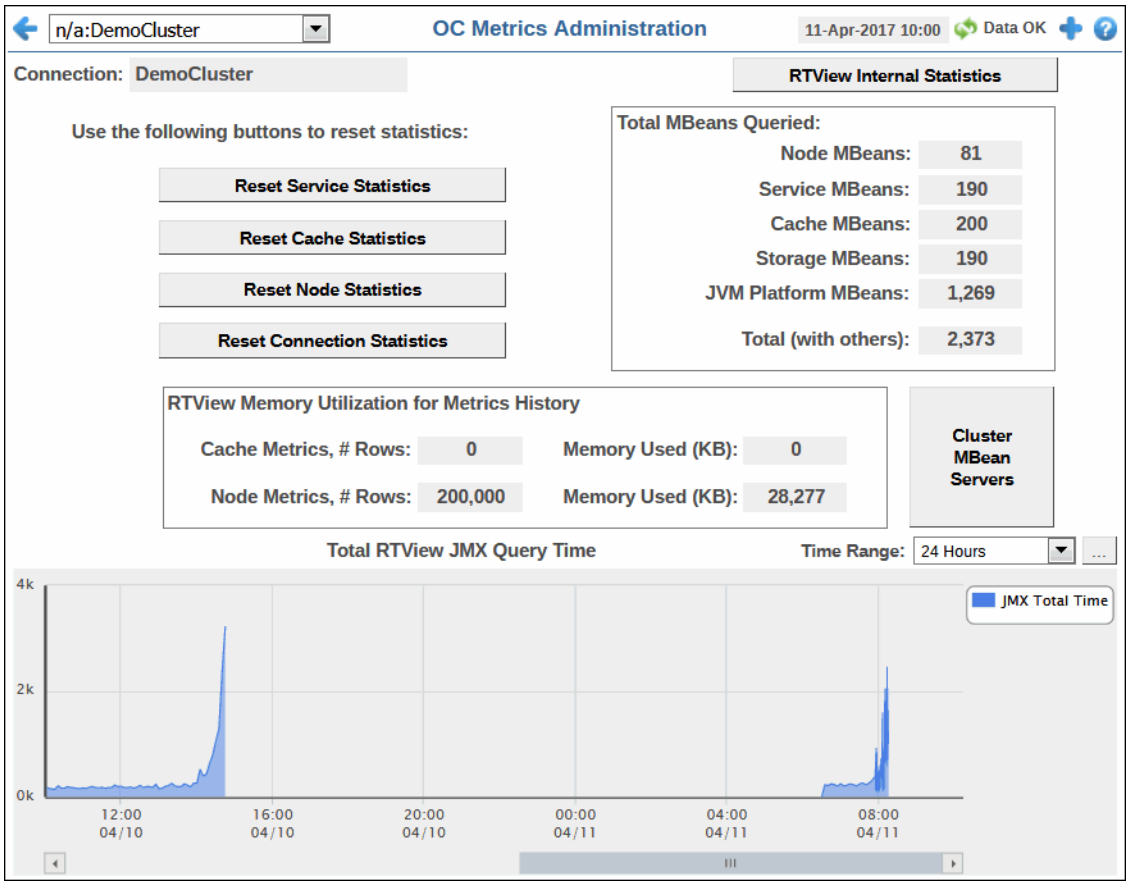
OC Administration

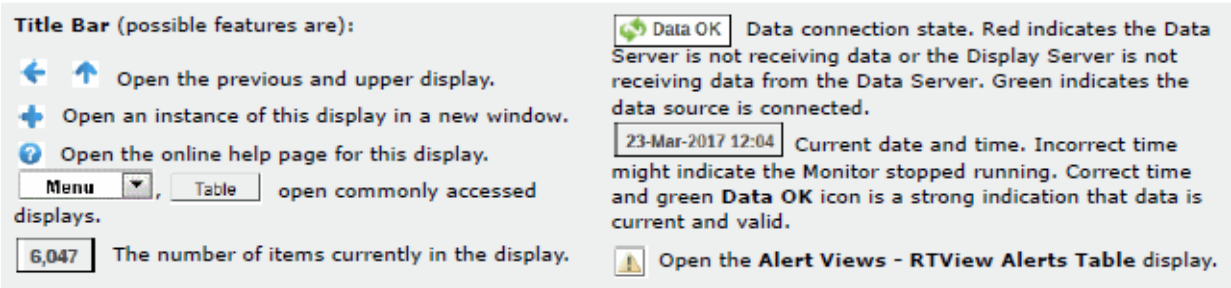
These displays allow you to manage your Oracle Coherence metrics, nodes and caches. Some of these displays might be read-only depending on your login credentials.

- "OC Metrics Administration" on page 716: Monitor information on metrics acquisition. Permits user to reset system metrics.
- "Cluster MBean Servers" on page 718: Access this display using the **Cluster MBean Servers** button in the "OC Metrics Administration" display. Permits user to find and choose a different MBean server.
- "Management Settings" on page 720: Monitor information about Coherence JMX management settings.
- "Node Administration" on page 722: Permits user to modify node parameters.
- "Cache Administration" on page 724: Permits user to modify cache parameters.

OC Metrics Administration

This display allows various statistics to be reset, so that cumulative data can be visualized more meaningfully. It is read-only unless you are logged in as admin or super.





Cluster Select a cluster to display.

Connection The name of the JMX connection used to access the cluster data.

Reset Service Statistics Click to reset the cumulative counts of the service statistics.

Reset Cache Statistics Click to reset the cumulative counts of the cache statistics.

Reset Node Statistics Click to reset the cumulative counts of the node statistics.

Reset Connection Statistics Click to reset the cumulative counts of the connection statistics.

Total MBeans Queried

Node MBeans Total number of node MBeans queried.
Service MBeans Total number of service MBeans queried.
Cache MBeans Total number of cache MBeans queried.
Storage MBeans Total number of storage MBeans queried.
JVM Platform MBeans Total number of JVM platform MBeans queried.
Total Total number of MBeans queried.

RTView Memory Utilization for Metrics History

By default, the Oracle Coherence Monitor stores several hours of data using in-memory tables.

Cache Metrics, # Rows The number of table rows used by the Monitor to store cache metrics data.

Cache Metrics, Memory Used (KB) The amount of memory (KB) used by the Monitor to store cache metrics data.

Node Metrics, # Rows The number of table rows used by the Monitor to store node metrics data.

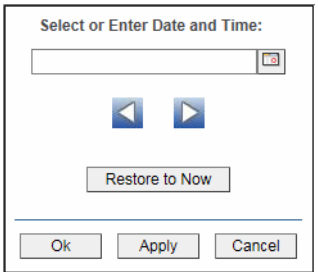
Node Metrics, Memory Used (KB) The amount of memory (KB) used by the Monitor to store node metrics data.

Cluster MBean Servers

Click to open the "Cluster MBean Servers" display which lists the currently detected remote JMX management enabled MBean Servers in the selected cluster. If your MBean server goes down, use this display to find and choose a different available MBean server.

Total RTView JMX Query Time Traces the t otal amount of time, in milliseconds, to query the monitoring MBeans from Coherence.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

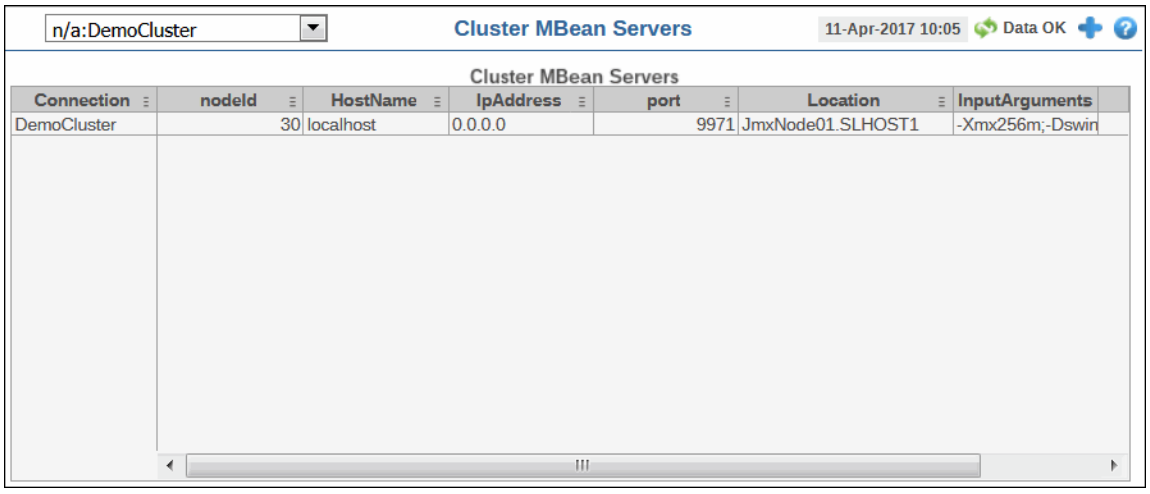
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

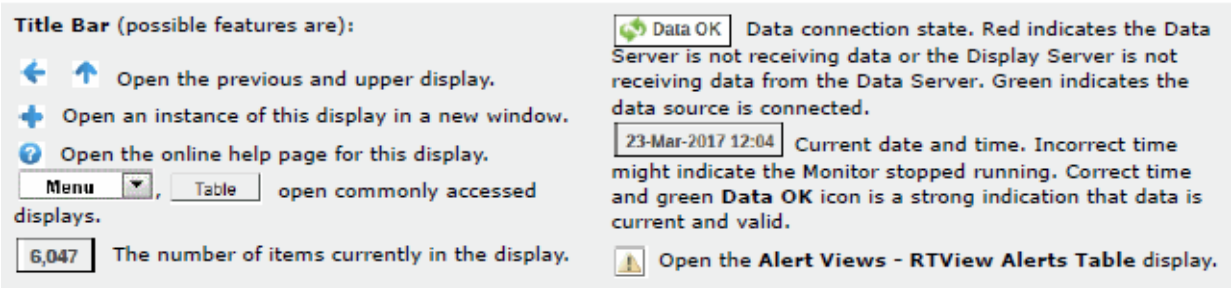
Click **Restore to Now** to reset the time range end point to the current time.

Cluster MBean Servers

Access this display using the **Cluster MBean Servers** button in the "OC Metrics Administration" display.

View a list of URLs for all currently detected remote JMX management enabled MBean Servers in a cluster. Information displayed includes the hostname and IP address of the cluster node, and the port used for remote JMX management.

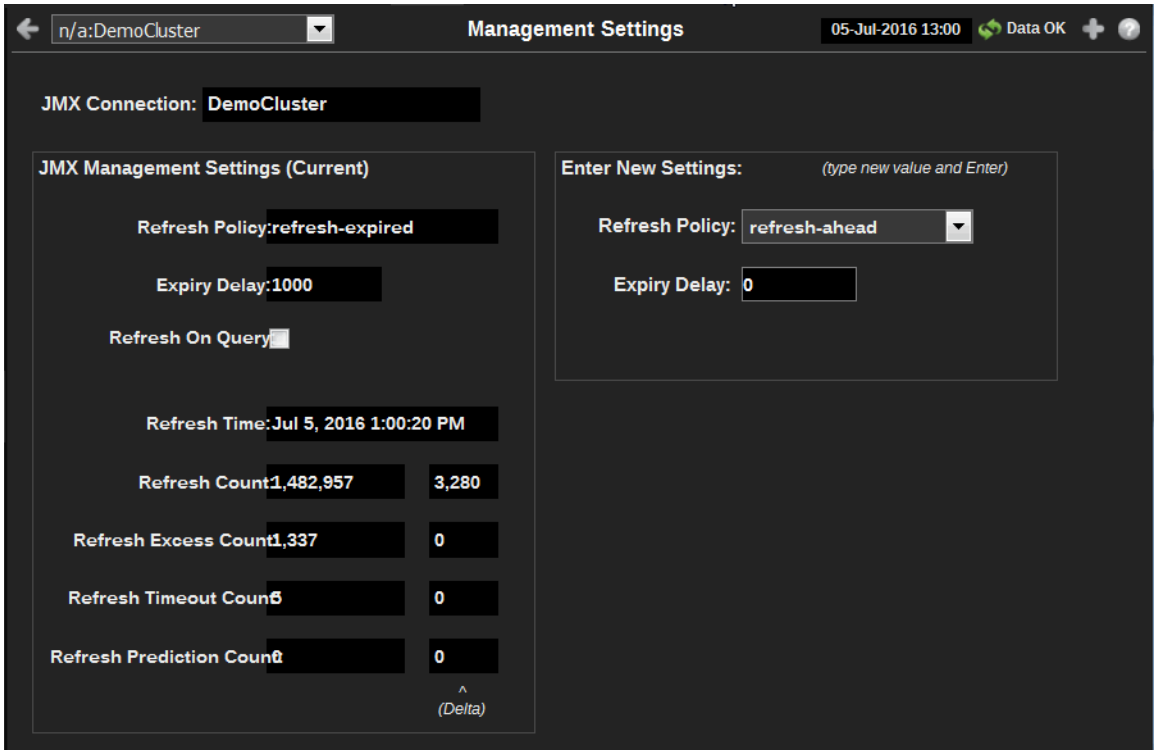


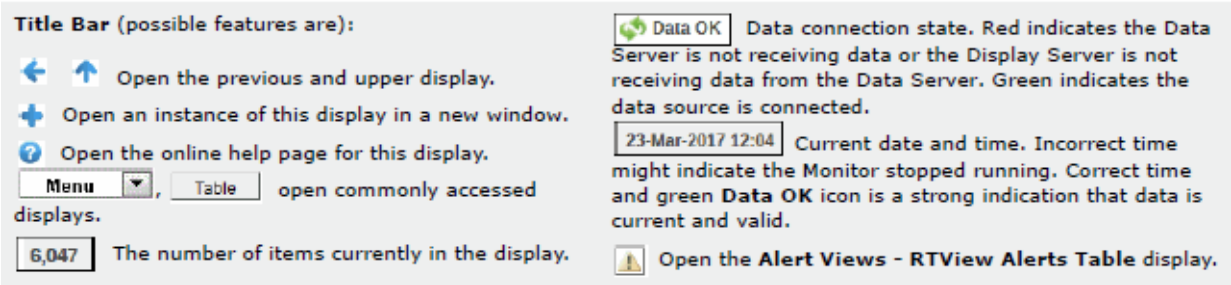


Cluster	Select a cluster to display.
Connection	The name of the JMX connection used to access the cluster data.
nodeId	The unique identifier for the MBean Server.
HostName	The name of the host for the MBean Server.
IpAddress	The IP address for the MBean Server.
port	The port number for the MBean Server.
Location	A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.
InputArguments	A list of JVM arguments in the Runtime JMX MBean's InputArguments attribute.
Expired	When checked, this connection is expired due to inactivity.

Management Settings

This display is read-only unless you are logged in as admin or super.





Cluster	Select a cluster to display.
JMX Connection	The name of the JMX connection used to access the cluster data.

JMX Management Settings

Refresh Policy:
Select a refresh policy from the drop-down list.

refresh-expired Each MBean will be refreshed from the remote node when it is accessed and the expiry delay has passed from the last refresh (same functionality as in pre-3.4 Coherence releases. This option is the default setting and is best used when MBeans are accessed in a random pattern.

refresh-ahead MBeans are refreshed before they are requested based on prior usage patterns after the expiry delay has passed, reducing latency of management information with a minor increase in network consumption. This option is best when MBeans are accessed in a repetitive/programmatic pattern.

refresh-behind Each MBean will be refreshed after the data is accessed, ensuring optimal response time. However, note that the information returned will be offset by the last refresh time.

refresh-onquery Select this option if the refresh-on-query MBeanServer is configured.

Expiry Delay:
Duration (in milliseconds) that the MBeanServer will keep a remote model snapshot before refreshing.

Refresh on Query:
Specifies whether or not the refresh-on-query MBeanServer is configured. If so, then set the RefreshPolicy to refresh-onquery.

Refresh Time The timestamp when this model was last retrieved from a corresponding node. For local servers it is the local time.

Refresh Count* The total number of snapshots retrieved since the statistics were last reset.

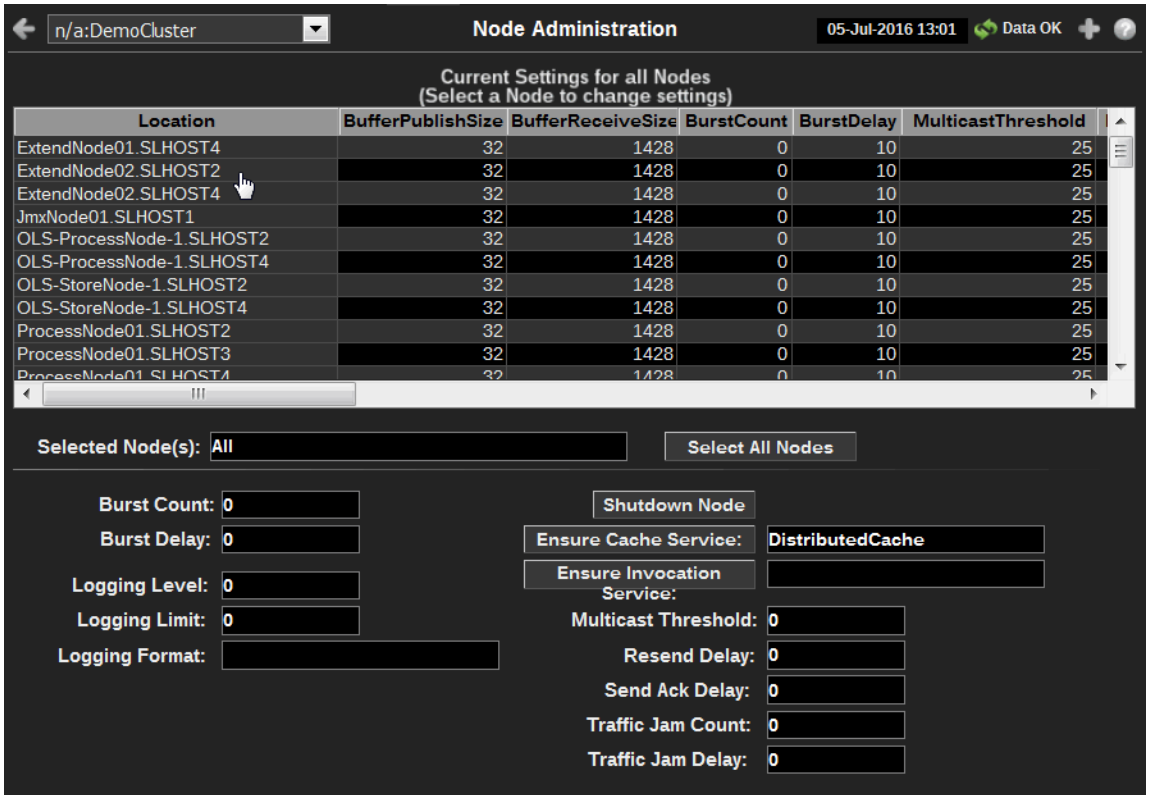
Refresh Excess Count The number of times the MBean server predictively refreshed information and the information was not accessed. Delta values show the change in the counts within the most recent JMX retrieval period.

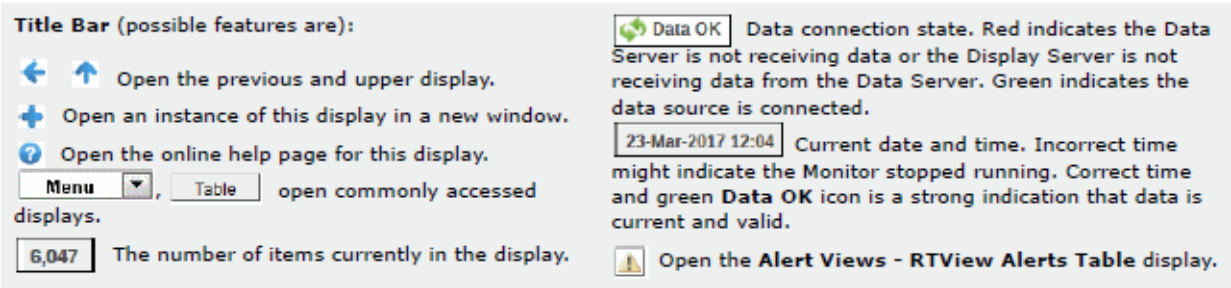
Refresh Timeout Count* The number of times this management node has timed out while attempting to refresh remote MBean attributes.

Refresh Prediction Count* The number of times the MBeanServer used a predictive (refresh-behind, refresh-ahead, refresh-onquery) algorithm to refresh MBean information.

Node Administration

This display allows the user to view and change settings for individual Nodes. It is read-only unless you are logged in as super. Click on the desired Node to select that Node. Change the data item in the bottom half of the display and press Return to make the change. All data on this display is queried from and set on the Coherence ClusterNodeMBean.





Cluster	Select a cluster to display.
JMX Connection	The name of the JMX connection used to access the cluster data.

Current Settings for All Nodes

Location A unique identifier for each node. It is defined as: **member_name.machine.rack.site**.

BufferPublishSize The buffer size of the unicast datagram socket used by the Publisher, measured in the number of packets. Changing this value at runtime is an inherently unsafe operation that will pause all network communications and may result in the termination of all cluster services.

BufferReceiveSize The buffer size of the unicast datagram socket used by the Receiver, measured in the number of packets. Changing this value at runtime is an inherently unsafe operation that will pause all network communications and may result in the termination of all cluster services.

BurstCount The maximum number of packets to send without pausing. Anything less than one (e.g. zero) means no limit.

BurstDelay The number of milliseconds to pause between bursts. Anything less than one (e.g. zero) is treated as one millisecond.

MulticastThreshold The percentage (0 to 100) of the servers in the cluster that a packet will be sent to, above which the packet will be multicasted and below which it will be unicasted.

ResendDelay The minimum number of milliseconds that a packet will remain queued in the Publisher`s re-send queue before it is resent to the recipient(s) if the packet has not been acknowledged. Setting this value too low can overflow the network with unnecessary repetitions. Setting the value too high can increase the overall latency by delaying the re-sends of dropped packets. Additionally, change of this value may need to be accompanied by a change in SendAckDelay value.

SendAckDelay The minimum number of milliseconds between the queueing of an Ack packet and the sending of the same. This value should be not more then a half of the ResendDelay value

TrafficJamCount The maximum total number of packets in the send and resend queues that forces the publisher to pause client threads. Zero means no limit.

TrafficJamDelay The number of milliseconds to pause client threads when a traffic jam condition has been reached. Anything less than one (e.g. zero) is treated as one millisecond.

LoggingLevel Specifies which logged messages will be output to the log destination. Valid values are non-negative integers or -1 to disable all logger output.

LoggingLimit The maximum number of characters that the logger daemon will process from the message queue before discarding all remaining messages in the queue. Valid values are integers in the range [0...]. Zero implies no limit.

LoggingFormat Specifies how messages will be formatted before being passed to the log destination

LoggingDestination The output device used by the logging system. Valid values are **stdout**, **stderr**, **jdk**, **log4j**, or a file name.

nodeId The short Member id that uniquely identifies the Member at this point in time and does not change for the life of this Member.

ProcessName A configured name that should be the same for Members that are in the same process (JVM), and different for Members that are in different processes. If not explicitly provided, for processes running with JRE 1.5 or higher the name will be calculated internally as the Name attribute of the system RuntimeMXBean, which normally represents the process identifier (PID).

Selected Node(s) Lists the nodes selected in the table.

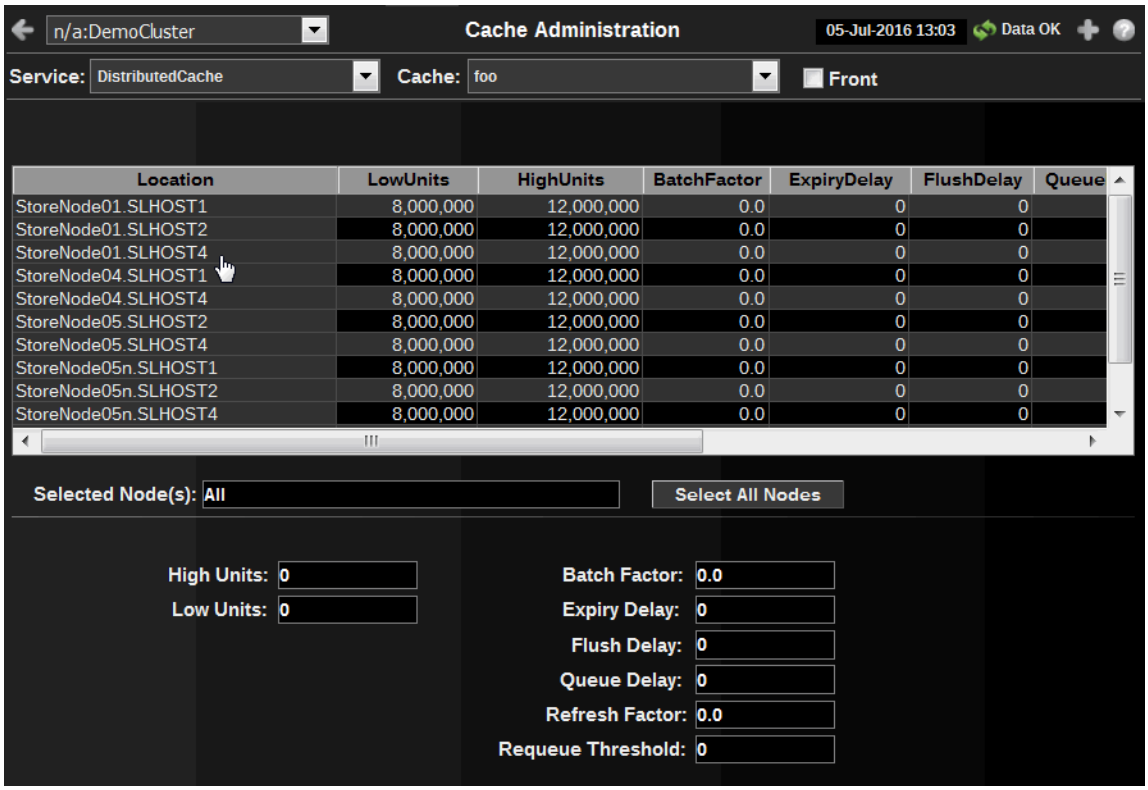
Select All Nodes Click to select all nodes.

Shutdown Node Stop all the clustered services running at this node (controlled shutdown). The management of this node will node be available until the node is restarted (manually or by programming).

Ensure Cache Service	Ensure that a CacheService for the specified cache runs at the cluster node represented by this MBean. This method will use the configurable cache factory to find out which cache service to start if necessary. Return value indicates the service name; null if a match could not be found.
Ensure Invocation	Ensure that an InvocationService with the specified name runs at the cluster node represented by this MBean.

Cache Administration

This display allows the user to view and change settings for individual caches. It is read-only unless you are logged in as super. Click on the desired cache to select that cache. Change the data item in the bottom half of the display and press Return to make the change. The data on this display is queried from and set on the Coherence CacheMBean.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

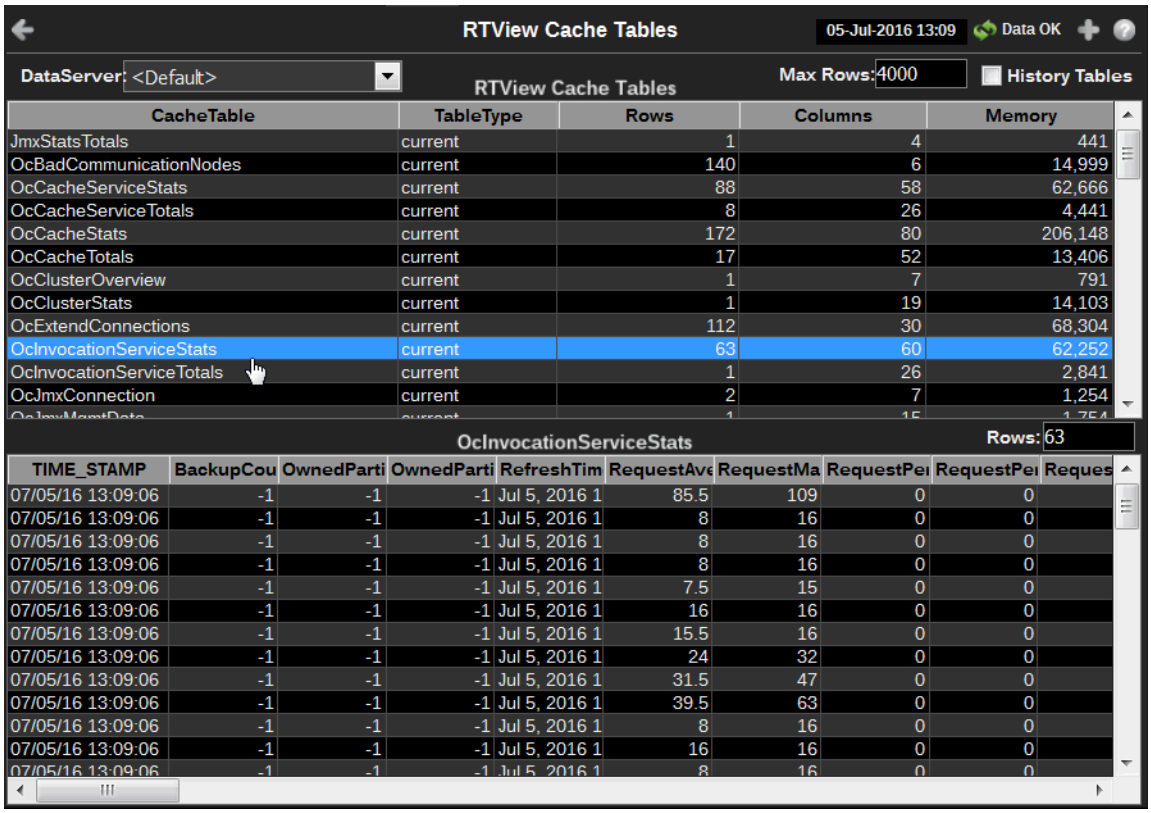
Cluster	Select a cluster to display.
Service	Select the service to display.

Cache	Select the cache to display.
Front	Select for front tier, deselect for back tier.
Current Settings for all Nodes on Selected Cache	**Location** A unique identifier for each node. It is defined as: **member_name.machine.rack.site**. **LowUnits** The number of units to which the cache will shrink when it prunes. This is often referred to as a `low water mark` of the cache. **HighUnits** The limit of the cache size measured in units. The cache will prune itself automatically once it reaches its maximum unit level. This is often referred to as the `high water mark` of the cache. **BatchFactor** The BatchFactor attribute is used to calculate the `soft-ripe` time for write-behind queue entries. A queue entry is considered to be `ripe` for a write operation if it has been in the write-behind queue for no less than the QueueDelay interval. The `soft-ripe` time is the point in time prior to the actual `ripe` time after which an entry will be included in a batched asynchronous write operation to the CacheStore (along with all other `ripe` and `soft-ripe` entries). This attribute is only applicable if asynchronous writes are enabled (for example, the value of the QueueDelay attribute is greater than zero) and the CacheStore implements the storeAll() method. The value of the element is expressed as a percentage of the QueueDelay interval. Valid values are doubles in the interval [0.0, 1.0]. **ExpiryFactor** The time-to-live for cache entries in milliseconds. Value of zero indicates that the automatic expiry is disabled. Change of this attribute will not affect already-scheduled expiry of existing entries. **FlushDelay** The number of milliseconds between cache flushes. Value of zero indicates that the cache will never flush. **QueueDelay** The number of seconds that an entry added to a write-behind queue will sit in the queue before being stored via a CacheStore. Applicable only for WRITE-BEHIND persistence type. **RefreshFactor** The RefreshFactor attribute is used to calculate the `soft-expiration` time for cache entries. Soft-expiration is the point in time prior to the actual expiration after which any access request for an entry will schedule an asynchronous load request for the entry. This attribute is only applicable for a ReadWriteBackingMap which has an internal LocalCache with scheduled automatic expiration. The value of this element is expressed as a percentage of the internal LocalCache expiration interval. Valid values are doubles in the interval[0.0, 1.0]. If zero, refresh-ahead scheduling will be disabled. **Requeue** Threshold The maximum size of the write-behind queue for which failed CacheStore write operations are requeued. If zero, the write-behind requeueing will be disabled. Applicable only for WRITE-BEHIND persistence type. **nodeId** The node ID.
Selected Node(s)	Lists the nodes selected in the table.
Select All Nodes	Click to select all nodes in the table.

RTView Cache Tables

View data that RTView is capturing and maintaining. Drill down and view details of RTView Cache Tables. Use this data for debugging. This display is typically used for troubleshooting with Technical Support.

Choose a cache table from the upper table to see cached data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

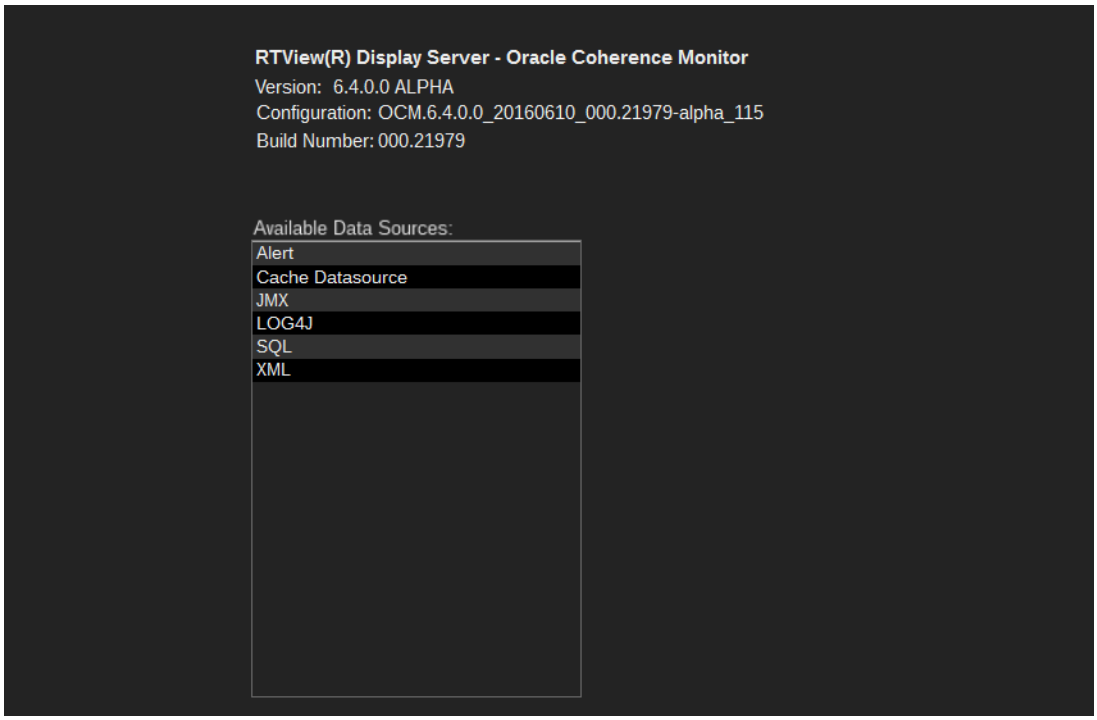
Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

About

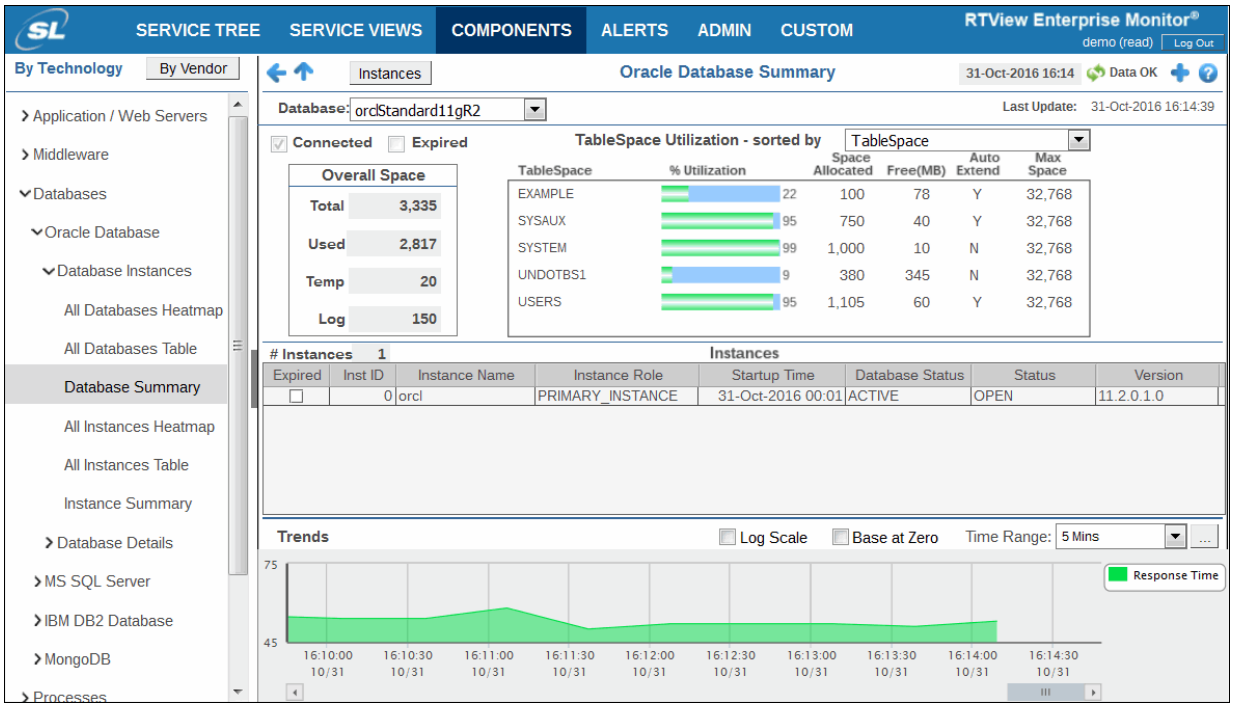
This display shows details about the Solution Package version and data sources available to your system.



CHAPTER 18 Solution Package for Oracle Database

RTView Enterprise Monitor® Solution Packages gather and process performance metrics from a wide variety of different technologies, including Oracle Databases.

With the Solution Package for Oracle® Database, you are able to drill down from a high level alert at a business service or application health level into the supporting Oracle database infrastructure, to determine what is causing the alert and to take corrective action. This service centric approach makes it easy for application support teams and Oracle DBAs to prioritize incidents and based on the impact to the business.



Solution Packages include a data adapter, real-time memory cache, alert rule engine, pre-configured displays, and a data historian for persisting of real-time performance metrics.

See **README_sysreq.txt** for the full system requirements for RTView®.

This section includes:

Configuration Parameters You Need

To configure the Solution Package for Oracle Database make a note of the following values, then follow instructions in "Configure Data Collection". You will replace all references to **PackageName**, **ServerDirectory**, and **AlertPrefix** with the following values:

- **PackageName=oramon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Ora**

Configure Data Collection

To configure data collection, use the "RTView Configuration Application" to do the following in the order provided:

- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Set the poll rate interval for data updates and enable/disable autodiscover. This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

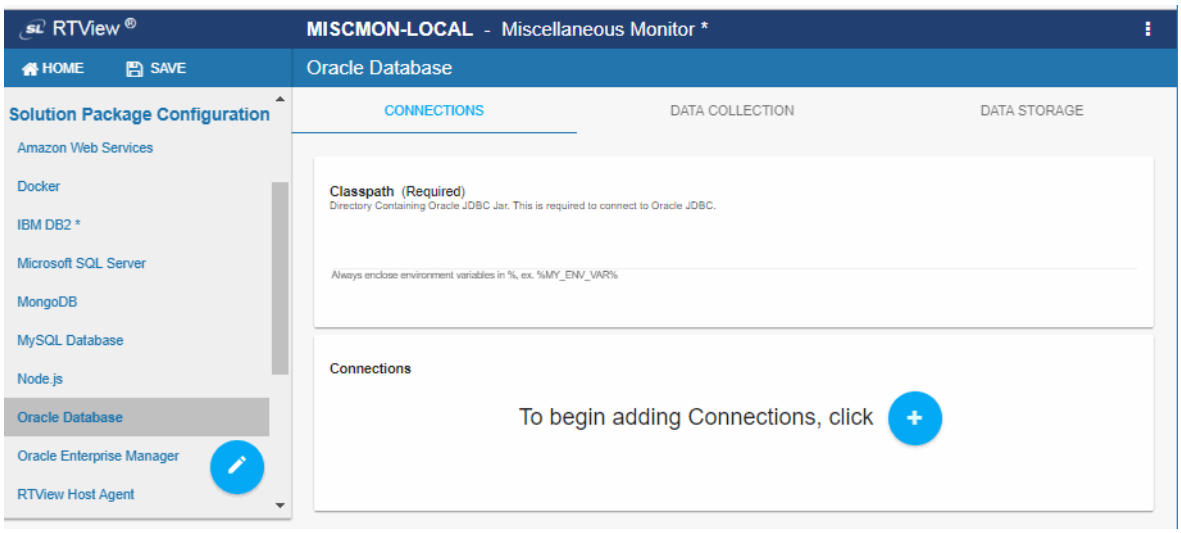
  Tip: Gray servers are either not running or not yet configured for RTView EM.

Configure CONNECTIONS

This step is required.

To configure data connections for the Solution Package for Oracle Database:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Oracle Database** from the navigation tree (left panel).



2. On the **CONNECTIONS** tab, enter the full path to the directory containing your Oracle JDBC jar files in the **Path to Directory Containing Oracle JDBC Jar** field. Use forward slashes (**/**) in the path name. For env vars, always use **%%** (including on UNIX).

3. **SAVE** your settings.

4. Click  to open the **Add Connection** dialog.

5. In the **Add Connection** dialog, enter the following for each database you wish to connect (one connection per database is required):

   Connection Name - (Required) The connection name. This value is also used as the index.

   Connection Type - (Required) Select the type of connection (**RAC**, **Standard** or **XE**).

   URL - (Required) For an example, see the one provided when you select the **Connection Type**.

   Username - (Optional) The username is used when creating the connection to the Oracle database. This field is optional.

   Password - (Optional) This password is used when creating the connection to the Oracle database. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

6. **Save** your settings. The new connection displays in the **Connections** section.

Proceed to "Setup DATA COLLECTION," next (you can do this later).

Setup DATA COLLECTION

This step is optional.

Use the RTView Configuration Application to configure data collection for the Solution Package for Oracle Database. You can specify **Poll Rates** (query interval, in seconds) that will be used to collect the metric data.

To configure data collection for the Solution Package for Oracle Database:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Oracle Database** from the navigation tree (left panel)..
2. Choose the **DATA COLLECTION** tab and make the following entries as appropriate:

   Poll Rate: Enter the time interval, in seconds, to check for data updates. The default is **30** seconds. The caches impacted by this field are OraInstanceInfo, OraInstanceSessionStats and OraInstanceQueryExecStats.

   Poll Rate Medium: Enter the time interval, in seconds, to check for data updates. The default is 60 seconds. The default is **3600** seconds. The caches impacted by this field are OraInstancePerformanceStats, OraInstanceHitRatio and OraDatabaseTablespaceUsage.

   Poll Rate Large: Enter the time interval, in seconds, to check for data updates. The default is 60 seconds. The default is **86400** seconds. The OraDatabaseDiskUsage cache is impacted by this field.
3. **Save** your settings.

Proceed to "Configure DATA STORAGE," next (you can optionally do this later).

Configure DATA STORAGE

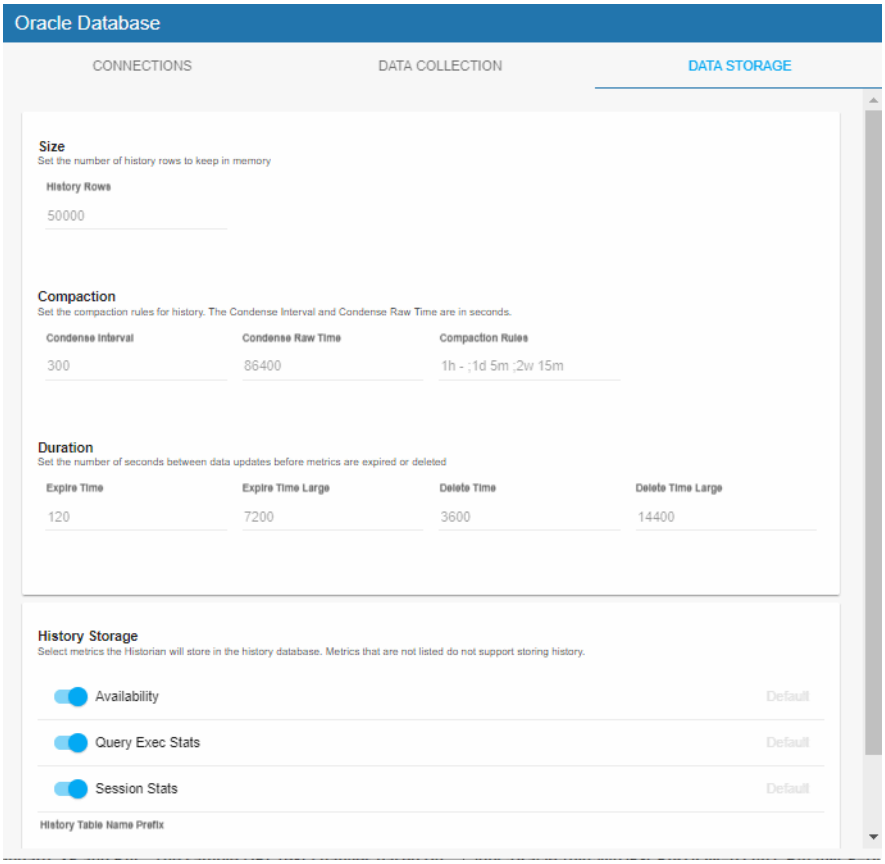
This step is optional.

These instructions describe options for storing your Oracle Database data. This includes both in-memory History data and on-disk History data. You can set size limits, storage duration (when to expire or remove data) and data compaction intervals (rules for reducing/increasing the amount of data stored).

To configure data storage for the Solution Package for Oracle Database:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Oracle Database** from the navigation tree (left panel).

2. Choose the **DATA COLLECTION** tab.



Note: Scroll down to see additional Oracle Database metric data the Historian can store.

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3. Under **Size**, make the following entries:

History Rows: The maximum number of table rows to keep in he History table. If set to **0**, no History table is created. The default is **50000**. The caches impacted by this field are OraInstanceSessionStats, OraDatabaseDiskUsage, OraInstanceQueryExecStats and OraDatabaseAvailability.

4. Under **Compaction**, make the following entries:

Condense Interval: The number of seconds to wait to condense cached history data. The default is **300** seconds. The caches impacted by this field are OraInstanceSessionStats, OraInstanceQueryExecStats and OraDatabaseAvailability.

Condense Raw Time: The number of seconds to wait to condense data in the cache history table. The default is **86400** seconds. The caches impacted by this field are OraInstanceSessionStats, OraInstanceQueryExecStats and OraDatabaseAvailability.

Compaction Rules: Specifies the frequency for condensing data. The caches impacted by this field are OraInstanceSessionStats, OraInstanceQueryExecStats and OraDatabaseAvailability.

5. Under **Duration**, make the following entries:

Expire Time: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The default is **120** seconds. The caches impacted by this field are OraInstanceInfo, OraInstanceSessionStats, OraInstanceQueryExecStats and OraDatabaseAvailability.

Expire Time Large: The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The default is **7200** seconds. The caches impacted by this field are OraInstancePerformanceStats, OraInstanceHitRatio and OraDatabaseTablespaceUsage.

Delete Time: The number of seconds to wait for a data update before cached history data is removed from displays. The default is **3600** seconds. The caches impacted by this field are OraInstanceInfo, OraInstanceSessionStats and OraInstanceQueryExecStats.

Delete Time Large: The number of seconds to wait for a data update before cached history data is removed from displays. The default is **14400** seconds. The caches impacted by this field are OraInstancePerformanceStats, OraInstanceHitRatio and OraDatabaseTablespaceUsage.

6. Under **History Storage**, toggle on at least one of the metrics listed for the Historian to store (**Availability**, **Query Exec Stats** and **Session Stats**). The caches impacted by these selections are OraDatabaseAvailability, OraInstanceQueryExecStats and OraInstanceSessionStats, respectively.

7. For **History Table Name Prefix**: Enter a prefix that you will recognize to prepend to the history data table names for these metrics. The OraDatabaseAvailability cache is impacted by this field.

   The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME/miscmon/dbconfig** and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

8. **Save** your settings (choose  if **SAVE** is not visible, or expand your browser width).

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Oracle Database Monitor Displays/Views

The Oracle Database displays provide extensive visibility into the health and performance of the Oracle database included.

The following Oracle Database Monitor Views (and their associated displays) can be found under **Components** tab **> Databases > Oracle Database** once the Solution Package for Oracle Database is setup.

This section contains the following Views:

- "Database Instances View," next
- "Database Details View"

Database Instances View

These displays present performance metrics and alert statuses for all Oracle databases and instances. Displays are:

- "All Databases Heatmap": Heatmap shows alert status for all Oracle databases.
- "All Databases Table": List of all Oracle databases with detailed utilization metrics.
- "Database Summary": Detailed utilization metrics and configurations for a single Oracle database.
- "All Instances Heatmap": Heatmap shows alert status of all instances on a single Oracle database.
- "All Instances Table": List of all instances on a single Oracle database with detailed utilization metrics.
- "Instance Summary": Detailed utilization metrics and configurations for a single Oracle instance.

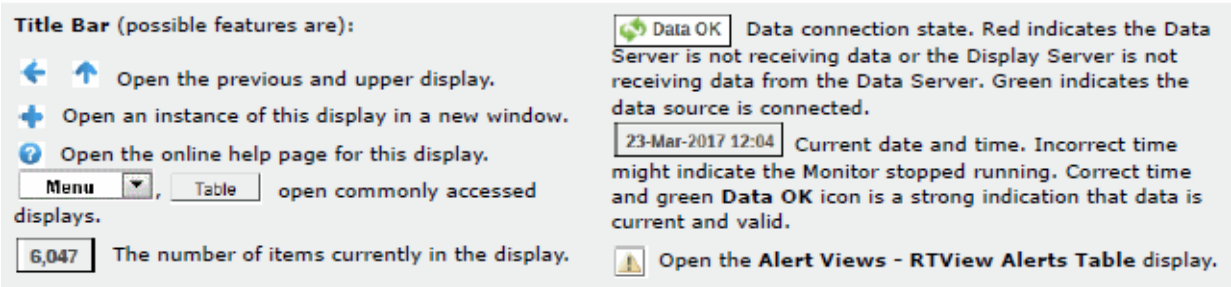
All Databases Heatmap

View status and alerts for all Oracle databases. Use this display to quickly identify a database with performance or utilization issues.

Each heatmap rectangle represents a different database. The rectangle color indicates the most critical alert state for the selected metric.

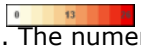
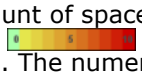
Choose a **Color Metric** from the drop-down menu: **Alert Severity**, **Alert Count**, **Response Time** or **Database Space Usage**. Use the check-boxes ☑ to include labels and apply log scale in the heatmap. Move your mouse over a rectangle to see additional information. Toggle between the commonly accessed **Table** and this **Heatmap** display by clicking the icon in the upper left-hand corner.

Investigate a database by clicking a heatmap rectangle to view details in the "Database Summary" display.



Database Count The number of databases in the display.

Metric:
Choose the type of metric to show in the heatmap. Each metric has its own gradient bar that maps current relative values to colors:

Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity. Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**. Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**. Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
Response Time	The amount of time, in milliseconds, since the last execution of the database. The color gradient  bar numerical values range from **0** to the maximum amount of time in the heatmap. The middle value in the gradient bar indicates the average amount.
Database Space Usage	The amount of space used, in megabytes, in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount of space used in the heatmap. The middle value in the gradient bar indicates the average amount.
Labels	Select to include labels in the heatmap.
Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

All Databases Table

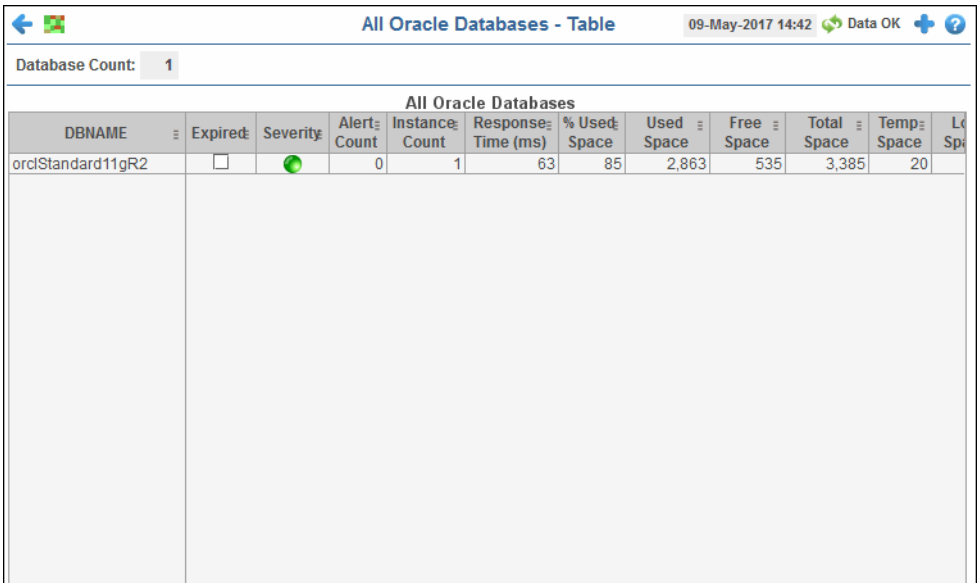
View a list of all your Oracle databases with data from the "All Databases Heatmap" display (**Alert Severity**, **Alert Count**, **Response Time**, **Database Space Usage**) in a tabular format. Each row in the table is a different Oracle database. All values refer to the database except where noted.

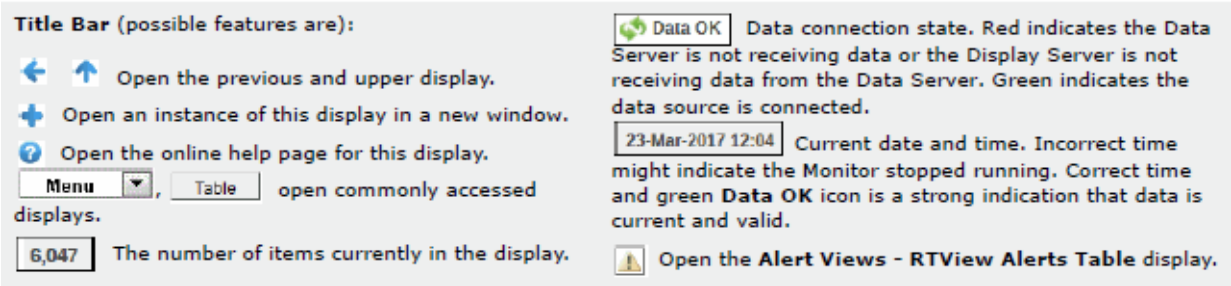
Light red rows indicate the database is expired or not connected.

The **Severity** column indicates the most critical alert on the database, where:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts have reached their alert thresholds.

Investigate a database by clicking a row to view details in the "Database Summary" display.





Database Count The number of databases in the display.

All Oracle Databases Table

Each row is a different database.

DBName The database name.

Expired When checked, the database is expired due to a connection issue.

Severity The maximum level of alerts.
- Red indicates that one or more metrics have reached their alarm threshold.
- Yellow indicates that one or more metrics have reached their alarm threshold.
- Green indicates that no metrics have reached their alert thresholds.

Alert Count The total number of critical and warning alerts.

Instance Count The total number of Oracle Database instances.

Response Time (ms) The amount of time, in milliseconds, since the last execution of the database.

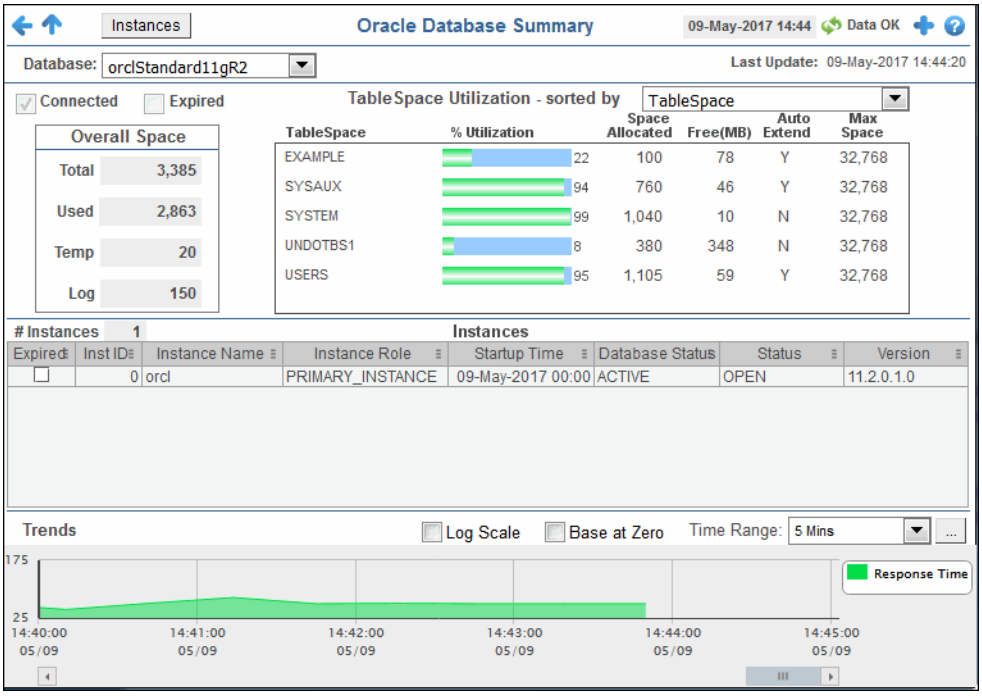
% Used Space The percent space used.

Used Space	The space used by the catabase, in megabytes.
Free Space	The amount of available space, in megabytes.
Total Space	The total amount of used and available space, in megabytes.
Temp Space	The amount of temporary space, in megabytes.
Log Space	The amount of log space, in megabytes.
Timestamp	The date and time of the last data update.

Database Summary

View detailed performance data for a single Oracle Database, including tablespace utilization, instances on the database and response time trends. Use this display to investigate database health.

Choose a **Database** and select one metric from the **TableSpace Utilization** drop-down menu to order the tablespace rows by that metric. The order is ascending. Mouse-over the trend graph to see additional information. Investigate an instance by clicking a row in the **Instances** table to view details in the "Instance Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Database Choose a database to display.

Connected When checked, the database is connected.

Expired When checked, the database is expired due to a connection issue.

Overall Space
Values refer to the selected database.

Total The total amount of space, in megabytes.

Used The amount of space used, in megabytes.

Temp The total amount of temporary space, in megabytes.

Log The total amount of log space, in megabytes.

TableSpace Utilization Choose a tablespace utilization metric to show data for (in the box below the drop-down menu). Values refer to the tablespaces on the selected database:

- **TableSpace**: Tablespace names in alphabetical order.
- **% Utilization**: The percent utilization of each tablespace in ascending order.
- **Allocated**: The allocated space for each tablespace in ascending order.

TableSpace	The tablespace name.
% Utilization	The percent utilization.
Space Allocated	The amount of allocated space, in megabytes.
Free(MB)	The amount of free space, in megabytes.
Auto Extend	Indicates whether auto extend is enabled (Y/N).
Max Space	The maximum amount of allocated space for the tablespace, in megabytes.

 # Instances
Each table row is an instance on the selected database. Click an instance to see details in the "Instance Summary" display.

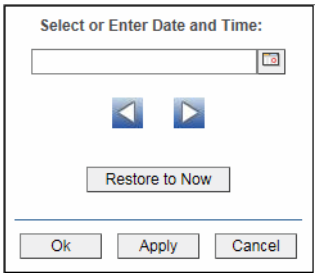
Expired	When checked, the instance is expired due to a connection issue.
Inst ID	The unique identifier for the instance.
Instance Name	The name of the instance.
Instance Role	The role of the instance.
Startup Time	The date and time the instance began.
Database Status	The status of the database this instance is on.
Status	The status of this instance.
Version	The version number.

Trends
Traces response time of the selected database.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

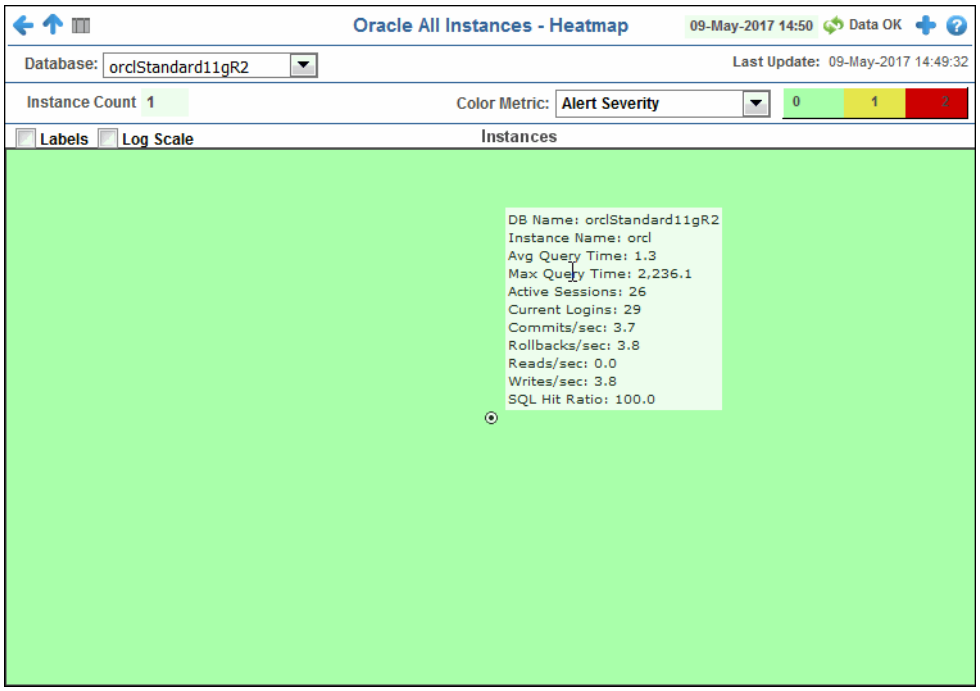
All Instances Heatmap

View status and alerts of all instances on an Oracle Database. Use this display to quickly identify instances with performance or utilization issues.

Each heatmap rectangle represents a different instance. The rectangle color indicates the most critical alert state for the selected metric.

Choose a **Color Metric** from the drop-down menu, such as **Alert Severity**, **Active Sessions** and **Disk Reads**. Use the check-boxes ☑ to include or exclude labels and use log scale in the heatmap. Move your mouse over a rectangle to see additional information. Toggle between the commonly accessed **Table** and this **Heatmap** display by clicking the icon in the upper left-hand corner. Mouse-over rectangles to view more instance performance details.

Investigate an instance by clicking a heatmap rectangle to view details in the "Instance Summary" display.



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Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

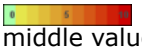
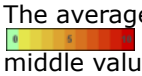
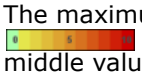
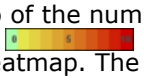
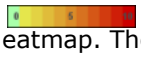
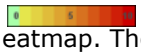
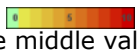
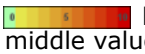
23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Database Choose a database to display.

Instance Count The number of instances in the display.

Metric:
Choose the type of metric to show in the heatmap. Each rectangle is an instance. Each metric has its own gradient bar that maps current relative values to colors:

Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity. Red indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**. Yellow indicates that one or more metrics have reached their alarm threshold. Metrics that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**. Green indicates that no metrics have reached their alert thresholds. Metrics that have not exceeded their specified thresholds have an Alert Severity value of **0**.
Current Logins	The number of users logged on. The color gradient  bar values range from **0** to the maximum count in the heatmap. The middle value in the gradient bar indicates the average count.
Active Sessions	The number of active sessions. The color gradient  bar values range from **0** to the maximum count in the heatmap. The middle value in the gradient bar indicates the average count.
Avg Query Time	The average amount of time, in seconds, to perform a query. The color gradient  bar values range from **0** to the maximum average in the heatmap. The middle value in the gradient bar indicates the average amount.
Max Query Time	The maximum amount of time, in seconds, to perform a query. The color gradient  bar values range from **0** to the maximum amount in the heatmap. The middle value in the gradient bar indicates the average maximum amount.
Latch Hit Ratio	The ratio of the number of latch misses to the number of latch gets. The color gradient  bar values range from the lowest count to the maximum count in the heatmap. The middle value in the gradient bar indicates the average.
Data Dict Hit Ratio	The ratio of logical reads to physical disk reads. The color gradient  bar values range from the lowest count to the maximum value in the heatmap. The middle value in the gradient bar indicates the average.
SQL Hit Ratio	The ratio of logical reads to physical disk reads. The color gradient  bar values range from the lowest count to the maximum value in the heatmap. The middle value in the gradient bar indicates the average.
Commits/ sec	The number of commits per second. The color gradient  barvalues range from **0** to the maximum count in the heatmap. The middle value in the gradient bar indicates the average.
Rollbacks/ sec	The number of rollbacks per second. The color gradient  bar values range from **0** to the maximum count in the heatmap. The middle value in the gradient bar indicates the average.
Disk Reads/sec	The number of disk reads per second. The color gradient  bar values range from **0** to the maximum count in the heatmap. The middle value in the gradient bar indicates the average.
Disk Writes/sec	The number of disk writes per second. The color gradient  bar values range from **0** to the maximum count in the heatmap. The middle value in the gradient bar indicates the average.
Labels	Select to include labels in the heatmap.
Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

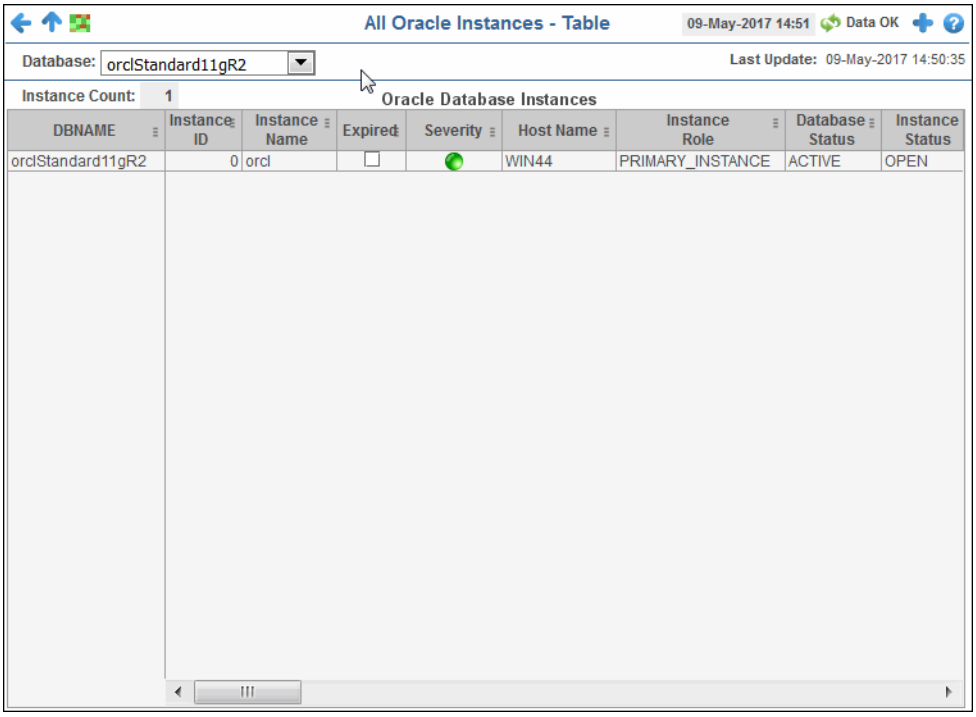
All Instances Table

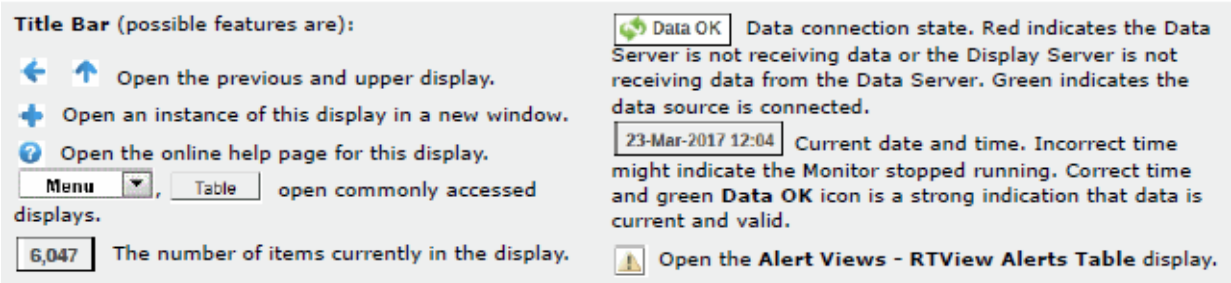
View data from the "All Instances Heatmap" display in a tabular format, as well as additional metrics and configuration information about instances.

Choose a database from the drop-down menu. Each row in the table is a different Oracle Database instance on the selected database. Investigate an instance by clicking a row to view details in the "Instance Summary" display.

Light red rows indicate the following:

- The database has an issue (the **Database Status** value is not **ACTIVE** or the **Active State** value is not **NORMAL)**)
- The instance has an issue (the instance expired or the **Instance Status** value is not **OPEN**)





Database Choose a database to display.

Instance Count The number of instances in the display.

Oracle Databases Instances Table

Each row is a different instance. Column values refer to the instance except where noted. This data is obtained from the vendor. See vendor documentation for details.

DBName The name of the database the instance is using.

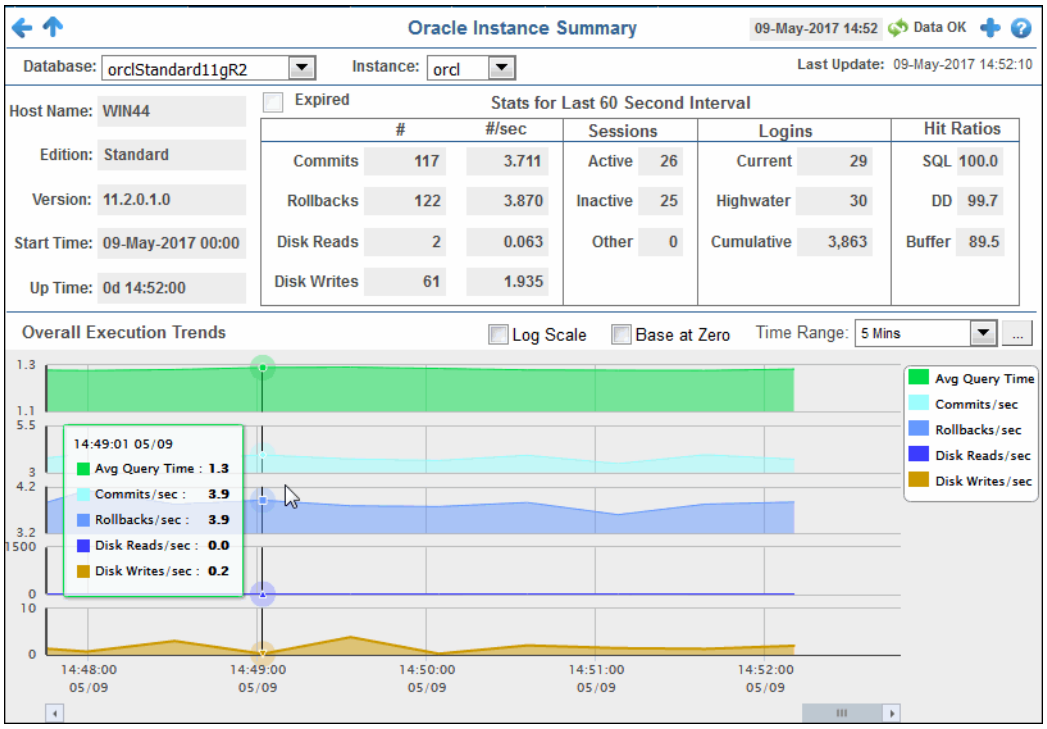
Instance ID	The unique identifier for the instance.
Instance Name	The instance name.
Expired	When checked, the database is expired due to a connection issue.
Severity	The maximum level of alerts. Red indicates that one or more metrics have reached their alarm threshold. Yellow indicates that one or more metrics have reached their alarm threshold. Green indicates that no metrics have reached their alert thresholds.
Host Name	The host for the instance.
Instance Role	The instance role. Values are: • PRIMARY_INSTANCE • SECONDARY_INSTANCE • UNKNOWN
Database Status	The current database status. Values are: • ACTIVE • SUSPENDED • INSTANCE_RECOVERY
Instance Status	The current state of the instance. Values are: • STARTED • MOUNTED • OPEN • OPEN MIGRATE
Active State	• The database state when active. Values are: • NORMAL • QUIESCING • QUIESCED
Archiver	This data is obtained from the vendor. See vendor documentation for details.
Blocked	Is the instance in block mode? **Yes**/**No**
Parallel	Is the instance in parallel mode? **Yes**/**No**
Shutdown Pending	Is a shutdown pending? **Yes**/**No**
Start Time	The date and time the instance started.
Edition	The edition number of the instance.
Version	The instance software version.
Host OS	The host operating system.
CPU Count	The database CPU count.
Avg Query Time	The average amount of time, in seconds, to perform a query.
Min Query Time	The minimum amount of time, in seconds, to perform a query.

Max Query Time	The maximum amount of time, in seconds, to perform a query.
Buffer Hit Ratio	The ratio of the number of latch misses to the number of latch gets.
DD Hit Ratio	The ratio of logical reads to physical disk reads.
SQL Hit Ratio	The ratio of logical SQL reads to physical disk reads.
Logins	This data is obtained from the vendor. See vendor documentation for details.
Current Logins	The number of users currently logged in.
Cum Logins	The total number of logged in users since the instance started.
Logins Highwater	The login limit for the database.
Active Sessions	The number of logins that are currently active.
Inactive Sessions	The number of logins that are currently inactive.
Other Sessions	This data is obtained from the vendor. See vendor documentation for details.
Block Gets	The number of gets in block mode.
Consistent Gets	The number of gets in consistent mode.
Physical Get Reads	The number of physical gets reads.
Latch Hit%	The amount of latch gets, in percent.
Latch Miss%	The amount of latch misses, in percent.
Latch Spin%	This data is obtained from the vendor. See vendor documentation for details.
Parse Time%	This data is obtained from the vendor. See vendor documentation for details.
Recursive %	This data is obtained from the vendor. See vendor documentation for details.
Other%	This data is obtained from the vendor. See vendor documentation for details.
Deadlocks	The number of deadlocks since the database started.
Commits/ sec	The number of commits per second.
Rollbacks/ sec	The number of rollbacks per second.
Block Reads/sec	The number of block reads per second.
Block Writes/sec	The number of block writesper second.
Timestamp	The data and time of the last data update.

Instance Summary

View detailed data for a single Oracle Database instance, such as performance statistics for last 60 seconds, overall usage and execution trends. Use this display to closely investigate the health of an instance.

Choose a **Database** and **Instance** metric from the drop-down menus. Mouse-over the trend graph to see additional information.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Database	Choose a database to display.
Instance	Choose an instance to display.
Host Name	The name of the host.
Edition	This data is obtained from the vendor. See vendor documentation for details.
Version	This data is obtained from the vendor. See vendor documentation for details.
Start Time	The date and time the instance started.

Up Time	The instance session duration.
Expired	When checked, the database is expired due to a connection issue.

Stats for Last 60 Second Interval
Values refer to the selected instance.

		#	#/sec
Commits		The number of commits since the instance started.	The current number of commits per second.
Rollbacks		The number of rollbacks since the instance started.	The current number of rollbacks per second.
Disk Reads		The number of disk reads since the instance started.	The current number of disk reads per second.
Disk Writes		The number of disk writes since the instance started.	The current number of disk writes per second.
Sessions	**Active**	The current number of active sessions on the instance.	
	Inactive	The current number of inactive sessions on the instance.	
	Other	This data is obtained from the vendor. See vendor documentation for details.	
Logins	**Current**	The current number of logins on the instance.	
	Highwater	The login limit for the instance.	
	Cumulative	This data is obtained from the vendor. See vendor documentation for details.	
Hit Ratios	**SQL**	The ratio of logical SQL reads to physical disk reads.	
	DD	The ratio of logical reads to physical disk reads.	
	Buffer	The ratio of the number of latch misses to the number of latch gets.	

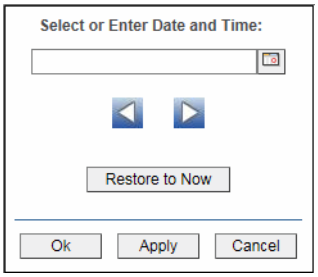
Overall Execution Trends
Traces the following for the selected instance:
Avg Query Time: The average amount of time to perform a query, in seconds.

- **Commits/sec**: The number of commits per second.
- **Rollbacks/sec**: The number of rollbacks per second.
- **Disk Reads/sec**: The number of disk reads per second.
- **Disk Writes/sec**: The number of disk writes per second.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Database Details View

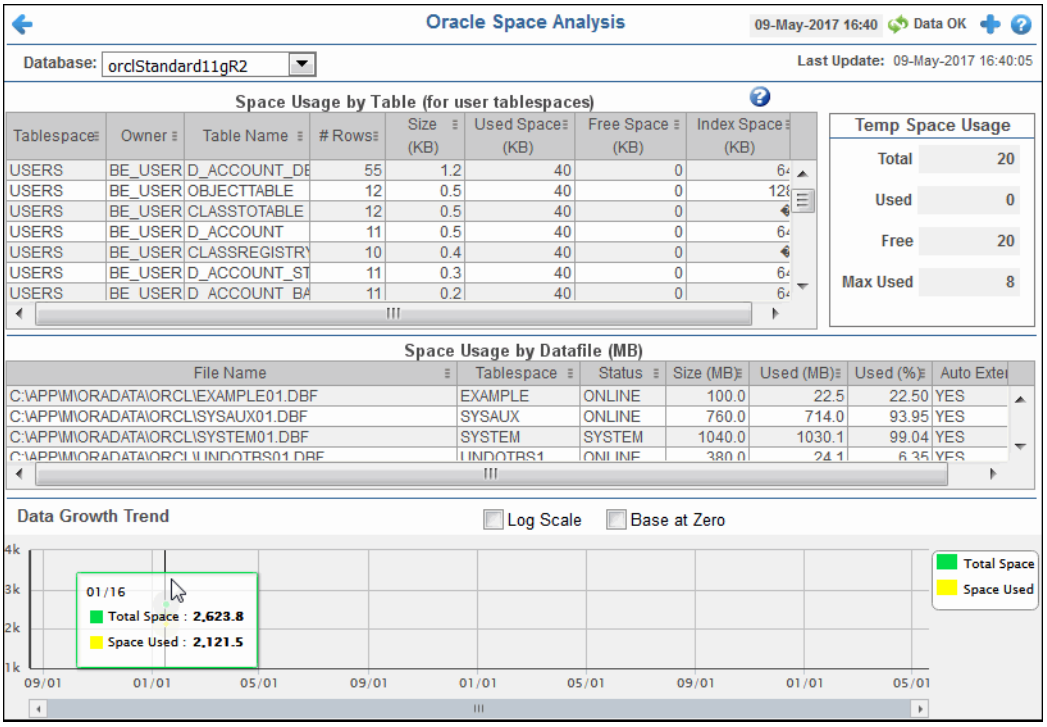
These displays present detailed database utilization metrics for an Oracle database. Displays are:

- "Space": Shows detailed space utilization metrics for a single database.
- "Contention": Shows detailed contention data for a single database.
- "Processes": Shows detailed CPU and memory utilization per process for a single database.
- "Sessions": Shows detailed CPU and memory utilization per session and user on a single database.
- "Queries": Shows detailed query performance data such as disk utilization, execution and wait times and full SQL texts.
- "Reports": Shows the following detailed reports: Audited Objects, Audited Privileges, Database Initialization, Feature Usage and Invalid Objects.

Space

Analyse tablespace utilization and trends at the data file level. Choose a database from the drop-down menu to view table and data file utilization data in a tabular format. Each row in the upper table is a different tablespace on the selected database. Each row in the lower table is a different data file on the selected database.

Mouseover the trend graph to see metrics for a specific day or time.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Database Choose a database to display.

Space Usage by Table (for user tablespaces)

Each row is a different table on the selected database. Column values refer to the table.

Tablespace	The tablespace in which the table resides.
Owner	The table owner.
Table	The table name.
#Rows	The current number of rows in the table.
Size (KB)	The table size, in kilobytes.
Used Space (KB)	The amount of space used by the table, in kilobytes.
Free Space (KB)	The amount of free space for the table, in kilobytes.

Index Space (KB)	The amount of index space for the table, in kilobytes.

Temp Space Usage

Total	The total amount of temp space for the table, in kilobytes.
Used	The amount of used space for the table, in kilobytes.
Free	The amount of free temp space for the table, in kilobytes.
Max Used	The maximum amount of space used by the table, in kilobytes.

Space Usage by Datafile (MB)

File Name	The name of the data file.
Tablespace	The name of the tablespace in which the data file resides.
Status	The data file status: • ONLINE • SYSTEM
Size (MB)	The data file size, in megabytes.
Used (MB)	The amount of space used, in megabytes.
Auto Extend	Describes whether auto extend is configured (Yes/No).

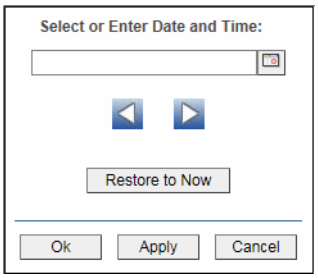
Data Growth Trend
Traces the following for the selected database:

- **Total Space:** The total amount of space for the table, in kilobytes.
- **Space Used:** The total amount of space used for the table, in kilobytes.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

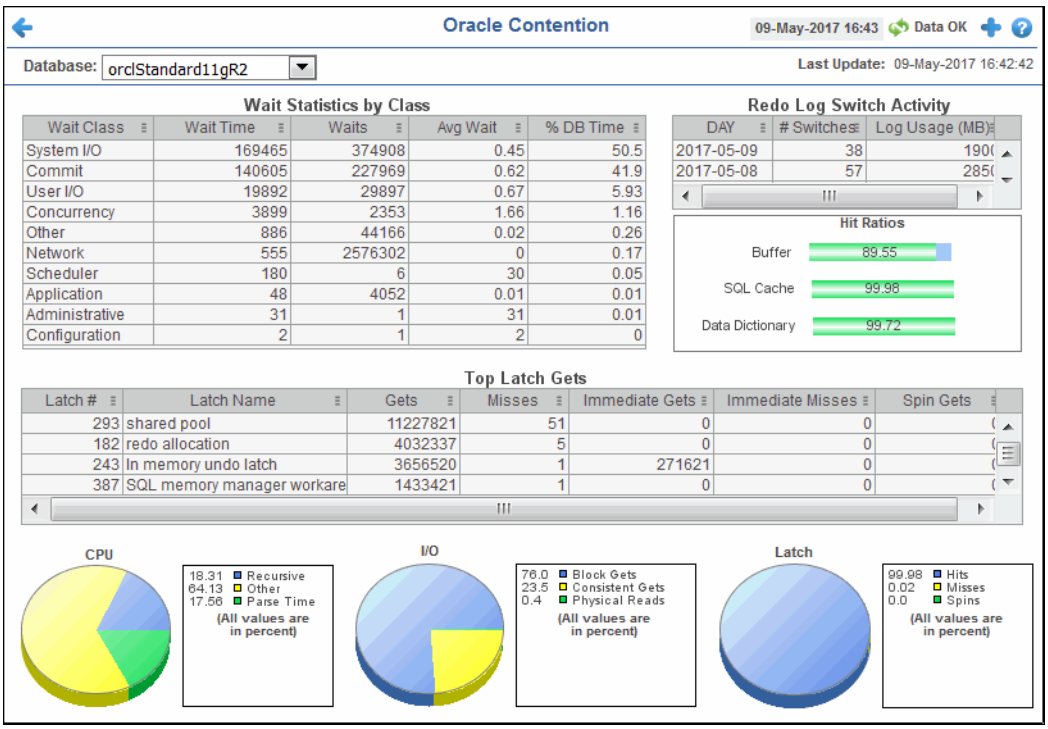
Click **Restore to Now** to reset the time range end point to the current time.

Contention

Analyse contention issues impacting database performance, including wait statistics per class, log switch activity, hit ratios and top latch gets.

Choose a database from the drop-down menu. Each row in the upper table is a different wait class on the selected database. Each row in the lower table is a different top latch on the selected database.

Mouseover the pie graph to see more information about database utilization.



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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Database Choose a database to display.

Wait Statistics by Class

Each row is a different wait class on the selected database. Column values refer to the wait class.

Wait Class	The wait class name.
Wait Time	The amount of time, in milliseconds, for the class to process an event.
Waits	The number of wait events.
Avg Wait	The average amount of time, in seconds, for the class to process an event.
% DB Time	The amThis data is obtained from the vendor. See vendor documentation for details.

Redo Log Switch Activity

Each row is a different day. Column values refer to the selected database.

DAY	The date of the data update.

#Switches	The number of switch processes performed by the database for the day.
Log Usage (MB)	This data is obtained from the vendor. See vendor documentation for details.

Hit Ratios

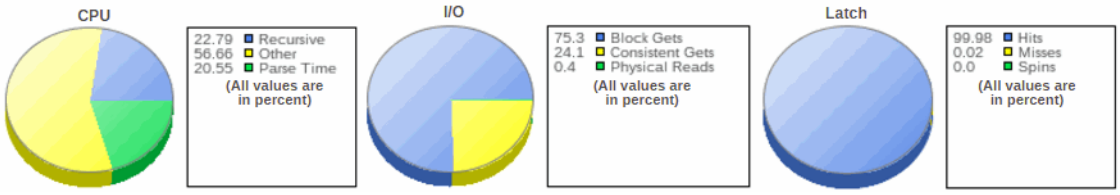
Values refer to the selected database.

Buffer	The ratio of the number of latch misses to the number of latch gets.
SQL Cache	The ratio of logical SQL reads to physical disk reads.
Data Dictionary	The ratio of logical reads to physical disk reads.

Top Latch Gets

Each row is a different latch on the selected database. Column values refer to the latch.

Latch #	The unique identifier for the latch.
Latch Name	The latch name.
Gets	The number of gets for the latch.
Misses	The number of misses for the latch.
Immediate Gets	The number of immediate gets for the latch.
Immediate Misses	The number of immediate misses for the latch.
Spin Gets	The number of spin gets for the latch.



CPU

Pie graph represents the selected database. Values are the percent utilization of **Recursive** calls, **Parse** time, and **Other** background processes (such as looking for buffers and fetching).

I/O

Pie graph represent the selected database. Values are the percent utilization of **Block Gets** calls, **Consistent Gets** and **Physical Reads**.

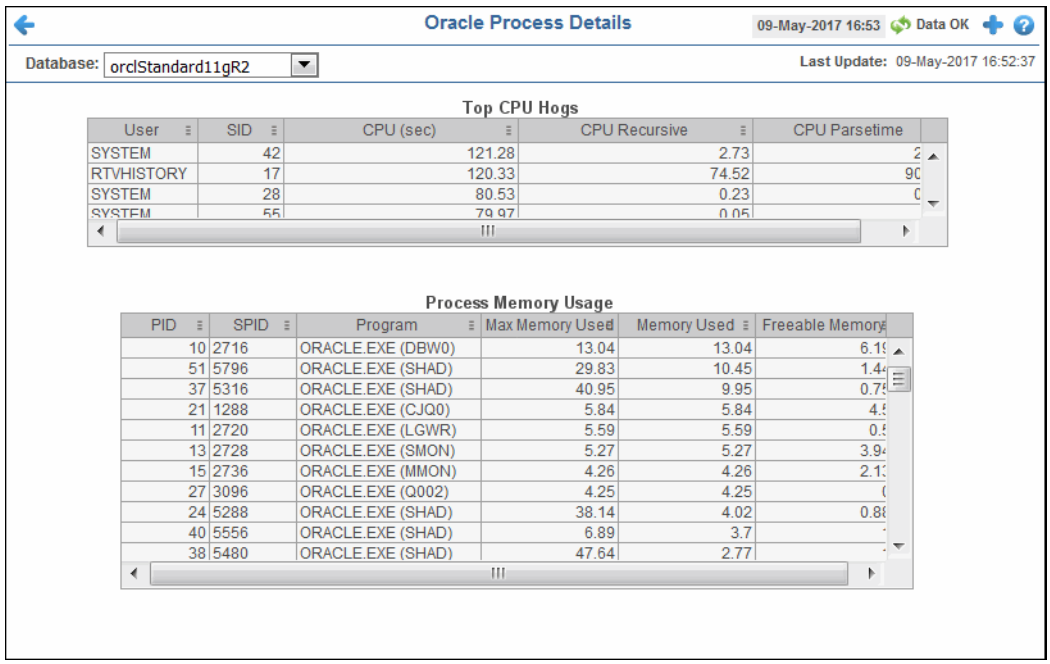
Latch

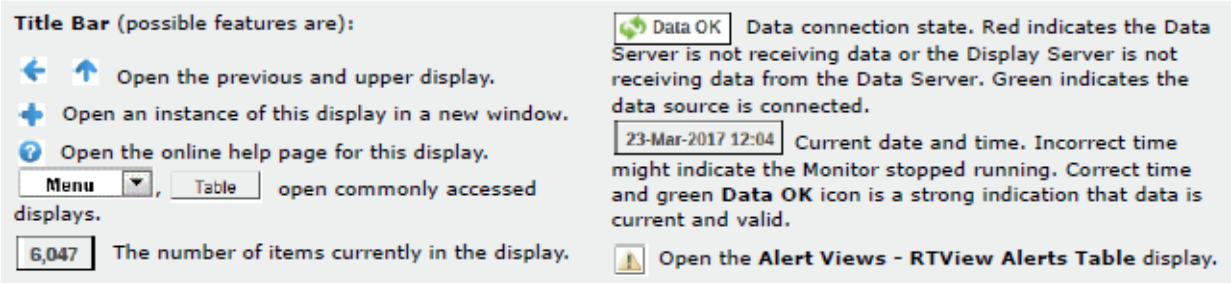
Pie graph represents the selected database. Values are the percent utilization of **Hits**, **Misses** and **Spins**.

Processes

Find out which persons and processes are using the most CPU on a database.

Choose a database from the drop-down menu. Each row in the upper table is a different user on the selected database. Each row in the lower table is a different process on the selected database.





Database Choose a database to display.

Top CPU Hogs

Each row is a different user on the selected database. Column values refer to the user.

User	The user name.
SID	The unique user ID.
CPU (sec)	The amount of database CPU used per second, in megabytes.
CPU Recursive	The amount of CPU used for recursive calls per second, in megabytes.
CPU Parsetime	The amount of CPU used for parsetime per second, in megabytes.

Process Memory Usage

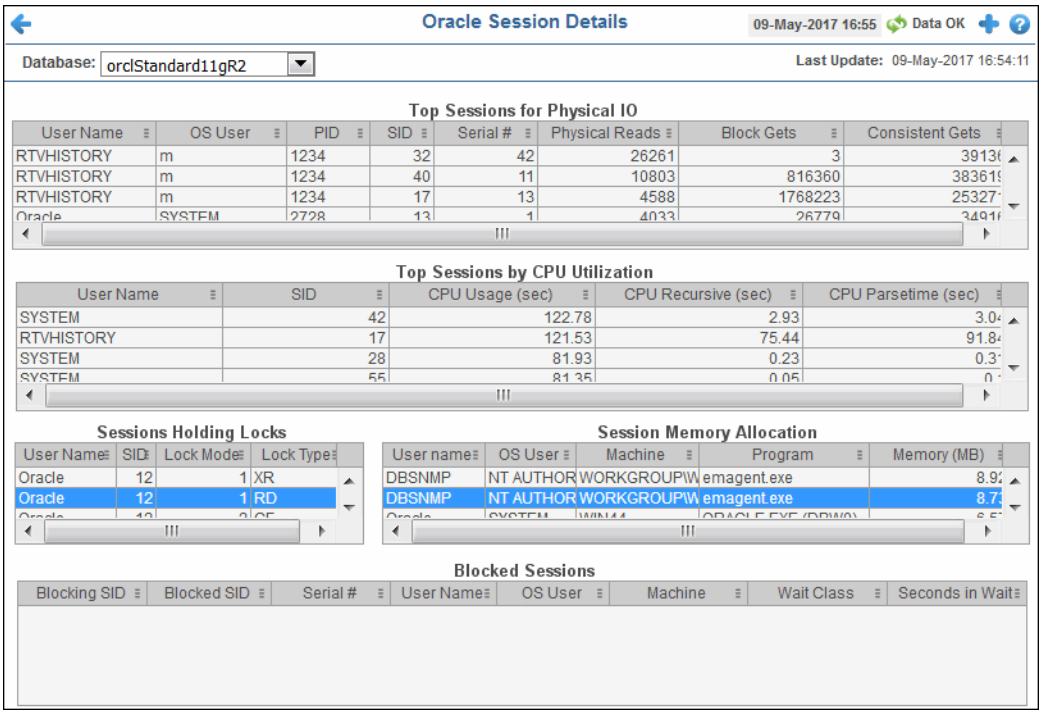
Each row is a different process on the selected database. Column values refer to the process.

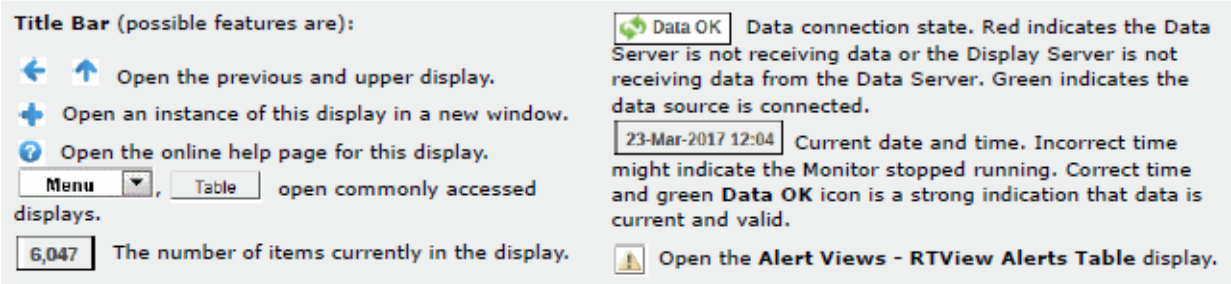
PID	The unique process ID.
SPID	The unique SQL process ID.

Program	The name of the application.
Max Memory Used	The maximum amount of database memory used, in megabytes.
Memory Used	The maximum amount of database memory used, in megabytes.
Freeable Memory	The amount of available database memory for the process, in megabytes.

Sessions

Analyse read/write response time, CPU utilization, locks, blocks and memory allocation per session.





Database Choose a database to display.

Top Sessions for Physical IO

Each row is a different session on the selected database. Column values refer to the session.

User Name	The user name.
OS User	This data is obtained from the vendor. See vendor documentation for details.
PID	The unique process ID.
SID	The unique SQL process ID.
Serial #	This data is obtained from the vendor. See vendor documentation for details.
Physical Reads	The number of physical gets reads.
Block Gets	The number of gets in block mode.
Consistent Gets	The number of gets in consistent mode.

Top Sessions by CPU Utilization

Each row is a different session on the selected database. Column values refer to the session.

User Name	The name of the user.
SID	The unique SQL process ID.
CPU Usage (sec)	The amount of CPU used per second, in megabytes.
CPU Recursive (sec)	The amount of CPU used for recursive calls per second, in megabytes.
CPU Parsetime (sec)	The amount of CPU used for parsetime per second, in megabytes.

Sessions Holding Locks

Each row is a different lock on the selected database. Column values refer to the session.

User Name	The name of the user with the lock.
SID	The unique SQL process ID.
Lock Mode	The lock mode.
Lock Type	The lock type.

Session Memory Allocation

Each row is a different session on the selected database. Column values refer to the session.

User Name	The name of the user with the blocked SQL process.
OS User	This data is obtained from the vendor. See vendor documentation for details.
Machine	The unique identifierof the user’s machine.
Program	The name of the application.
Memory (MB)	The amount of memory used, in megabytes.

Blocked Sessions

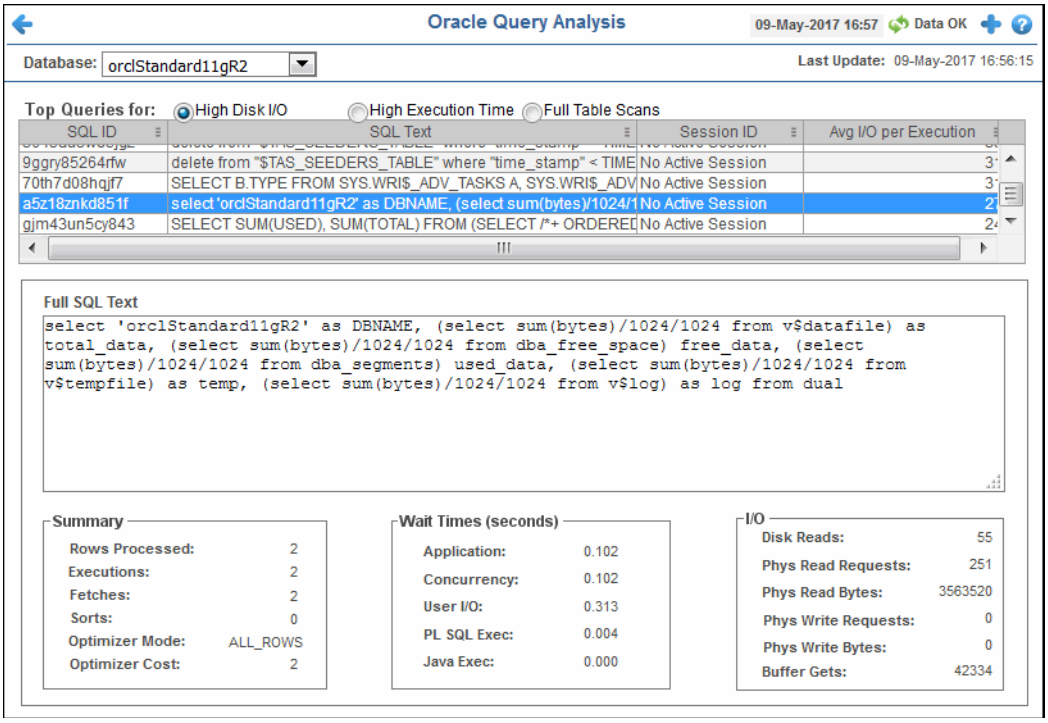
Each row is a different session on the selected database. Column values refer to the session with a blocked SQL process and the SQL process causing the block.

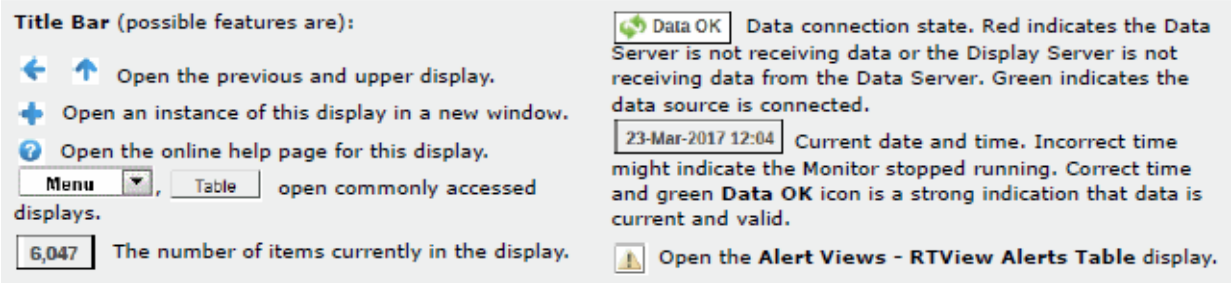
Blocking SID	The process ID of the SQL process that is blocking.
Blocked SID	The ID of the SQL process that is blocked.
Serial #	This data is obtained from the vendor. See vendor documentation for details.
User Name	The name of the user with the blocked SQL process.
OS User	This data is obtained from the vendor. See vendor documentation for details.
Machine	The unique identifierof the user's machine.
Wait Class	The wait class.
Seconds in Wait	The length of the wait, in seconds.

Queries

Analyse database query disk utilization, execution times and full table scans per SQL process.

Choose a database from the drop-down menu, then toggle between **High Disk I/O**, **High Execution Time** or **Full Table Scans**. Click a row to populate fields below the table, such as wait time, rows processed and disk reads.





Database Choose a database to display.

Top Queries for:
Each row is a different SQL process on the selected database. Column values refer to the SQL process.

High Disk I/O

SQL ID	The SQL Id.
SQL Text	The textual content.
Session ID	The unique identifier for the session.
Avg I/O per Execution	The average amount of data input and output per execution, in megabytes.

High Execution Time

SQL ID	The SQL Id.
SQL Text	The textual content.
Session ID	The unique identifier for the session.
Execution Time Sec	The amount time to execute per second, in megabytes.

Full Table Scans

SQL ID	The SQL Id.
SQL Text	The textual content.
Operation Cost	This data is obtained from the vendor. See vendor documentation for details.
CPU Cost	This data is obtained from the vendor. See vendor documentation for details.
IO Cost	This data is obtained from the vendor. See vendor documentation for details.
Temp Space	This data is obtained from the vendor. See vendor documentation for details.

Full SQL Text The SQL textual content.

Summary
Values refer to the SQL process selected in the table.

Rows Processed	The total number of rows processed since the process started.
Executions	The total number of executions since the process started.
Fetches	The total number of fetches since the process started.
Sorts	The total number of sorts since the process started.
Optimizer Mode	The optimizer mode used.
Optimizer Cost	The total number of single block disk reads since the process started.

Wait Times
Values refer to the SQL process selected in the table.

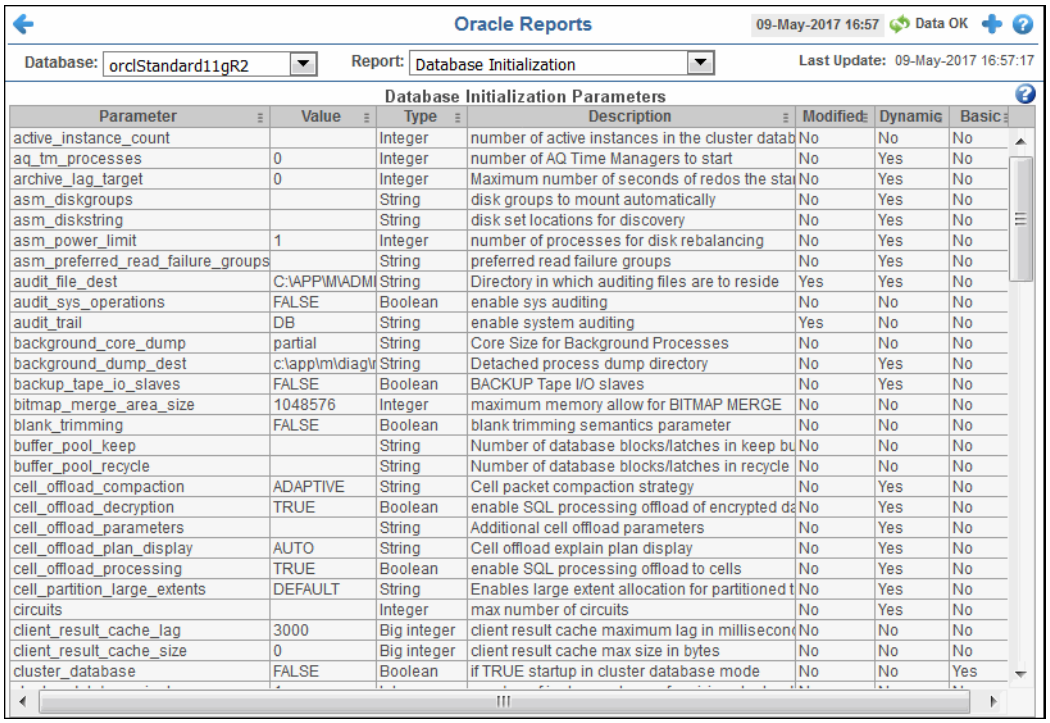
Application	The name of the application.
Concurrency	This data is obtained from the vendor. See vendor documentation for details.
User I/O	This data is obtained from the vendor. See vendor documentation for details.
PL SQL Exec	This data is obtained from the vendor. See vendor documentation for details.
Java Exec	This data is obtained from the vendor. See vendor documentation for details.

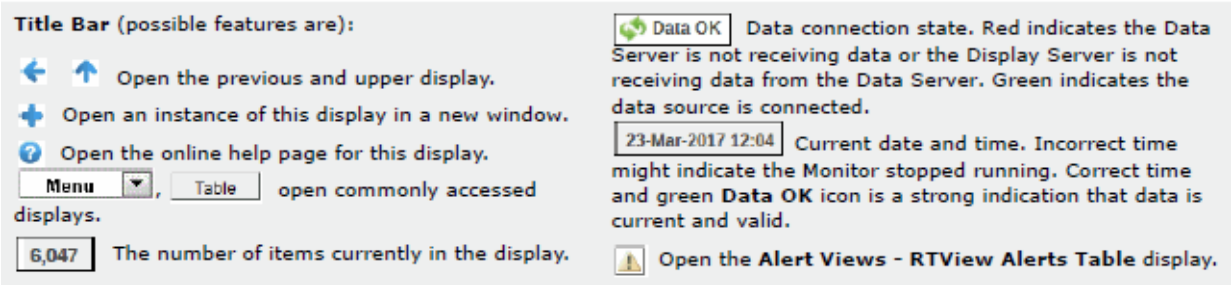
I/O
Values refer to the SQL process selected in the table.

Disk Reads	The total number of disk reads since the process started.
Phys Read Requests	The total number of physical disk reads since the process started.
Phys Read Bytes	The total number of physical disk reads since the process started.
Phys Write Requests	The total number of physical disk writes since the process started.
Phys Write Bytes	The total number of bytes written since the process started.
Buffer Gets	The total number of gets since the process started.

Reports

Analyse detailed database activity. Choose a database and a report from the drop-down menus. Reports available are: **Audited Objects**, **Audited Privileges**, **Database Initialization**, **Feature Usage and Invalid Objects**.





Database Choose a database to display.

Report Choose a report to display.

Audited Objects
Each row is a different audited object on the selected database. Column values refer to the object.

Success	This data is obtained from the vendor. See vendor documentation for details.
Failure	This data is obtained from the vendor. See vendor documentation for details.
Schema	This data is obtained from the vendor. See vendor documentation for details.

Object Name	This data is obtained from the vendor. See vendor documentation for details.
Statement	This data is obtained from the vendor. See vendor documentation for details.
Object Type	This data is obtained from the vendor. See vendor documentation for details.

Audited Privileges
Each row is a different audited privilege on the selected database. Column values refer to the privilege.

Privilege	The name of the privilege.
User	The name of the user associated with the audit.
Proxy	The name of the proxy. This data is obtained from the vendor. See vendor documentation for details.
Success	This data is obtained from the vendor. See vendor documentation for details.
Failure	This data is obtained from the vendor. See vendor documentation for details.

Database Initialization
Each row is a different parameter on the selected database. Column values refer to the parameter.

Parameter	The name of the parameter.
Value	The configuration setting of the parameter.
Type	The configuration setting type. Values are: • **Integer** • **Boolean** • **String** • **Big Integer**
Description	Text describing the parameter.
Modified	Indicates whether the parameter was modified. Values are **Yes**/**No**. This data is obtained from the vendor. See vendor documentation for details.
Dynamic	Indicates whether the parameter is dynamic. Values are **Yes**/**No**. This data is obtained from the vendor. See vendor documentation for details.
Basic	Indicates whether the parameter is basic. Values are **Yes**/**No**. This data is obtained from the vendor. See vendor documentation for details.

Feature Usage
Each row is a different feature on the selected database. Column values refer to the feature.

Feature Name	The name of the feature.
Currently Used	Indicates whether the feature is currently being used. Values are **True**/**False**.

#Detected Uses	The total number of times the feature has been used since the database started.
Total Samples	This data is obtained from the vendor. See vendor documentation for details.
First Use	The date and time the feature was first used.
Last Use	The date and time the feature was last used.
Version	This data is obtained from the vendor. See vendor documentation for details.

Invalid Objects
Each row is a different invalid object on the selected database. Column values refer to the invalid object.

Owner	The object owner.
Object Type	The type of object.
Object Name	The name of the object.

CHAPTER 19 Solution Package for Oracle WebLogic

Oracle® WebLogic has long been a leading player in the Enterprise Application Server market and is a mainstay of many Oracle-powered IT organizations and projects. For many enterprise IT organizations and development shops it is a permanent part of their application runtime environments as well as a key component in their construction of a standard Platform as a Service (PaaS).

With its broad use in distributed, N-tier applications and its architectural organization into clusters and domains it is often a challenge to understand and diagnose the performance and resource consumption of these complex runtime environments. While the WebLogic console and Oracle Enterprise Manager provide excellent tools for managing at the server or domain level, Dev Ops managers and IT Applications Support professionals sometimes struggle to monitor and diagnose larger, multi-domain installations that may contain hundreds or thousands of nodes.

The Solution Package for Oracle® WebLogic was designed and developed to provide enterprise developers, application architects and IT operations professionals powerful diagnostics capabilities and real-time insight into large-scale WebLogic environments.

Most of the setup in this chapter is done in the RTView Configuration Application. See "RTView Configuration Application" for more information on accessing and using the RTView Configuration Application.

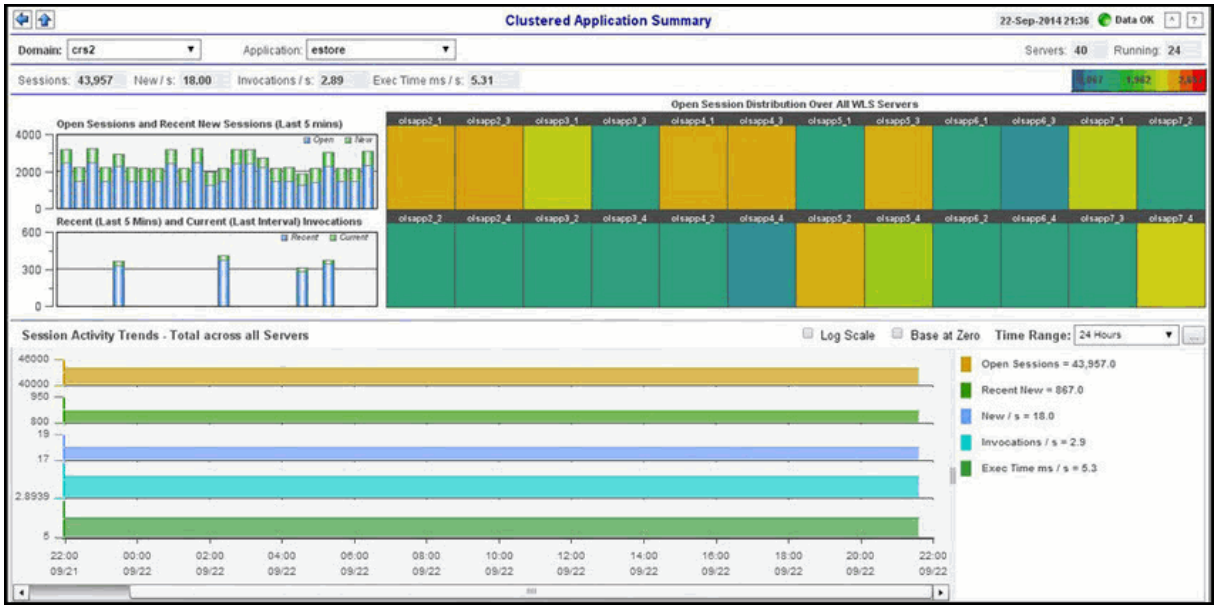
This chapter includes:

Product Overview

This section includes:

Features

- Real-Time intelligence at the server, cluster and application levels
- Within seconds, enterprise developers and applications support teams can navigate through the WebLogic runtime environment from the broadest view of the environment to a precise drill down to the individual WebLogic server instance.
- Out of the box discovery and monitoring of key metrics and resources



Within minutes of installation the Solution Package for Oracle WebLogic presents intuitive views of WebLogic metrics such as heap, sockets, threads, CPU usage, queues, JDBC performance, sessions, invocations and execution time.

- Powerful diagnostics and correlations for complex performance analysis

Application developers and App Support teams must solve complex and often deceptive performance challenges that can lead to application downtime, brown-outs and erratic behaviors. The Solution Package for Oracle WebLogic can provide insights to diagnose tough challenges like:

  - Are clusters load balanced properly?
  - Is there a proper balance between destinations and consumers?
  - Are pending messages or queue lengths causing slow-downs?
  - Are destinations balanced across servers?

- View Weblogic in an application context

While developers and application support teams want to have technical detail and a good understanding of how their WebLogic components are operating, it is also important and valuable to assess how the WebLogic subsystem affects performance and resource consumption at the application level. RTView® provides both the detailed technical intelligence for their WebLogic runtime and a holistic view of how WebLogic operation affects the application as a whole.

- Instant insight for Weblogic resource management

Applications Support teams can quickly assess available resources and avoid bottlenecks and outages. The Solution Package for Oracle WebLogic can provide insights to understand resource utilization questions like:

- During peak loads, do I have enough resources?
- Are one or more applications becoming the hogs for resources?
- Are there an abnormally high number of connections?
- Does the JMS server have unusually large traffic or memory consumption?
- How does current resource usage compare to historical usage

- Application-centric monitoring of Weblogic operations

Oracle WebLogic is increasingly found as part of a standardized Enterprise PaaS. With developer and IT ops professionals awash in different administrative and management interfaces, the intuitive end-to-end RTView monitoring interface provides a consistent, scalable view into even the largest application architectures.

When used in conjunction with an established Service Model, it enables understanding of how WebLogic performance issues affect the overall health and response time of the business application as a whole.

- Lightweight footprint viewable on any device

With today's mobile workforce, even IT professionals need to get a view of their online world in any location from any device. Because RTView and Solution Packages are written in Java, users are able to take all of their insights with them. RTView users can also quickly and easily share diagnostic views with other team members by sharing URLs or easily designing custom views for business or technical users.

Benefits

Gain Real-time Insight into WebLogic Performance and Resource Utilization at Scale by moving from reactive monitoring to proactive monitoring, where you are able to identify potential problems before they become critical and impact overall application performance.

Provides an Intuitive View of How WebLogic Interacts with other Enterprise PaaS Components including Oracle (Coherence, Database, Glassfish) and non-Oracle IBM (Websphere, DB2), TIBCO, VMware, etc.) products.

Designed and Developed for Large Scale, Mission Critical Environments SL developers worked directly with large enterprise customers running vast WebLogic deployments to gain the intelligence needed to operate at cloud scale.

Minimal Training, Highly Configurable by Business and Technical Users. Typical installations of RTView® and its Solution Packages take only a few hours, while developing custom views for a variety of IT and development roles can be achieved in just days.

- Extended RTView Visibility

The Solution Package for Oracle WebLogic has been designed to extend the reach of RTView end-to-end monitoring of enterprise applications and PaaS deeper into the vast and complex world of large scale WebLogic installations. Built upon the underlying RTView real-time platform, the Solution Package for Oracle WebLogic provides an intuitive WebLogic-aware window into large scale IT environments and their most mission critical applications.

Without this deeper view, WebLogic administrators and application support teams are forced to take Oracle Enterprise Manager or the WebLogic console beyond the extremes of their practical usage. Powerful and useful though they are, these tools were not designed to visualize, diagnose and monitor operations in heterogeneous environments at cloud scale. Because Oracle Coherence has become such an integral part of the WebLogic product line, the ability to extend the depth of monitoring using Solution Packages for both WebLogic and Coherence provides developer and IT professional powerful capabilities to tame and optimize the critical applications they power.

Configuration Parameters You Need

To configure the Solution Package for Oracle® WebLogic make a note of the following values:

- **PackageName=wlm**
- **ServerDirectory**=**wlm**
- **AlertPrefix**=**Wls**

Configure Data Collection

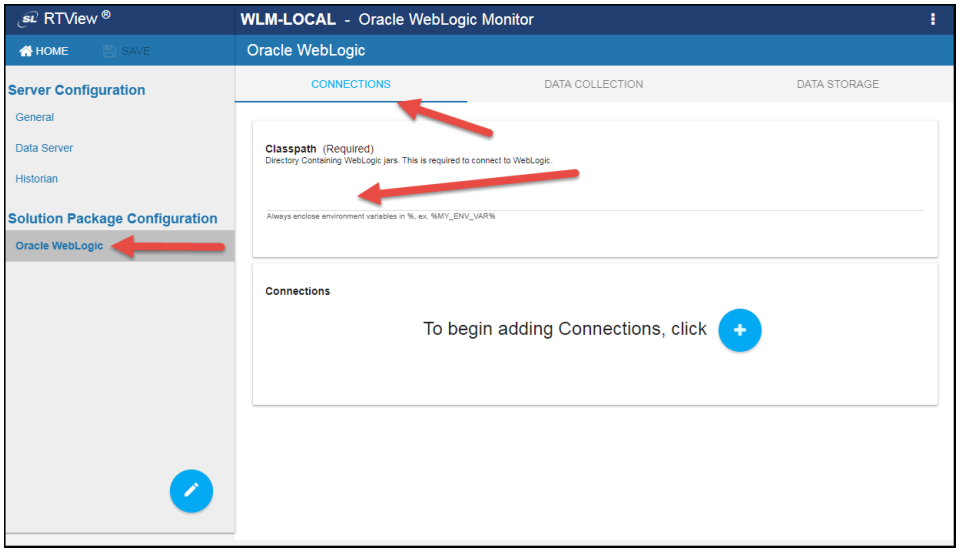
Note: Set **JAVA_HOME** to the location of your Java installation and include the **bin** directory under **JAVA_HOME** in the path. This environment variable must be defined in UNIX/Linux systems for Tomcat to start successfully

You can set up the data collector properties for the Solution Package for Oracle Weblogic using the "RTView Configuration Application".

To configure data collection:

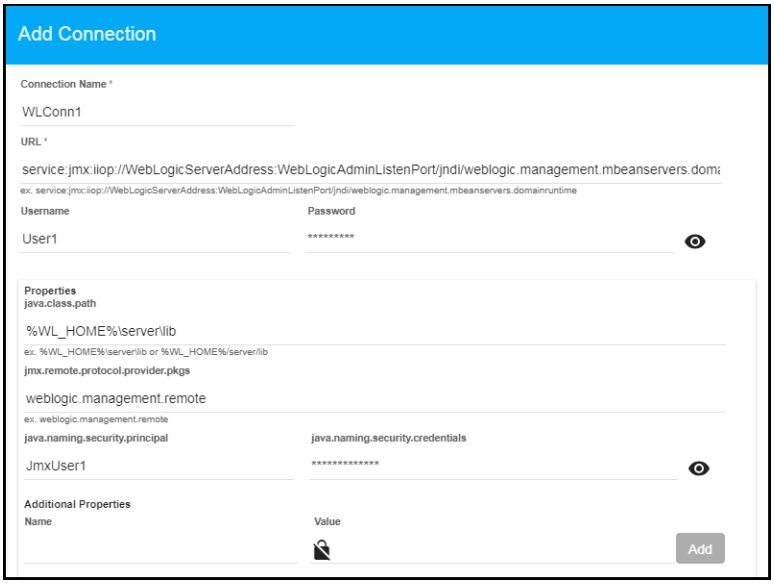
1. Navigate to the RTView Configuration Application > (**WLM-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **CONNECTIONS** tab.

2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the Oracle WebLogic jar files in the **Classpath** field.



3. Click the + icon.

The **Add Connection** dialog displays.



4. Specify the connection information and click **Save** where:

Connection Name: Enter the name of the connection.

URL: Specify the path to the JMX connection of the WebLogic Server to which you want to connect.

Username: The username defined to secure the connection. This field is only required when the connection has been secured.

Password: This password defined to secure the connection. This field is only required when the connection has been secured. By default, the password entered is hidden. Click the icon to view the password text.

Properties

java.class.path: Specify the full path to the wlfullclient.jar and webserviceclient.jar files.

jmx.remote.provider.protocol.pkgs: Specify the jmx.remote.provider.protocol.pkgs key.

java.naming.security.principal: Specify the JMX username.

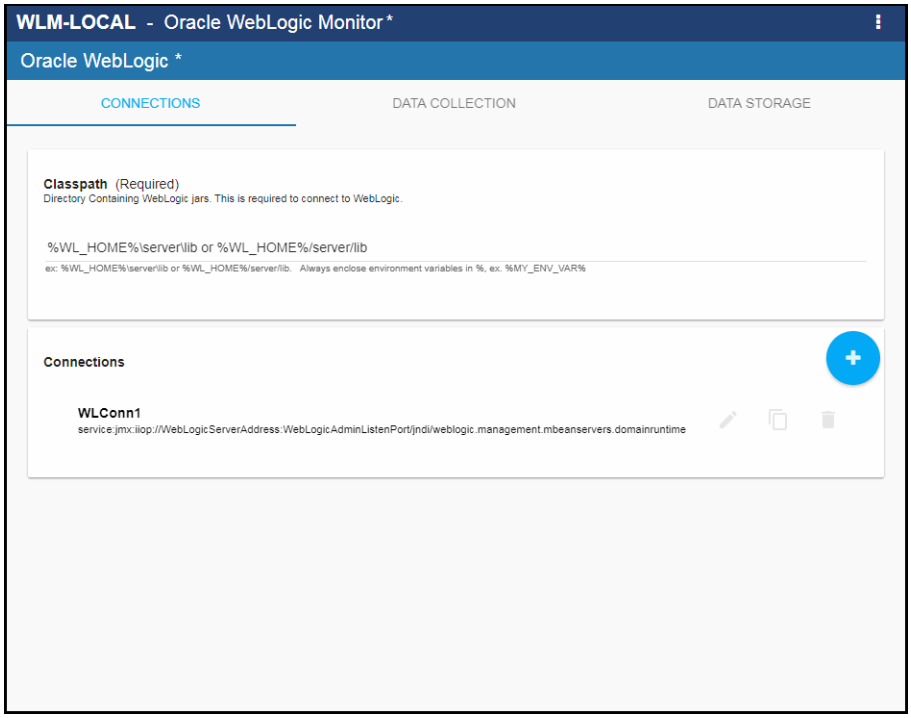
java.naming.security.credentials: Specify the JMX password. By default, the password entered is hidden. Click the icon to view the password text.

Additional Properties

Name: Specify the Name and Value of any additional properties you want to use for monitoring your WebLogic Servers.

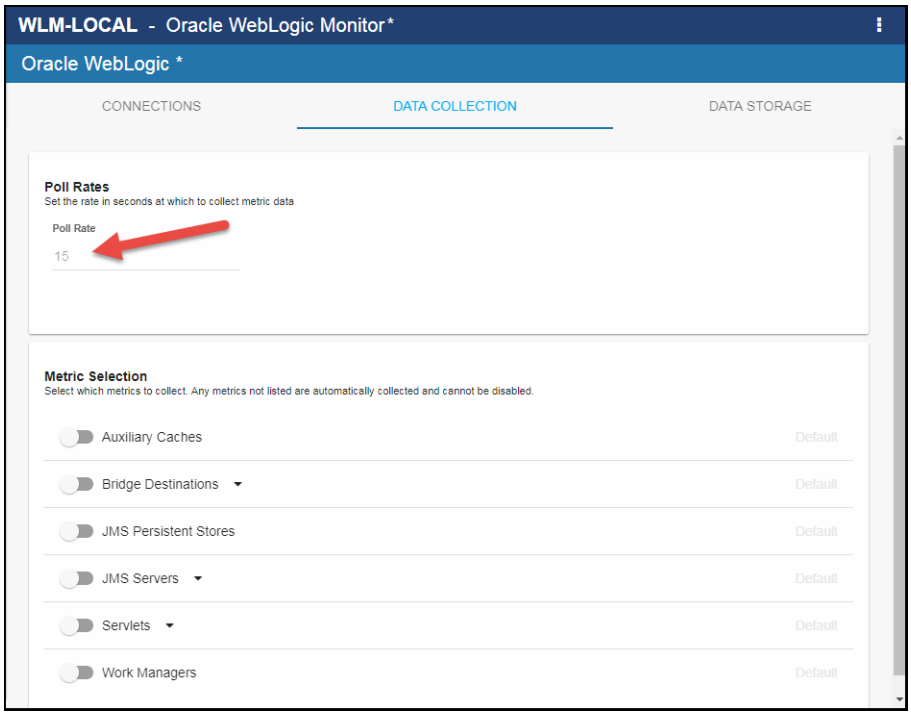
Value: Enter the value for the property. You can enter multiple properties by entering the name and value and clicking the associated **Add** button. The added property then displays on the line below. Once entered, you can click the **X** next to the property name to remove them. By default, the icon sets the defined Value as secured once the connection is saved. Click this icon prior to clicking **Add** to make the defined Value visible when the connection is saved.

Once saved, the new connection displays in the **Connections** region on the **CONNECTIONS** tab.



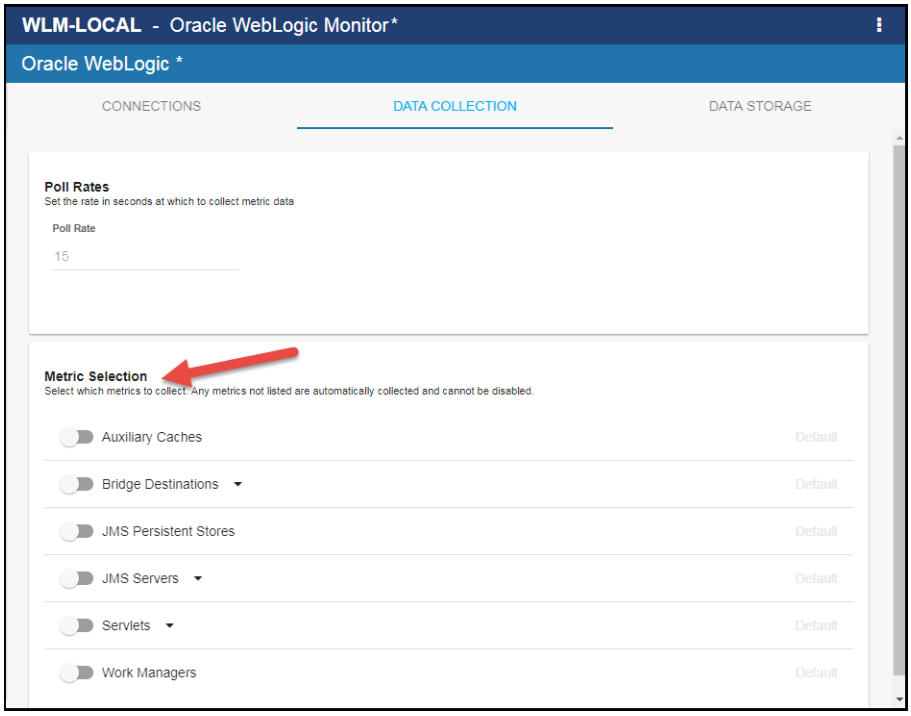
5. Repeat steps 3-4 for each connection to be monitored.

6. If you want to modify the default values for the update rates for all caches, you can update the default polling rates in RTView Configuration Application > (**WLM-LOCAL/Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA COLLECTION** > **Poll Rates**.

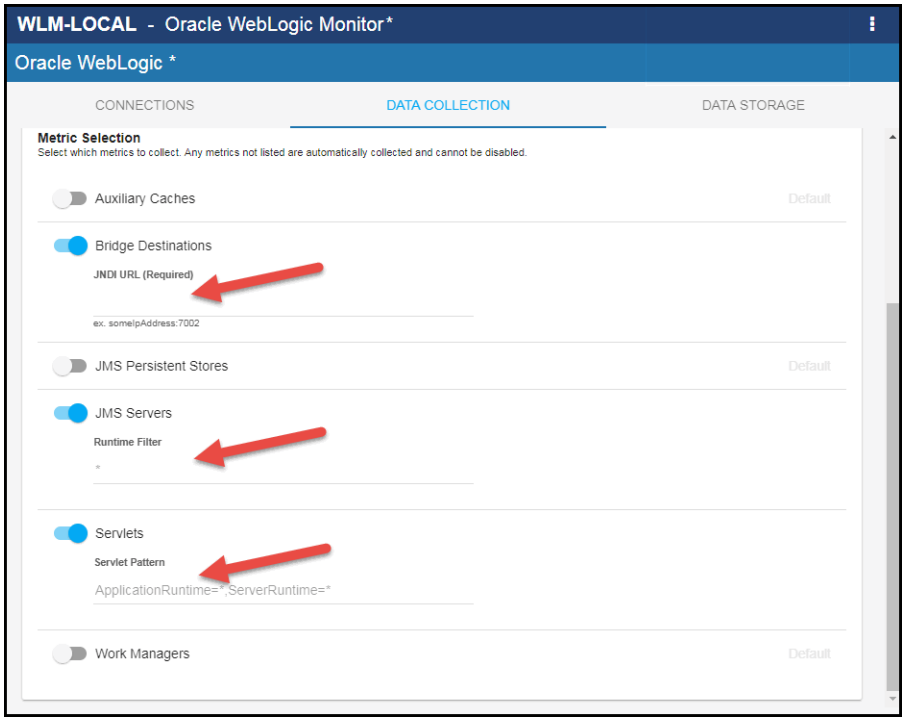


Note: When modifying your update rates, you should take your system architecture and number of elements per cache into account and ensure that you are not changing your update rates to values that might negatively impact system performance.

7. By default, collecting auxiliary caches, bridge destinations, JMS persistent stores, JMS servers, servlets, and work managers data is disabled. To enable collecting this data, navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA COLLECTION** tab > **Metric Selection** section and enable the metrics for which you want to collect data.



8. When enabling **Bridge Destinations**, enter the **JNDI URL** (which appears after enabling the toggle). When enabling **JMS Servers**, specify the **Runtime Filter** (*, which means no filter, is the default) if you want to limit the collection of data to specific JMS Servers. When enabling **Servlets**, specify the **Servlet Pattern** to limit the collection of data to specific servlets (*, which means no filter, is the default for ApplicationRuntime and ServerRuntime).



Additional Configurations

This section describes the following additional optional configurations:

- "Configuring Historical Data"

Configuring Historical Data

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application. This section contains the following:

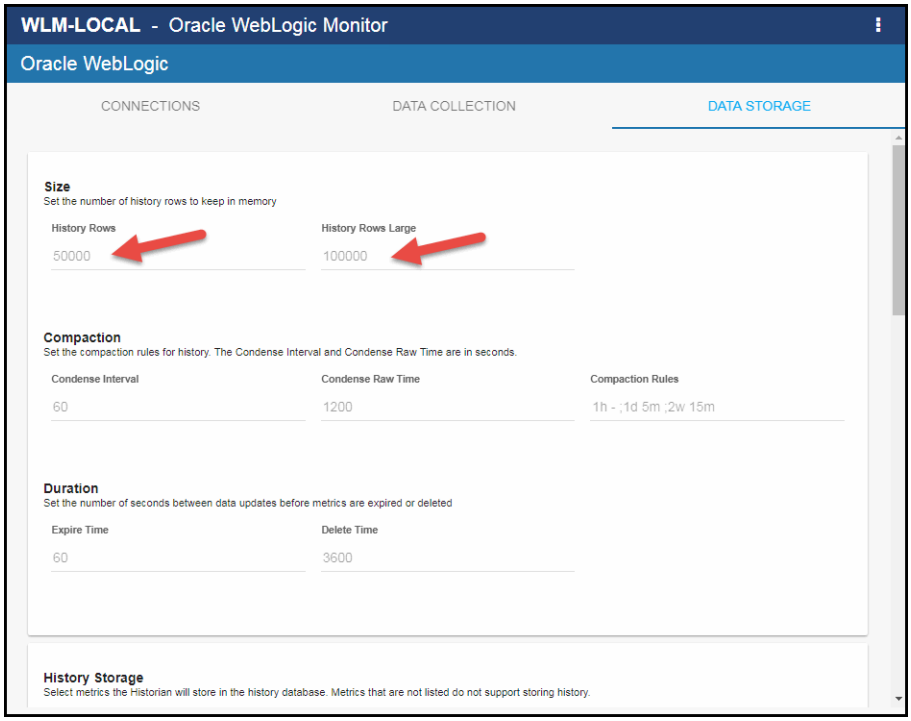
- "Defining the Storage of In Memory History"
- "Defining Compaction Rules"
- "Defining Expiration and Deletion Duration Metrics"
- "Enabling/Disabling Storage of Historical Data"
- "Defining a Prefix for All History Table Names for Metrics"

Defining the Storage of In Memory History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the WlsJmsPersistentStoreRuntime, WlsJmsPersistentStoreConnectionRuntime, WlsJmsConnection, WlsJmsProducer, WlsJmsConsumer, WlsJmsDurableSubscriber, WlsJmsPooledConnectionRuntime, WlsJmsRuntime, WlsJmsServerRuntime, WlsJrockitRuntime, WlsServerRuntime, WlsThreadPoolRuntime, WlsJdbcDatasourceRuntime, WlsJvmRuntime, WlsJvmStats, WlsServerTotalsByCluster, WlsServletStats, WlsServletTotalsByServer, WlsServletTotalsByApp, WlsSessionStats, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WlsServletTotalsByClusterApp, WlsWorkManagerStats, WlsWorkManagerTotalsByApp, and WlsWorkManagerTotalsByServer caches. The default setting for **History Rows** is 50,000. The History Rows Large property defines the maximum number of rows to store for the WlsJmsDestinationTotals and WlsJmsDestination caches. The default setting for **History Rows Large** is 100,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (**WLM-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** and **History Rows Large** fields and specify the desired number of rows.



Defining Compaction Rules

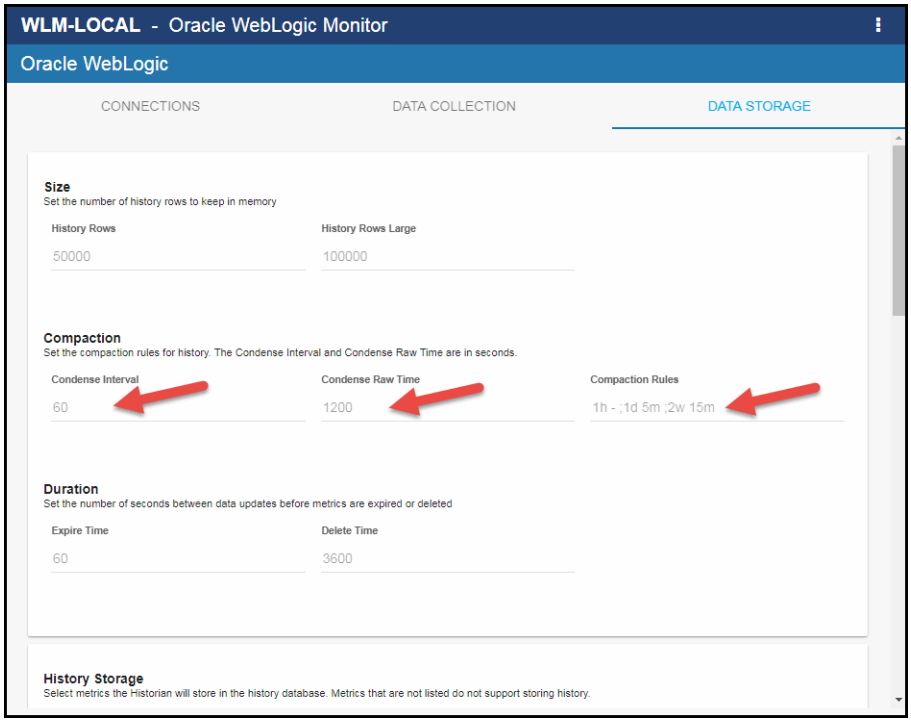
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: WlsJmsConnection, WlsJmsProducer, WlsJmsConsumer, WlsJmsDurableSubscriber, WlsJmsDestination__$wlsCompactionRules: WlsJmsConnection, WlsJmsProducer, WlsJmsConsumer, WlsJmsDurableSubscriber, WlsJmsDestinationTotals, WlsJmsDestination, WlsJmsRuntime, WlsJmsServerRuntime, WlsJrockitRuntime, WlsServerRuntime, WlsThreadPoolRuntime, WlsJdbcDatasourceRuntime, WlsJvmRuntime, WlsJvmStats, WlsServerTotalsByCluster, WlsServletStats, WlsServletTotalsByServer, WlsServletTotalsByApp, WlsSessionStats, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WlsServletTotalsByClusterApp, WlsWorkManagerStats, WlsWorkManagerTotalsByApp, and WlsWorkManagerTotalsByServer. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: WlsJmsConnection, WlsJmsProducer, WlsJmsConsumer, WlsJmsDurableSubscriber, WlsJmsDestinationTotals, WlsJmsDestination, WlsJmsRuntime, WlsJmsServerRuntime, WlsJrockitRuntime, WlsServerRuntime, WlsThreadPoolRuntime, WlsJdbcDatasourceRuntime, WlsJvmRuntime, WlsJvmStats, WlsServerTotalsByCluster, WlsServletStats, WlsServletTotalsByServer, WlsServletTotalsByApp, WlsSessionStats, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WlsServletTotalsByClusterApp, WlsWorkManagerStats, WlsWorkManagerTotalsByApp, and WlsWorkManagerTotalsByServer. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: WlsJrockitRuntime, WlsServerRuntime, WlsThreadPoolRuntime, WlsJdbcDatasourceRuntime, WlsJvmRuntime, WlsJvmStats, WlsServerTotalsByCluster, WlsServletStats, WlsServletTotalsByServer, WlsServletTotalsByApp, WlsSessionStats, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WlsServletTotalsByClusterApp, WlsWorkManagerStats, WlsWorkManagerTotalsByApp, and WlsWorkManagerTotalsByServer. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (**WLM-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



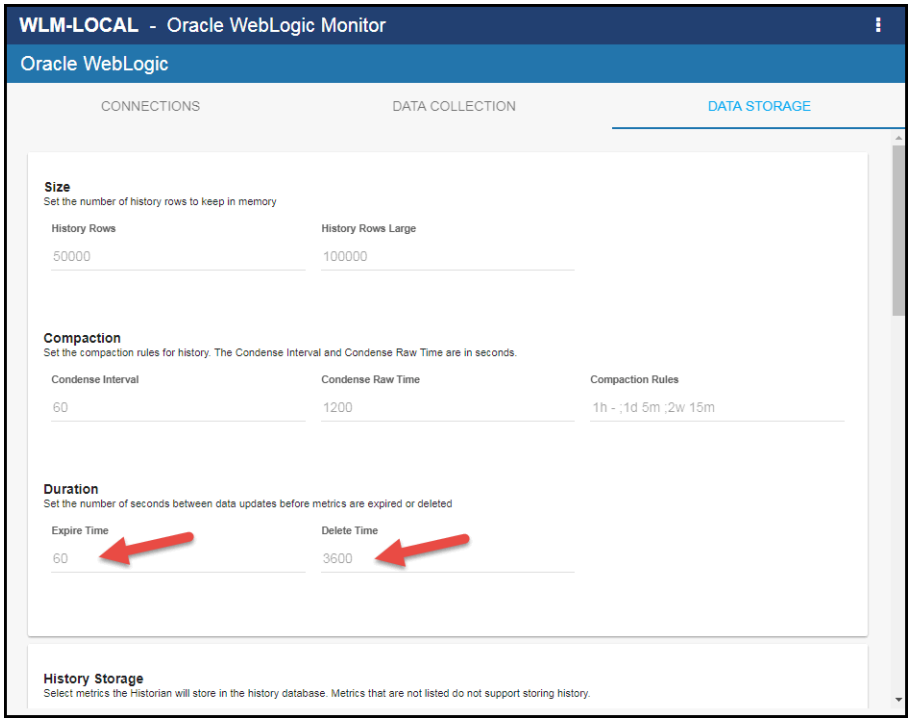
Defining Expiration and Deletion Duration Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The caches impacted by the **Expire Time** property are: WlsServerRuntime, WlsJvmRuntime, WlsClusterRuntime, WlsServerTotalsByCluster, WlsRuntime, WlsServletStats, WlsServletTotalsByServer, WlsServletTotalsByApp, WlsSessionStats, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WlsServletTotalsByClusterApp, WlsWorkManagerStats, WlsWorkManagerTotalsByApp, and WlsWorkManagerTotalsByServer. The caches impacted by the **Delete Time** property are: WlsServletStats, WlsServletTotalsByServer, WlsServletTotalsByApp, WlsSessionStats, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WlsServletTotalsByClusterApp, WlsWorkManagerStats, WlsWorkManagerTotalsByApp, and WlsWorkManagerTotalsByServer. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**WLM-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

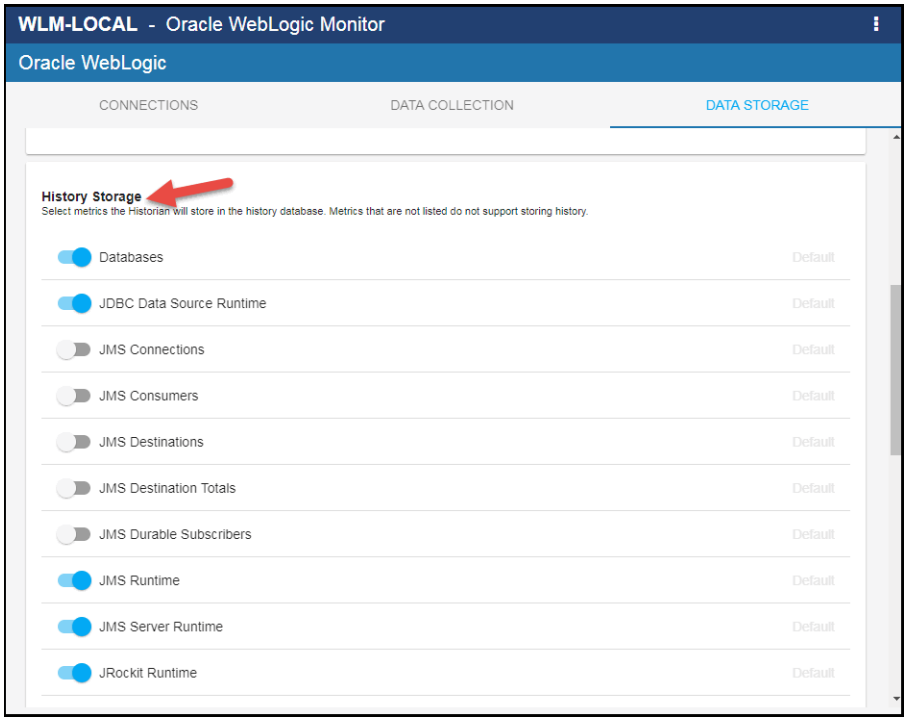


Enabling/Disabling Storage of Historical Data

The **History Storage** section allows you to select which metrics you want the Historian to store in the history database. By default, the following historical data is not saved to the database: JMS Connections (WlsJmsConnection cache), JMS Consumers (WlsJmsConsumer cache), JMS Destinations (WlsJmsDestination cache), JMS Destination Totals (WlsJmsDestinationTotals cache), JMS Durable Subscribers (WlsJmsDurableSubscriber cache), and Session Stats (WlsJmsSessionStats cache). The remaining historical data is saved to the database by default (WlsServerRuntime, WlsServerTotalsByCluster, WlsJRockitRuntime, WlsJvmRuntime, WlsJvmStats, WlsThreadPoolRuntime, WlsJdbcDatasourceRuntime, WlsServletStats, WlsServletTotalsByApp, WlsServletTotalsByServer, WlsServletTotalsByClusterApp, WlsSessionTotalsByServer, WlsSessionTotalsByClusterApp, WLSWorkManagerStats, WLSWorkManagerTotalsByServer, WLSWorkManagerTotalsByApp, WlsJmsRuntime, and WlsJmsServerRuntime caches). To enable/disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**WLM-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA STORAGE** tab.

2. In the **History Storage** region, (de)select the toggles for the various metrics that you (do not) want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for Metrics

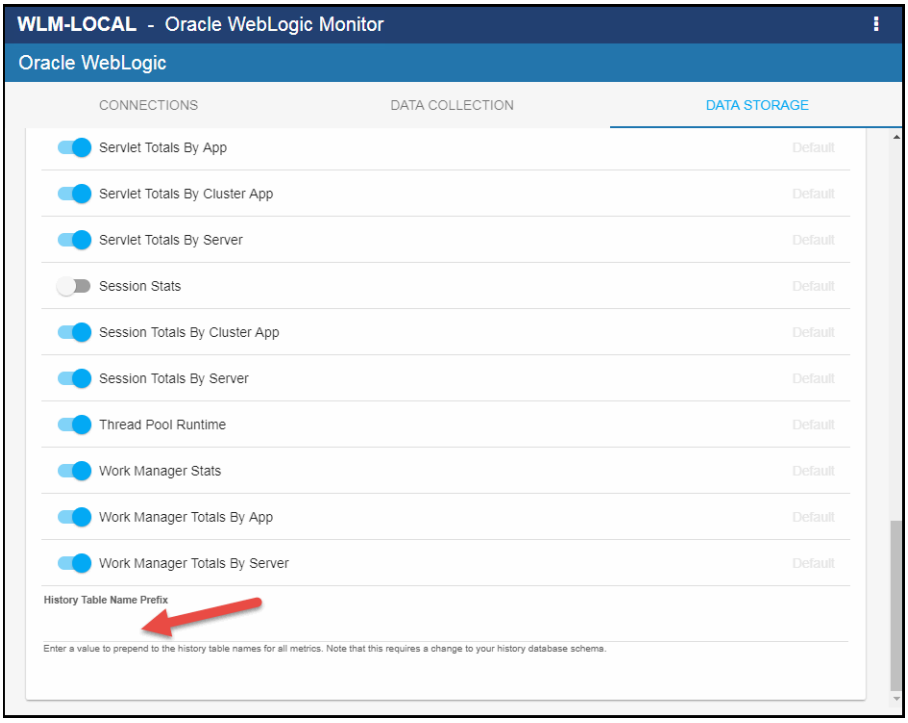
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**wlm**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to the RTView Configuration Application > (**WLM-LOCAL**/**Project Name**) > **Solution Package Configuration** > **Oracle WebLogic** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

- "Log Files," next
- "JAVA_HOME"
- "Permissions"
- "Network/DNS"
- "Verify Data Received from Data Server"
- "Verify Port Assignments"

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **rtvapm_projects/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **rtvapm_projects/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **WLM-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Wls." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server, or the classpath to the WebLogic installation and the path to its jars is missing. In particular, verify that the **wls-java-driver-3.2.1.jar** is referenced properly in your classpath in the properties you have created using the "RTView Configuration Application". See "Configure Data Collection" for more information on adding the classpath.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Oracle WebLogic Monitor Views/Displays

The following Oracle Weblogic Monitor Views (and their associated displays) can be found under **Components** tab **> Application/Web Servers> Oracle WebLogic** after the Solution Package for Oracle® WebLogic is installed.

This section includes:

WebLogic Servers View

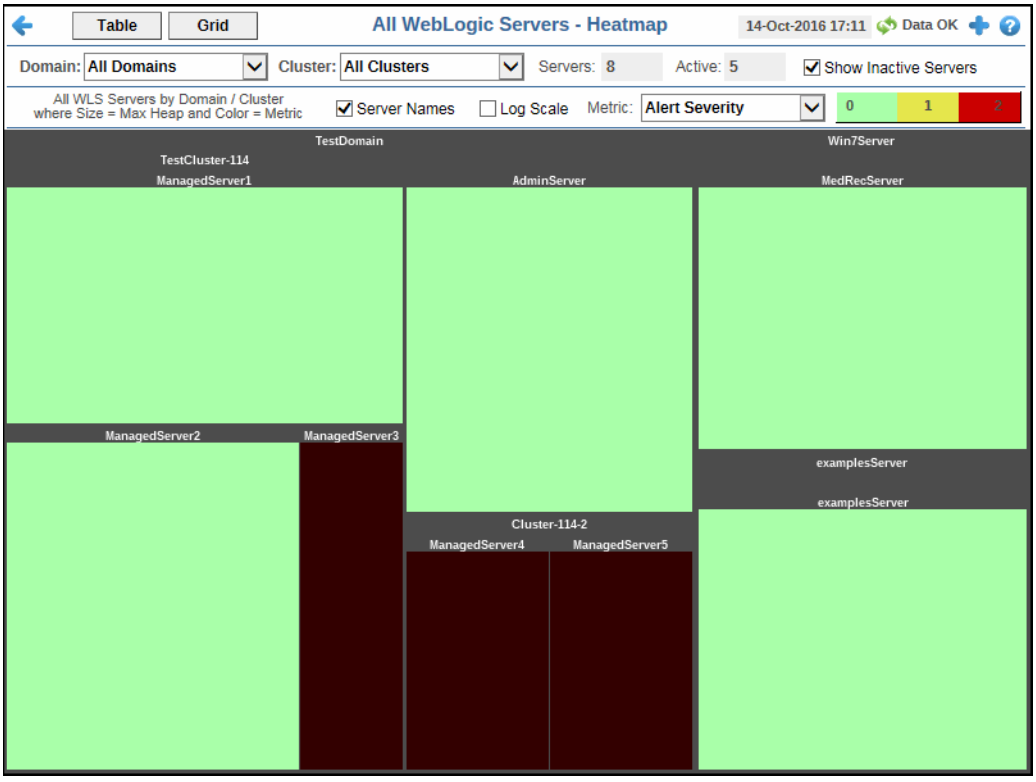
These displays present performance metrics and alert statuses for all Oracle WebLogic Servers and Clusters. The following displays are available:

- "All Servers Heatmap": This display shows status and alerts for all Oracle® WebLogic servers in a heatmap.
- "All Servers Table": This displays shows all available utilization metrics for all Oracle® WebLogic servers in a tabular format.
- "All Servers Grid": This display enables you to track utilization and performance metrics and trend data for all WebLogic severs on a particular domain.
- "All Clusters Table": This table enables you track utilization and performance metrics for all clusters on a particular domain, or on all domains

All Servers Heatmap

View status and alerts of all Oracle® WebLogic servers. Use the **Metric** drop-down menu to view the **Alert Severity**, **Alert Count**, **Jvm CPU %**, **Host CPU %, Jvm Memory %**, **Open Sockets**, **Thread Total Count**, and **Hogging Threads**.

The heatmap is organized by host, each rectangle representing a server. The rectangle color indicates the most critical alert state. Click on a node to drill-down to the "All Servers Grid" display and view metrics for a particular connection. You can toggle between the commonly accessed **Table** and **Heatmap** displays by clicking the icon in the upper left-hand corner. Mouse-over rectangles to view more details about host performance and status.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Domain	Select the domain (or **All Domains**) from the drop down list for which you want to view data.
Cluster	Select the cluster (or **All Clusters**) from the drop down list for which you want to view data.
Servers	The total number of active, inactive, and standby servers.
Active	The number of active servers listed in the display.
Show Inactive Servers	Select this check box to display inactive servers in the heatmap.
Server Names	Select this check box to display the names of the servers in the heatmap

Log Scale This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Metric Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the instances by host, where each rectangle represents an instance. Mouse-over any rectangle to display the current values of the metrics for the instance. Click on a rectangle to drill-down to the associated "All Servers Grid" display for a detailed view of metrics for that particular instance.

Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar

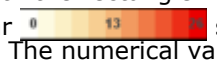
, where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Jvm CPU % The percentage of JVM CPU currently being used in a given item (index) associated with the rectangle. The color gradient bar

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the alert threshold of **WlsServerCpuHigh**. The middle value in the gradient bar indicates the middle value of the range.

Host CPU % The percentage of Host CPU currently being used in a given item (index) associated with the rectangle. The color gradient bar

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the alert threshold of **WlsServerHostCpuHigh**. The middle value in the gradient bar indicates the middle value of the range.

JVM Memory % The percentage of JVM Memory currently being used in a given item (index) associated with the rectangle. The color gradient bar

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the alert threshold of **WlsMemoryUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

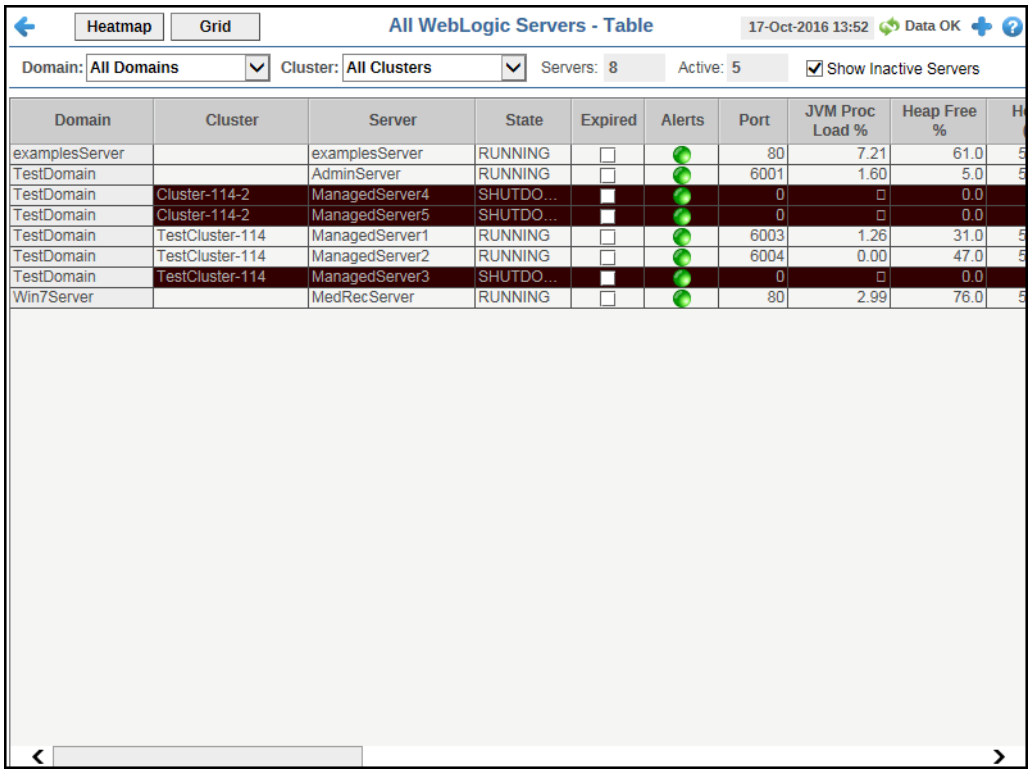
Open Sockets The total number of open sockets currently being used in a given item (index) associated with the rectangle. The color gradient bar

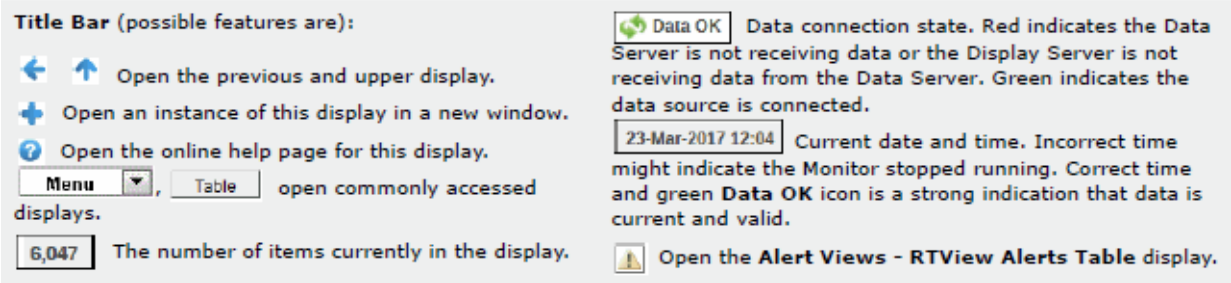
shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the alert threshold of **WlsOpenSocketsHigh**. The middle value in the gradient bar indicates the middle value of the range.

Thread Total Count	The total number of threads in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the alert threshold of **WlsThreadsTotalHigh**. The middle value in the gradient bar indicates the middle value of the range.
Hogging Threads	The total number of hogging threads currently being used in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the alert threshold of **WlsHoggingThreadsHigh**. The middle value in the gradient bar indicates the middle value of the range.

All Servers Table

This display provides utilization metrics for all WebLogic Servers for a particular domain in a tabular format. Each row in this table includes heap, processing, thread, and version metrics (among others) for a particular server. Click a column header to sort column data in numerical or alphabetical order. Click on a table row to drill-down to the "Server Summary" display and view metrics for that particular server. You can click on one of the buttons in the upper left-hand corner to toggle between the commonly accessed **Grid** and **Heatmap** displays.





Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data, or select **All Domains** to view data for all domains.

Cluster Select the cluster on the domain for which you want to view data, or select **All Clusters** to view data for all domains.

Servers The total number of servers on the cluster.

Active The total number of active servers on the cluster.

Show Inactive Servers Select this check box to display inactive servers in the table.

All WebLogic Servers Table

This table shows information for the selected domain/cluster(s) combination. Click on a table row to drill-down to the "Server Summary" display and view metrics for that particular server.

Domain The name of the domain.

Cluster The name of the cluster.

Server The name of the server.

State The current state of the server.

Expired This check box becomes automatically checked when the data displayed in the row has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.

Alerts The current alert level.

-- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.

-- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold.

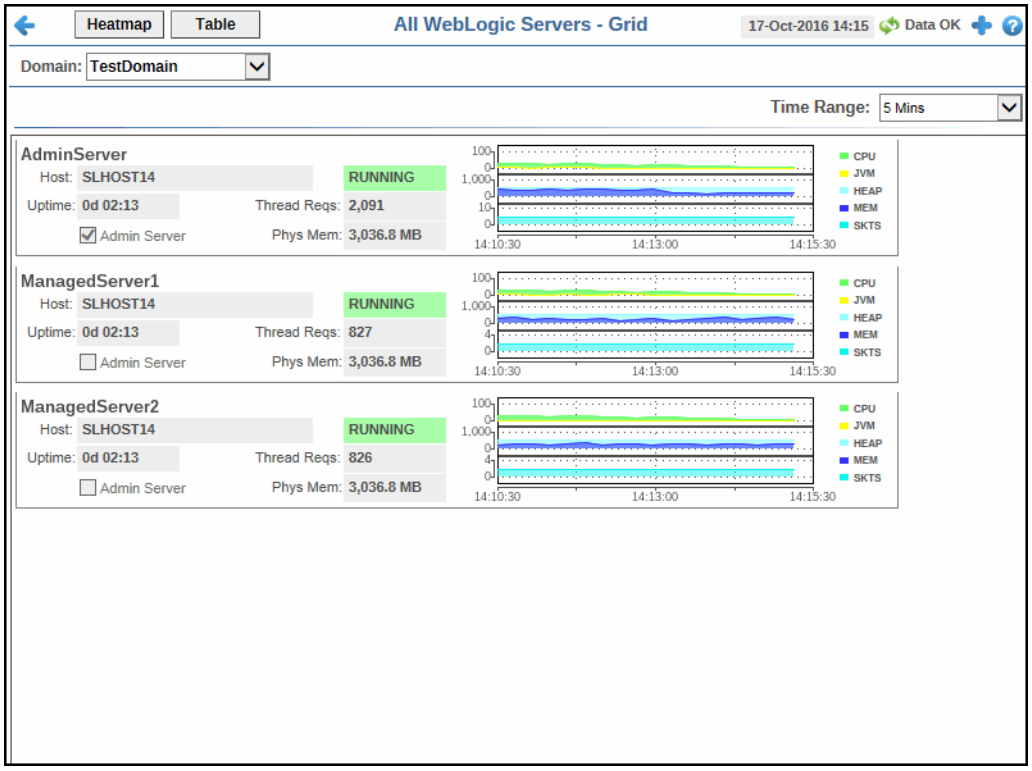
-- No alerts have exceeded an alert threshold.

Port The port on which this server is listening for SSL connections.*

JVM Proc Load %	A snapshot of the load that the virtual machine is placing on all processors on the host computer.*
Heap Free %	The percentage of free heap memory on the server.*
Heap Max (bytes)	The maximum amount of heap, in bytes, available for use.*
Used Heap (bytes)	The total amount of heap used, in bytes.*
Heap Current (bytes)	The current size of the JVM heap, in bytes, being used.*
Open Sockets	The current number of sockets registered for socket muxing on this server.*
Hogging Threads	The number of hogging threads on the server.*
Execute Threads	The current number of execute threads.*
Idle Threads	The current number of idle threads.
Restarts Count	The total number of restarts for this server since the cluster was last started.*
All Procs Avg Load %	The average load percentage for all processors on the host computer.*
Shutting Down	When checked, denotes that the server is currently shutting down.*
Restart Required	When checked, denotes that the server needs to be restarted in order to activate configuration changes.*
Uptime	The length of time (in milliseconds) that the server has been up and running.*
Startup Time	The length of time (in milliseconds) that it took for the server to start up.*
WebLogic Version	The current version of WebLogic running on the server.*
JVM Type	The type of JVM currently being used on the server.*
Java Version	The current version of Java running on the server.*
JavaVendor	The name of the vendor of the Java version running on the server.*
OS Name	The name of the operating system running on the server.*
Time Stamp	The date and time this row of data was last updated.

All Servers Grid

Track utilization and performance metrics and trend data for all WebLogic severs on a particular domain.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data, or select **All Domains** to view data for all domains.

Time Range Select a time range from this drop down menu to define the data displayed in the trend graph for a selected period of time. You can select from as little as the past **2 Minutes** to the **Last 7 Days**, or you can display **All Data**.

Server Grid Displays data and a trend graph for each server in your domain. The trend graph metrics are:

CPU -- Traces the amount of CPU being used by the server.

JVM -- Traces the JVM processing load that the virtual machine is placing on all processors on the host computer.

HEAP -- Traces the total amount of heap used, in bytes.

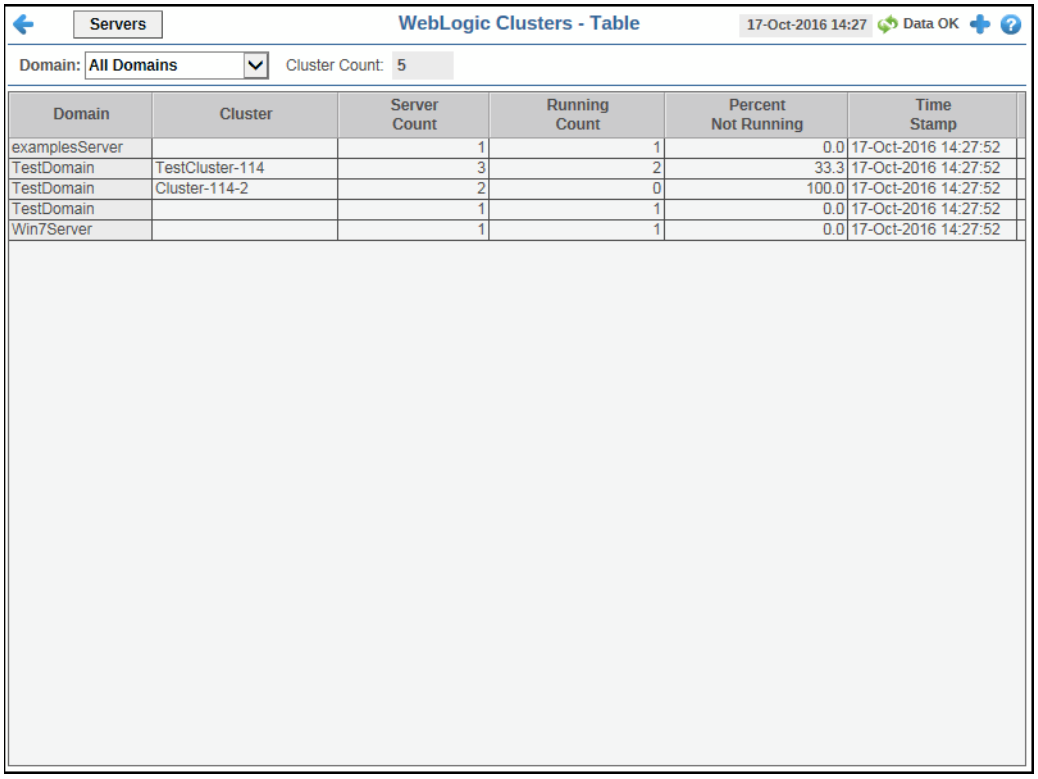
MEM -- Traces the amount of memory being used.

SKTS -- Traces the current number of sockets registered for socket muxing on this server.

(Server Name)	Displays the name of the Server
Uptime	The amount of time since the server was last started, shown in days, hours, and minutes (for example, 1d 23:43).
Admin Server	Indicates whether the server is an Administration Server.*
(Status)	Displays the status of the server.*
Thread Reqs	The current number of thread requests.*
Phys Mem	Displays the available physical memory (in megabytes) for the server.

All Clusters Table

Track utilization and performance metrics for all clusters on a particular domain, or on all domains.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain containing the clusters for which you want to view data, or select **All Domains** to view data for clusters in all domains.

Cluster Count The current number of clusters listed in the table.

Clusters Table
Lists the clusters in the currently selected domain, or lists all clusters in all domains.

Domain	The name of the domain
Cluster	The name of the cluster.*
Server Count	The total number of servers on the cluster.*
Running Count	The total number of servers running on the cluster.*
Percent Not Running	The percentage of servers not running on the cluster.*
Time Stamp	The date and time this row of data was last updated.

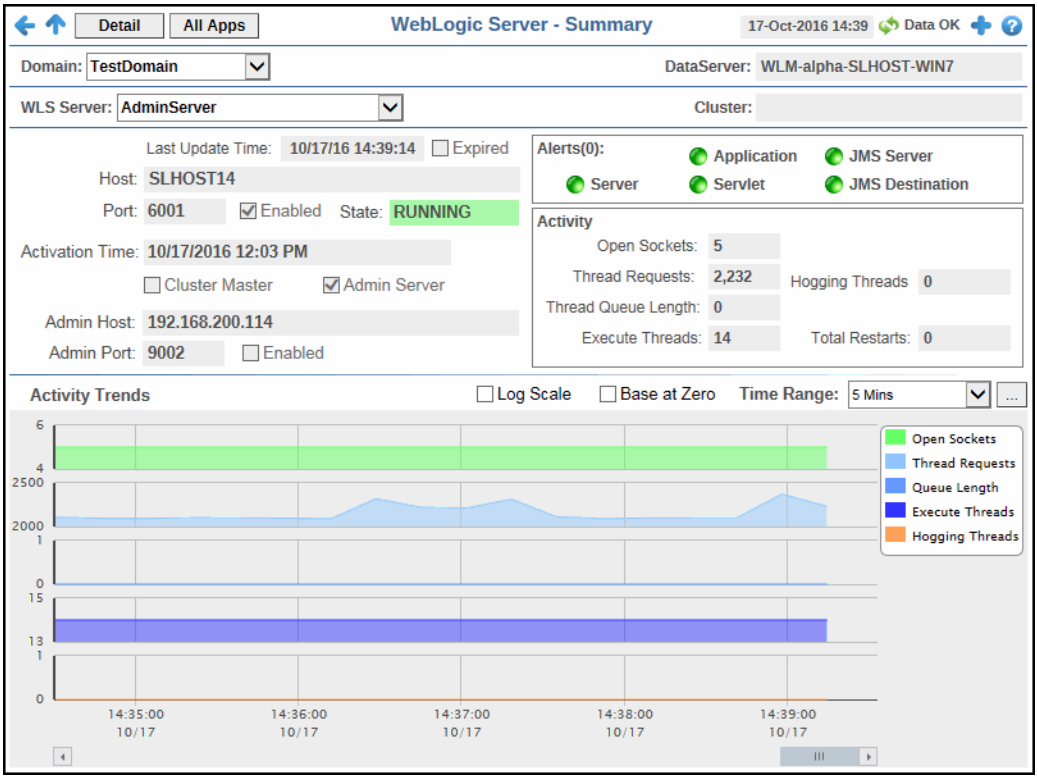
Single WebLogic Server View

These displays present detailed performance metrics and alert statuses for a particular WebLogic server.

- "Server Summary": Track utilization, performance, and trend data for a particular WebLogic server
- "WLS JVM Summary": Displays the JVM details for a particular WebLogic server on a specific domain.
- "WLS Server Detail": Displays server runtime data, threadpool runtime data, JRockit runtime data, and server version information for a specific WebLogic server
- "WLS JDBC Summary": Displays JDBC module utilization, performance, and trend data for a specific WebLogic server.
- "WLS ThreadPool Summary": Displays threadpool utilization, performance, and trend data for a specific WebLogic server.
- "Work Manager": Displays server runtime data for all work managers on a specific WebLogic Server.
- "Persistent Stores": Displays available utilization and performance data for all configurations on a specific domain.

Server Summary

Track utilization, performance, and trend data for a particular WebLogic server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Data Server The name of the data server.

WLS Server Select the WebLogic server for which you want to see data.

Cluster The name of the cluster.

(Server Information)

Last Update Time	The date and time the data in the display was last updated.
Expired	This check box becomes automatically checked when the data has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.
Host	The name of the host.*
Port/Enabled	The name of the port. The port is enabled when the associated **Enabled** check box displays as checked.*
State	The current state of the WebLogic server.*
Activation Time	The date and time in which the server was started.*
Cluster Master	When selected, denotes that the server is a cluster master.*
Admin Server	Indicates whether the server is an Administration Server.*
Admin Host	The IP address of the administration server's host.*
Admin Port/ Enabled	The name of the administration server's port. The port is enabled when the associated **Enabled** check box displays as checked.*

Alerts (#) -- Displays the total number of alerts and the current status of the associated **Application**, **JMS Server**, **Server**, **Servlet**, and **JMS Destination**.

-- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.

-- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold.

-- No alerts have exceeded an alert threshold.

Activity

Open Sockets	The number of current open sockets for the server.
Thread Requests	The current number of thread requests.*
Hogging Threads	The current number of hogging threads.*
Thread Queue Length	The current thread queue length.*
Execute Threads	The current number of execute threads.*
Total Restarts	The total number of times the server has restarted since the last update time.*

Activity Trends

Displays data and a trend graph for the following:

Open Sockets-- Traces the number of open sockets of the server.

Thread Requests-- Traces the number of thread requests on the server.

Queue Length-- Traces the queue length on the server.

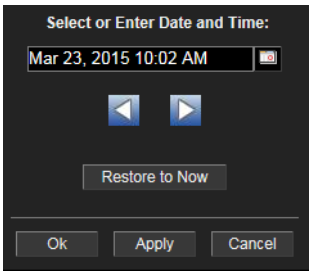
Execute Threads-- Traces the number of execute threads on the server.

Hogging Threads-- Traces the number of hogging threads on the server.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



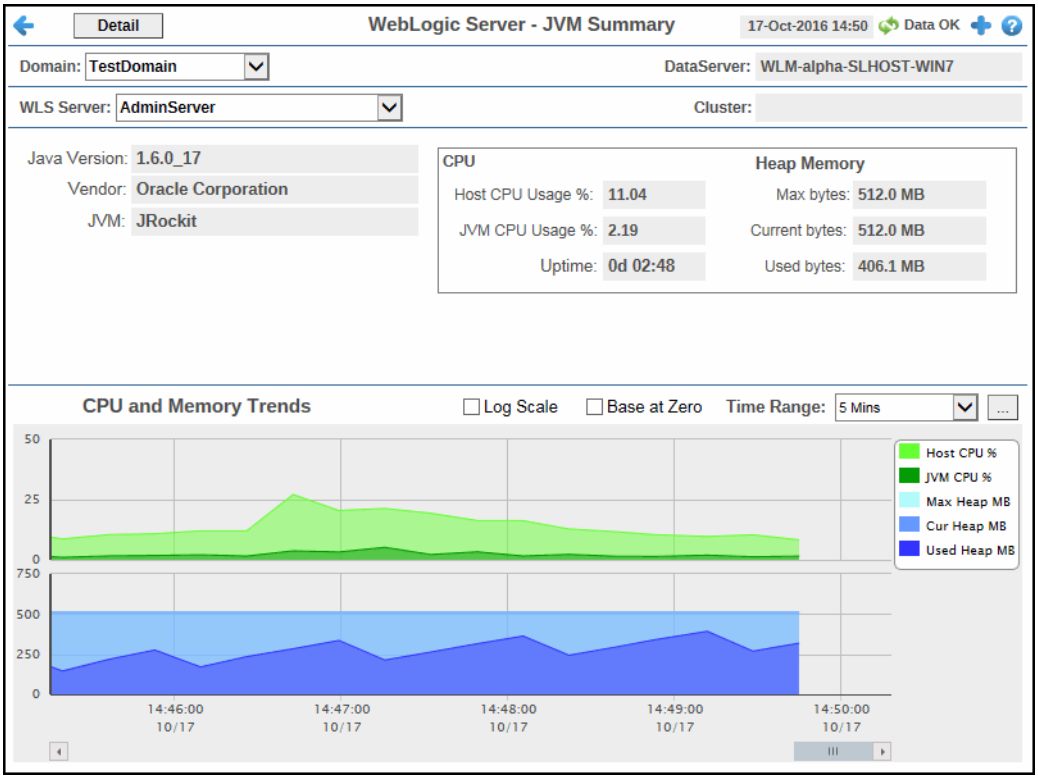
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

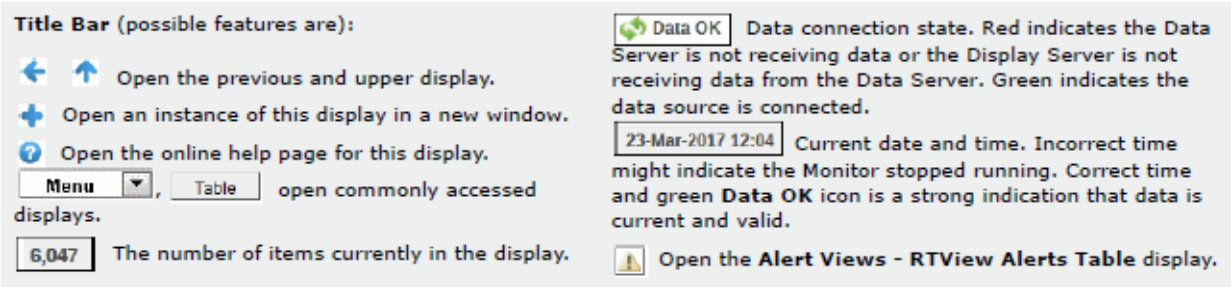
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

WLS JVM Summary

This display allows you to view the JVM details for a particular WebLogic server on a specific domain.





Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Data Server The name of the data server.

WLS Server Select the WebLogic server for which you want to see data.

Cluster The name of the cluster.

(JVM Information)

Java Version	The current version of Java running on the server.*
Vendor	The name of the vendor of the current version of Java running on the server.*
JVM	The type of JVM currently being used on the server.*

CPU

Host CPU Usage %	The current CPU usage percentage on the host.*
JVM CPU Usage %	The current JVM CPU usage percentage.*
Uptime	The amount of time since the server was last started, shown in days, hours, and minutes (for example, 1d 23:43).*

Heap Memory

Max Bytes	The maximum amount of available heap memory, in megabytes.*
Current Bytes	The current size of the JVM heap, in megabytes.*
Used Bytes	The amount of heap memory used, in megabytes.*

Alerts (#) -- Displays the total number of alerts and the current status of the associated **Application**, **JMS Server**, **Server**, **Servlet**, and **JMS Destination**.

-- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.

-- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold.

-- No alerts have exceeded an alert threshold.

CPU and Memory Trends Displays data and a trend graph for the following:

Host CPU % -- Traces the percentage of the host CPU being used.

JVM CPU % -- Traces the percentage of the JVM CPU being used.

Max Heap MB -- Traces the maximum amount of heap memory available (in megabytes).

Current Heap MB -- Traces the current size of the JVM heap, in megabytes.

Used Heap MB -- Traces the total amount of heap used, in bytes.*

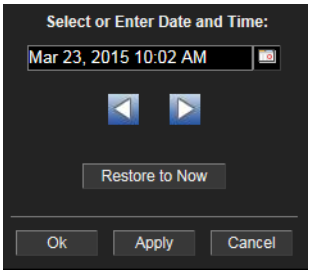
Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



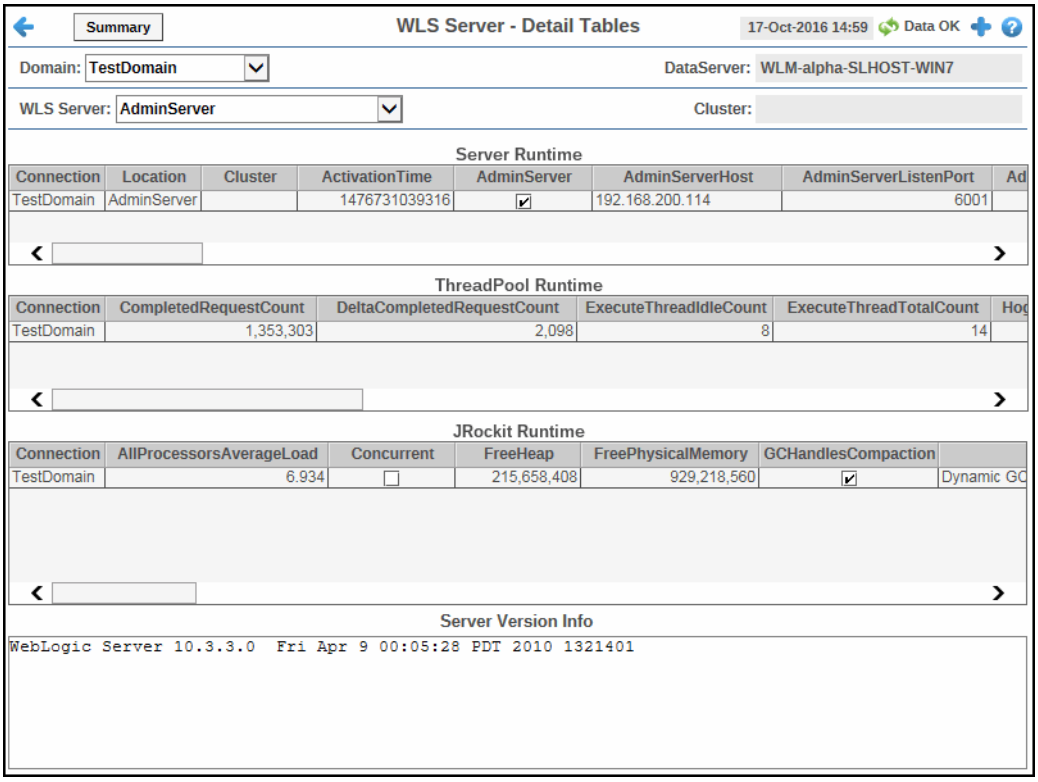
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

WLS Server Detail

View server runtime, threadpool runtime, JRockit runtime, and server version information for a specific WebLogic server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Data Server The name of the data server.

WLS Server Select the WebLogic server for which you want to see data.

Cluster The name of the cluster.

Server Runtime Table

Connection	The name of the connection.
Location	The name of the WLS Server located on the specified connection.
Cluster	The name of the cluster.
Activation Time	The time when the server was started.*
Admin Server	Indicates whether the server is an Administration Server.*
Admin Server Host	The address on which the Administration Server is listening for connections.*
Admin Server Listen Port	The port on which the Administration Server is listening for connections.*
Admin Server Listen Port Secure	Indicates whether the port that the server uses for administrative traffic is configured to use a secure protocol.*
Administration Port	The port on which this server is listening for administrative requests.*
Administration Port Enabled	Indicates whether the administration port is enabled on the server.*
Administration URL	The URL that the server and its clients use for administrative connections.*
Cluster Master	When checked, denotes that the cluster is a cluster master.*
Current Directory	The absolute path of the directory from which the server was started.*
Current Machine	The machine on which the server is running.*
Default URL	The URL that clients use to connect to this server's default network channel.*
Health State	The health state of the server as reported by the server's self-health monitoring.*
Listen Address	The address on which this server is listening for connections through the default network channel.*
Listen Port	The port on which this server is listening for connections.*
Listen Port Enabled	Indicates whether the default listen port is enabled on the server.*
Name	The name of the Java Virtual Machine.*
Open Sockets Current Count	The current number of sockets registered for socket muxing on this server.*
Oracle Home	The Oracle home directory path.*
Parent	The name of the parent of the Java Virtual Machine.*
Pending Restart System Resources	The number of system resources that have not been restarted since the last restart of the WLS Server.

Restart Required	Indicates whether the server must be restarted in order to activate configuration changes.*
Restarts Total Count	The total number of restarts for this server since the cluster was last started.*
SSL Listen Address	The address on which this server is listening for SSL connections.*
SSL Listen Port	The port on which this server is listening for SSL connections.*
SSL Listen Port Enabled	Indicates whether the default SSL listen port is enabled on the server.*
Server Classpath	The class path for this server including domain/lib contents that are automatically picked up and appended to the classpath.*
Server Startup Time	The startup time of the server.*
Shutting Down	Indicates whether the server is shutting down.
Stable State	The current state of the server as an integer.*
State Prev	The state of the server prior to its current state.*
State Val	The current state of the server as an integer.*
WebLogic Home	The WebLogic Home directory path.*
Expired	This check box becomes automatically checked when the data displayed in the row has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.
State	The current life cycle state of the server.*

ThreadPool Runtime Table

Connection	The name of the connection.
Completed Request Count	The number of completed requests in the priority queue.*
Delta Completed Request Count	The increase in the amount of completed requests (from the previous polling period to the current polling period).
Execute Thread Idle Count	The number of idle threads in the pool. This count does not include standby threads and stuck threads. The count indicates threads that are ready to pick up new work when it arrives.*
Execute Thread Total Count	The total number of threads in the pool.*
Hogging Thread Count	The threads that are currently being hogged by a request. These threads will either be declared as stuck after the configured timeout or will be returned to the pool. The self-tuning mechanism will backfill if necessary.*
Delta Hogging Thread Count	The increase in the amount of hogging threads (from the previous polling period to the current polling period).
Min Threads Constraints Completed	The number of requests with minimum threads constraint picked up out of order for execution immediately since their minimum threads requirement was not met. This does not include the case where threads are idle during schedule.*

Min Threads Constraints Pending	The number of requests that should be executed now to satisfy the minimum threads requirement.*
Pending User Request Count	The number of pending user requests in the priority queue. The priority queue contains requests from internal subsystems and users. This is just the count of all user requests.*
Queue Length	The number of pending requests, which consist of the total number of internal system requests and user requests, in the priority queue.*
Shared Capacity For Work Managers	The maximum amount of requests that can be accepted in the priority queue.*
Standby Thread Count	The number of threads in the standby pool. Surplus threads that are not needed to handle the present work load are designated as standby and added to the standby pool. These threads are activated when more threads are needed.*
Suspended	Indicates if the RequestManager is suspended. A suspended manager will not dequeue work and dispatch threads until it is resumed.*
Throughput	The mean number of requests completed per second.*
Name	The name of the Java Virtual Machine.
Parent	The name of the parent of the Java Virtual Machine.

JRockit Runtime Table

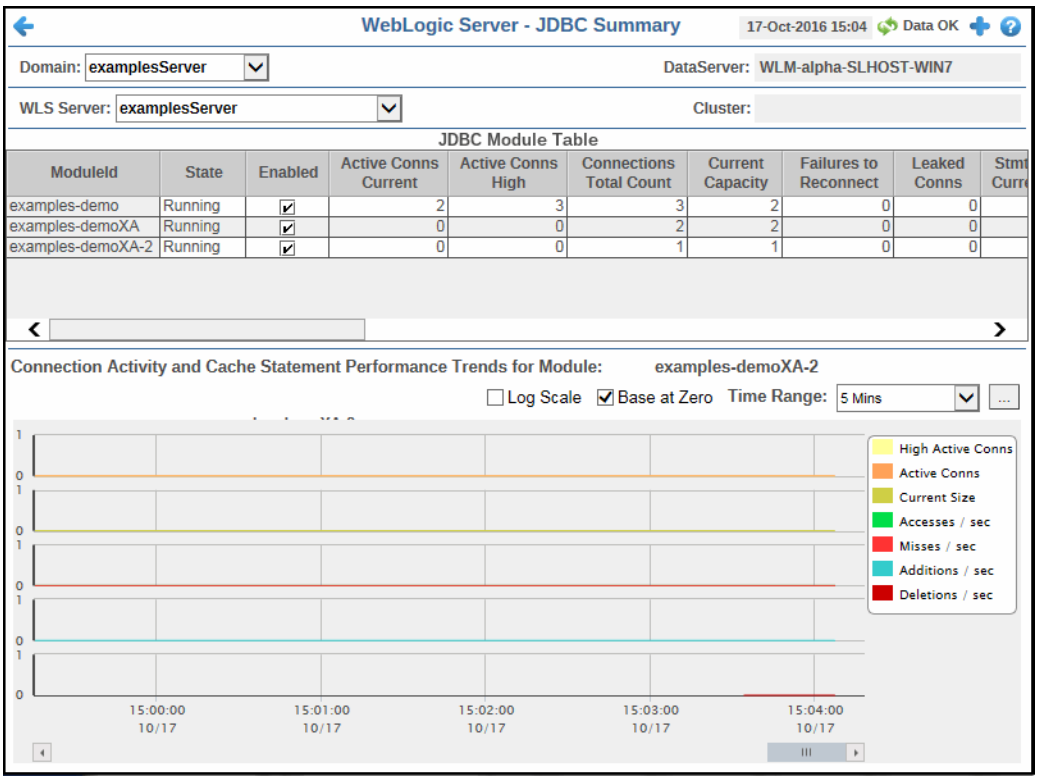
Connection	The name of the connection.
All Processors Average Load	The average load of all processors in the host computer.*
Concurrent	Indicates whether the virtual machine's garbage collector runs in a separate Java thread concurrently with other Java threads.*
Free Heap	The amount, in bytes, of Java heap memory that is currently free in the virtual machine.*
Free Physical Memory	The amount, in bytes, of physical memory that is currently free on the host computer.*
GC Handles Compaction	Indicates whether the virtual machine's garbage collector compacts the Java heap.*
GcAlgorithm	The type of garbage collector (GC) that the virtual machine is using.*
Generational	Indicates whether the virtual machine's garbage collector uses a nursery space. A nursery is the area of the Java heap that the virtual machine allocates to most objects.*
Heap Free Current	The current amount of memory, in bytes, that is available in the JVM heap.*
Heap Free Percent	Percentage of the maximum memory that is free.*
Heap Size Current	The current size, in bytes, of the JVM heap.*
Heap Size Max	The maximum free memory configured for this JVM.*
Incremental	Indicates whether the virtual machine's garbage collector collects (increments) garbage as it scans the memory space and dumps the garbage at the end of its cycle. With a non-incremental garbage collector, garbage is dumped as soon as it is encountered.*

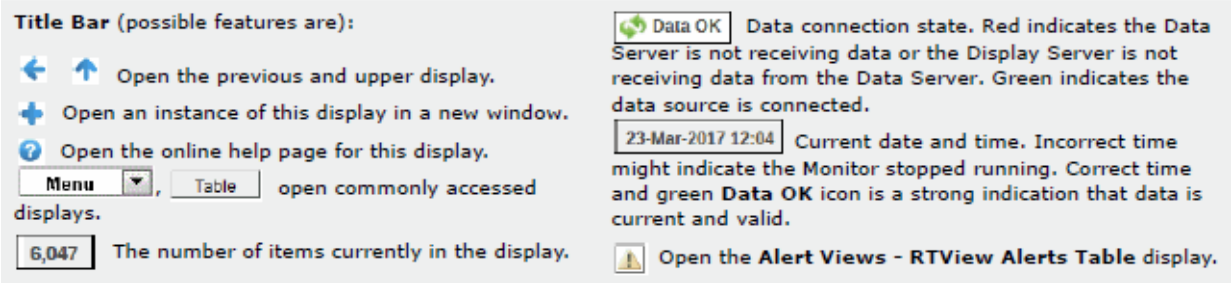
JVM Description	The description of the Java Virtual Machine.*
Java VM Vendor	The vendor of the Java Virtual Machine that the server is running.*
Java Vendor	The vendor of Java that the server is running.*
Java Version	The Java version of the Java Virtual Machine.*
JVM Processor Load	A snapshot of the load that the virtual machine is placing on all processors in the host computer. If the host contains multiple processors, the value represents a snapshot of the average load.*
Jvm Type	The Java Virtual Machine type.*
Last GC End	The time at which the last garbage collection run ended.*
Last GC Start	The time at which the last garbage collection run started.*
Name	The name of the Java Virtual Machine.*
Number Of Daemon Threads	The number of daemon Java threads currently running in the Virtual Machine across all processors.*
Number Of Processors	The number of processors on the virtual machine's host computer. If this is not a Symmetric Multi-Processor (SMP) system, the value will be 1.*
OS Name	The name of the operating system on which the JVM is running.*
OS Version	The version of the operating system on which the JVM is running.*
Parallel	Indicates whether the virtual machine's garbage collector is able to run in parallel on multiple processors if multiple processors are available.*
Parent	The name of the immediate parent.*
Total Garbage Collection Count	The number of garbage collection runs that have occurred since the virtual machine was started.*
Total Garbage Collection Time	The number of milliseconds that the virtual machine has spent on all garbage collection runs since the virtual machine was started.*
Total Heap	The amount, in bytes, of memory currently allocated to the virtual machine's Java heap.*
Total Number Of Threads	The number of Java threads (daemon and non-daemon) that are currently running in the virtual machine across all processors.*
Total Nursery Size	The amount, in bytes, of memory that is currently allocated to the nursery.*
Total Physical Memory	The amount (in bytes) of physical memory on the host computer.*
Uptime	The amount of time, in milliseconds, that the virtual machine has been running.*
Used Heap	The amount of Java heap memory, in bytes, that is currently being used by the virtual machine.*
Used Physical Memory	The amount of physical memory, in bytes, that is currently being used on the host computer.*
Vendor	The name of the JVM vendor.*

	Version	The current version of the Java Virtual Machine.*
	Heap Used Current	The current amount of JVM heap memory, in bytes, that is being used.*
	Memory Used Percent	The percentage of JVM heap memory that is being used.*
Server Version Info Region		Lists the WebLogic server version number and date that it was installed.

WLS JDBC Summary

View JDBC module utilization, performance data, and trend data for a specific WebLogic server.





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Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Data Server The name of the data server.

WLS Server Select the WebLogic server for which you want to see data.

Cluster The name of the cluster.

JDBC Module Table

Module Id	The name of the data source.
State	The current state of the data source.
Enabled	Indicates whether the data source is enabled or disabled. When checked, the data source is enabled.*
Active Conns Current	The number of connections currently in use by applications.*
Active Conns High	The highest number of active database connections in the instance of the data source since the data source was instantiated.*
Connections Total Count	The cumulative total number of database connections created in this data source since the data source was deployed.*
Current Capacity	The current count of JDBC connections in the connection pool in the data source.*
Failures to Reconnect	The number of times that the data source attempted to refresh a database connection and failed.*
Leaked Conns	The number of leaked connections. *
Stmt Cache Current Size	The number of prepared and callable statements currently cached in the statement cache.*
Stmt Cache Hits	The cumulative, running count of the number of times statements from the cache were used.*
Stmt Cache Missed	The number of times that a statement request could not be satisfied with a statement from the cache.*

Stmt Cache Accesses	The cumulative, running count of the number of times that the statement cache was accessed.*
Stmt Cache Additions	The cumulative, running count of the number of statements added to the statement cache.*
Stmt Cache Deletions	The cumulative, running count of statements discarded from the cache.*
Reserve Request	The cumulative, running count of requests for a connection from this data source.*
Failed Reserve Requests	The cumulative, running count of requests for a connection from this data source that could not be fulfilled.*
Wait Secs High	The cumulative total number of database connections created in this data source since the data source was deployed.*
Waiting Conn	The number of connection requests waiting for a database connection.*
Waiting Conn Fail	The cumulative, running count of requests for a connection from this data source that had to wait before getting a connection and eventually failed to get a connection.*
Waiting Conn High	The highest number of application requests concurrently waiting for a connection from this instance of the data source.*
Waiting Conn Success	The cumulative, running count of requests for a connection from this data source that had to wait before getting a connection and eventually succeeded in getting a connection.*
Waiting Conn Total	The cumulative, running count of requests for a connection from this data source that had to wait before getting a connection, including those that eventually got a connection and those that did not get a connection.*
Connection Delay Time	The average amount of time, in milliseconds, that it takes to create a physical connection to the database.*
Driver Version	The driver class name of the JDBC driver used to create database connections.*
time_stamp	The data and time that the data in the row was last updated.*

Connection Activity and Cache Statement Performance Trends for Module: (Module Name)

Shows connection and open cursor data for the connection.

High Active Conns -- Traces the highest number of active database connections in the instance of the data source since the data source was instantiated.

Active Conns -- Traces the number of connections currently in use by applications.

Current Size -- Traces the number of prepared and callable statements currently cached in the statement cache.

Accesses/sec -- Traces the cumulative, running count of the number of times that the statement cache was accessed.

Misses/sec -- Traces the number of times (per second) that a statement request could not be satisfied with a statement from the cache.

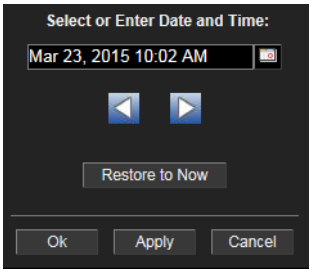
Additions/sec -- Traces the cumulative, running count of the number of statements added to the statement cache.

Deletions/sec -- Traces the cumulative, running count of statements discarded from the cache.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



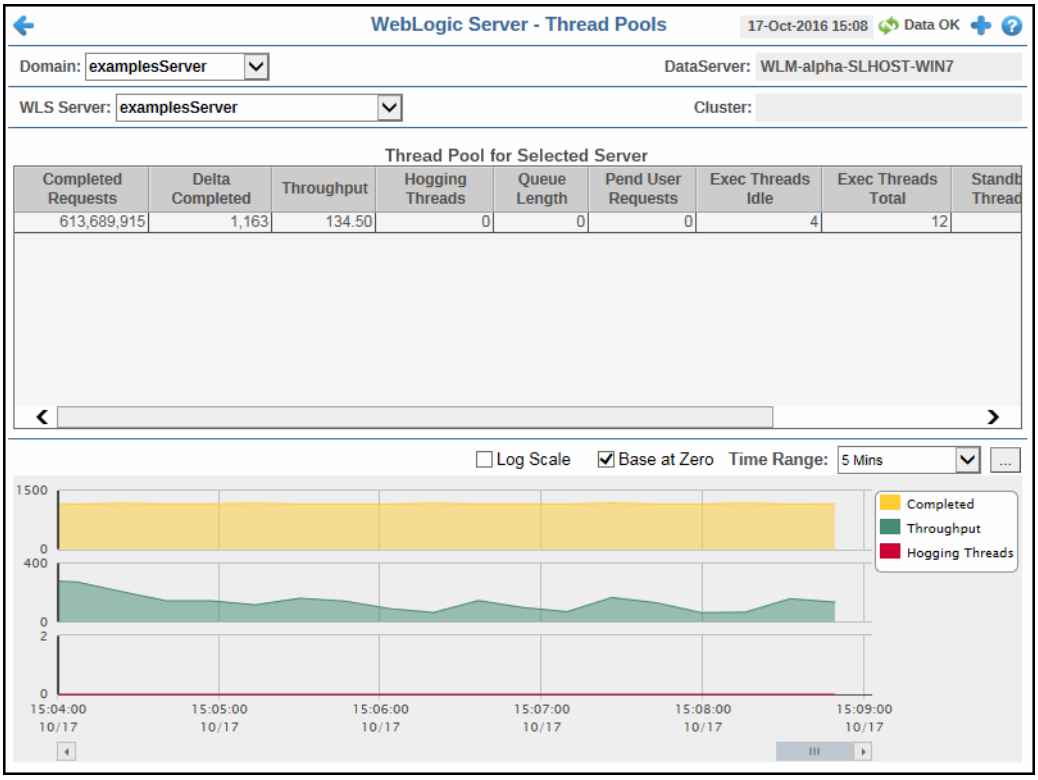
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

WLS ThreadPool Summary

View threadpool utilization, performance, and trend data for a specific WebLogic server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Data Server The name of the data server.

WLS Server Select the WebLogic server for which you want to see data.

Cluster The name of the cluster.

Thread Pool for Selected Server Table

Completed Requests	The number of completed requests in the priority queue.*
Delta Completed	The increase in the amount of completed requests (from the previous polling period to the current polling period).
Throughput	The mean number of requests completed per second.*
Hogging Threads	The threads that are currently being hogged by a request. These threads will either be declared as stuck after the configured timeout or will be returned to the pool. The self-tuning mechanism will backfill if necessary.*
Queue Length	The number of pending requests, which consist of the total of internal system requests and user requests, in the priority queue.*
Pend User Requests	The number of pending user requests in the priority queue.*
Exec Threads Idle	The number of idle threads in the pool.*
Exec Threads Total	The total number of threads in the pool.*
Standby Threads	The number of threads in the standby pool.*
Suspended	Indicates if the RequestManager is suspended. A suspended manager will not dequeue work and dispatch threads until it is resumed.*
time_stamp	The date and time the data in the row was last updated.

Trend Graph Shows connection and open cursor data for the connection.

Completed -- Traces the number of completed requests in the priority queue.

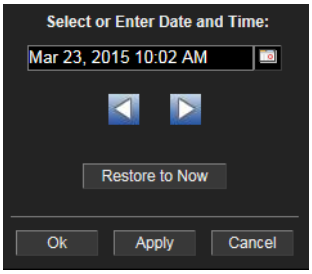
Throughput -- Traces the mean number of requests completed per second.

Hogging Threads-- Traces the number of threads that are currently being hogged by a request.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



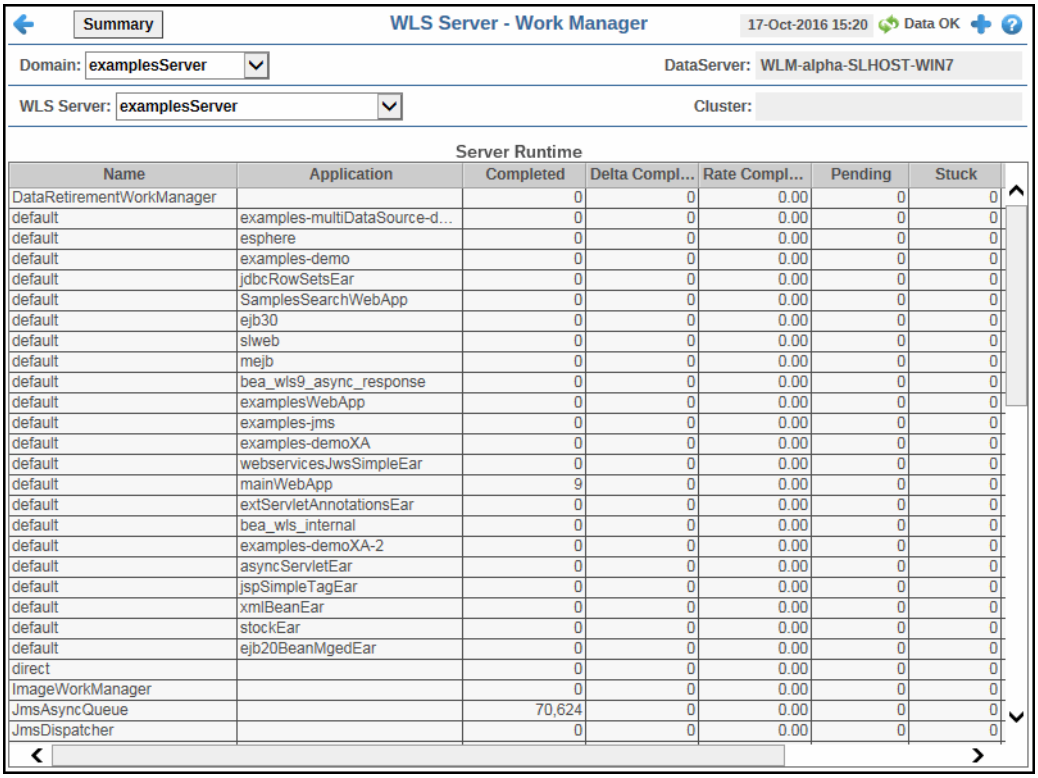
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

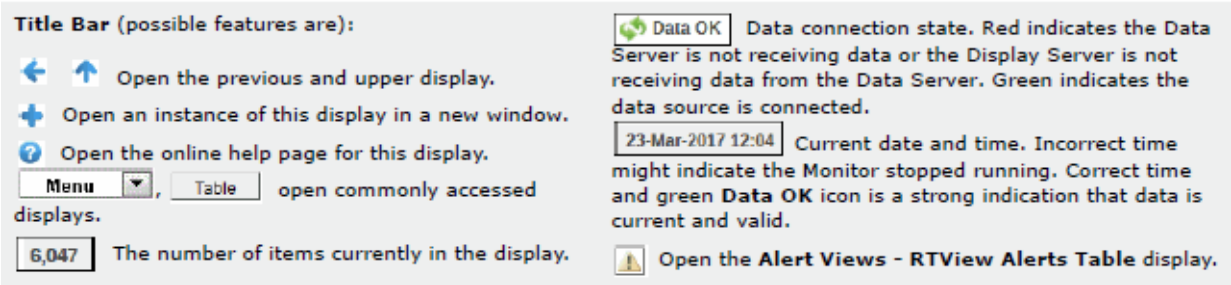
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Work Manager

View server runtime data for all work managers on a specific WebLogic Server.





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Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Data Server The name of the data server.

WLS Server Select the WebLogic server for which you want to see data.

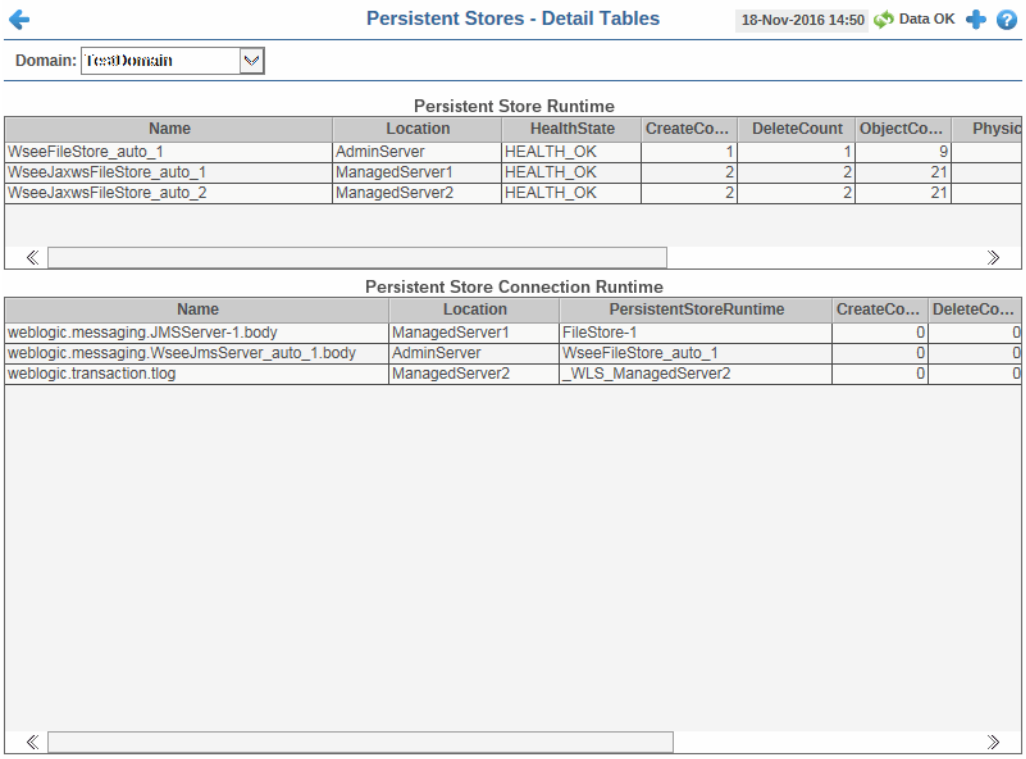
Cluster The name of the cluster.

Server Runtime Table

Name	The name of the work manager.
Application	The name of the application with which the work manager is associated.*
Completed	The number of requests that have been completed.*
Delta Completed	The increase in the amount of completed requests (from the previous polling period to the current polling period).
Rate Completed	The rate of completed requests (per second).
Pending	The number of requests waiting in the queue.*
Stuck	The number of threads that are "stuck."*
Expired	This check box becomes automatically checked when the data displayed in the row has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.
time_stamp	The date and time the data in the row was last updated.

Persistent Stores

View available utilization and performance data for all configurations on a specific domain.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Persistent Store Runtime Table

Name The name of the configuration.

Location	The name of the WLS Server located on the specified connection.
Health State	The health state of the store.*
Create Count	The number of create requests issued to the persistent store.*
Delete Count	The number of delete requests issued by this persistent store.*
Object Count	The number of objects contained in the persistent store.*
Physical Write Count	The number of times the persistent store flushes its data to durable storage.*
Read Count	The number of read requests issued to this persistent store.*
Update Count	The number of update requests issued by this persistent store.*
time_stamp	The date and time the data in the row was last updated.

Persistent Store Connection Runtime Table

Name	The name of the configuration.
Location	The name of the WLS Server located on the specified connection.
Persistent Store Runtime	The name of the persistent store.
Create Count	The number of create requests issued by this connection.*
Delete Count	The number of delete requests issued by this connection.*
Object Count	The number of objects contained in this connection.*
Read Count	The number of read requests issued by this connection.*
Update Count	The number of update requests issued by this connection.*
time_stamp	The date and time the data in the row was last updated.

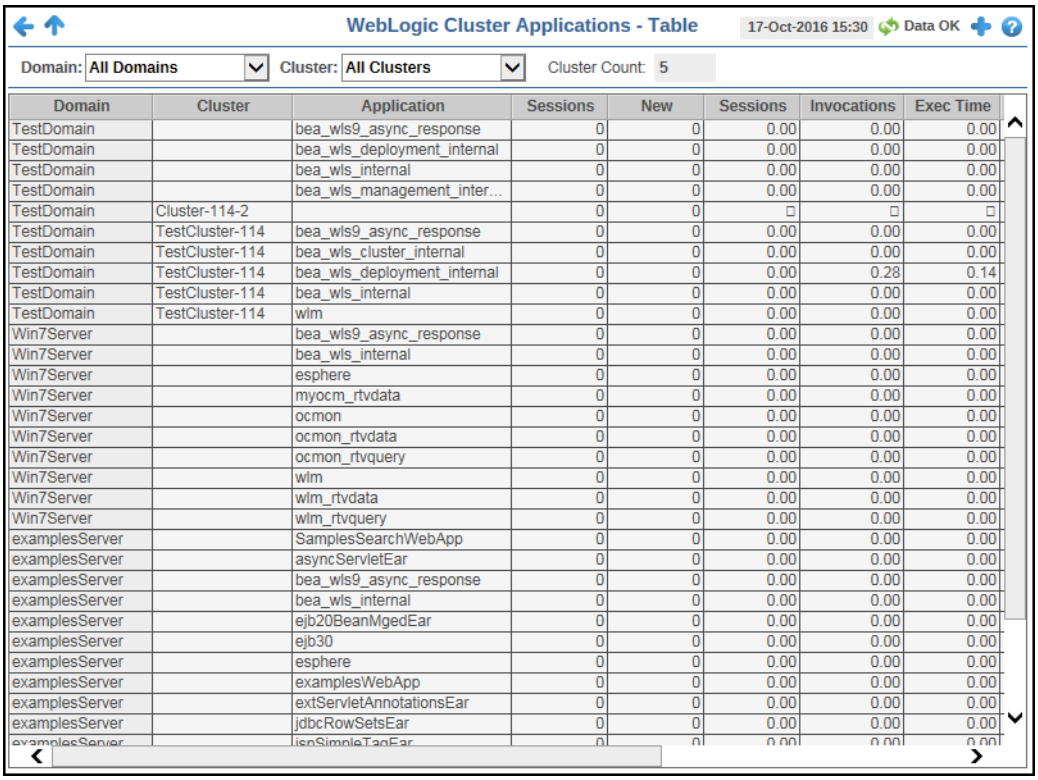
Application Views View

These displays present several views of performance metrics for applications on clusters and a particular WebLogic server.

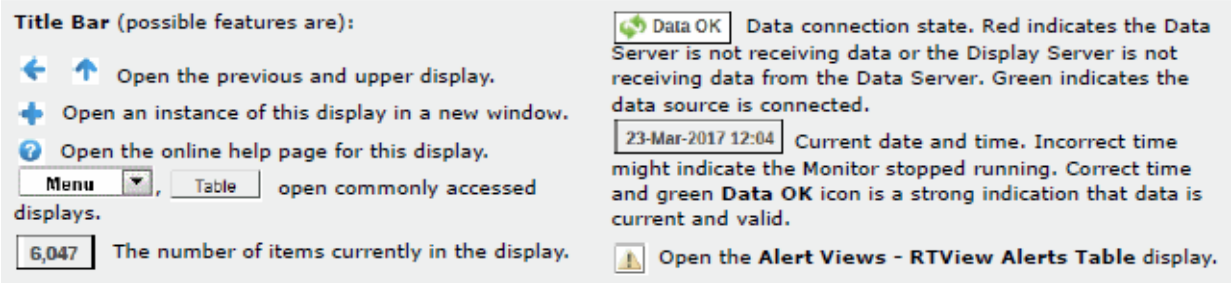
- "Cluster Apps Table": View performance and utilization metrics for all applications on a particular cluster, or for all applications on all clusters.
- "Cluster App Summary": View session information for a particular application in graph, heatmap, and trend formats.
- "Server Apps Heatmap": Shows a heatmap view of the status and alerts of all applications within a specific WebLogic server.
- "Server Apps Summary": Track performance, utilization, and trend data for all applications on a single WebLogic server.
- "Server Apps Trends": View trend data for a single application on a particular WebLogic server.
- "App Components Heatmap": Provides a heatmap view of the status and alerts of all application components contained within each application on a particular WebLogic server.
- "App Components Summary": View performance, utilization, and trend data for all application components on a single WebLogic Server.

Cluster Apps Table

View performance and utilization metrics for all applications on a particular cluster, or for all applications on all clusters.



Domain	Cluster	Application	Sessions	New	Sessions	Invocations	Exec Time
TestDomain		bea_wls9_async_response	0	0	0.00	0.00	0.00
TestDomain		bea_wls_deployment_internal	0	0	0.00	0.00	0.00
TestDomain		bea_wls_internal	0	0	0.00	0.00	0.00
TestDomain		bea_wls_management_inter...	0	0	0.00	0.00	0.00
TestDomain	Cluster-114-2		0	0	□	□	□
TestDomain	TestCluster-114	bea_wls9_async_response	0	0	0.00	0.00	0.00
TestDomain	TestCluster-114	bea_wls_cluster_internal	0	0	0.00	0.00	0.00
TestDomain	TestCluster-114	bea_wls_deployment_internal	0	0	0.00	0.28	0.14
TestDomain	TestCluster-114	bea_wls_internal	0	0	0.00	0.00	0.00
TestDomain	TestCluster-114	wlm	0	0	0.00	0.00	0.00
Win7Server		bea_wls9_async_response	0	0	0.00	0.00	0.00
Win7Server		bea_wls_internal	0	0	0.00	0.00	0.00
Win7Server		esphere	0	0	0.00	0.00	0.00
Win7Server		myocm_rtvdata	0	0	0.00	0.00	0.00
Win7Server		ocmon	0	0	0.00	0.00	0.00
Win7Server		ocmon_rtvdata	0	0	0.00	0.00	0.00
Win7Server		ocmon_rtvquery	0	0	0.00	0.00	0.00
Win7Server		wlm	0	0	0.00	0.00	0.00
Win7Server		wlm_rtvdata	0	0	0.00	0.00	0.00
Win7Server		wlm_rtvquery	0	0	0.00	0.00	0.00
examplesServer		SamplesSearchWebApp	0	0	0.00	0.00	0.00
examplesServer		asyncServletEar	0	0	0.00	0.00	0.00
examplesServer		bea_wls9_async_response	0	0	0.00	0.00	0.00
examplesServer		bea_wls_internal	0	0	0.00	0.00	0.00
examplesServer		ejb20BeanMgedEar	0	0	0.00	0.00	0.00
examplesServer		ejb30	0	0	0.00	0.00	0.00
examplesServer		esphere	0	0	0.00	0.00	0.00
examplesServer		examplesWebApp	0	0	0.00	0.00	0.00
examplesServer		extServletAnnotationsEar	0	0	0.00	0.00	0.00
examplesServer		jdbcRowSetsEar	0	0	0.00	0.00	0.00
examplesServer		jspSimpleTagEar	0	0	0.00	0.00	0.00



Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain for which you want to view data.

Cluster The name of the cluster.

Cluster Count Displays the total number of clusters listed in the table.

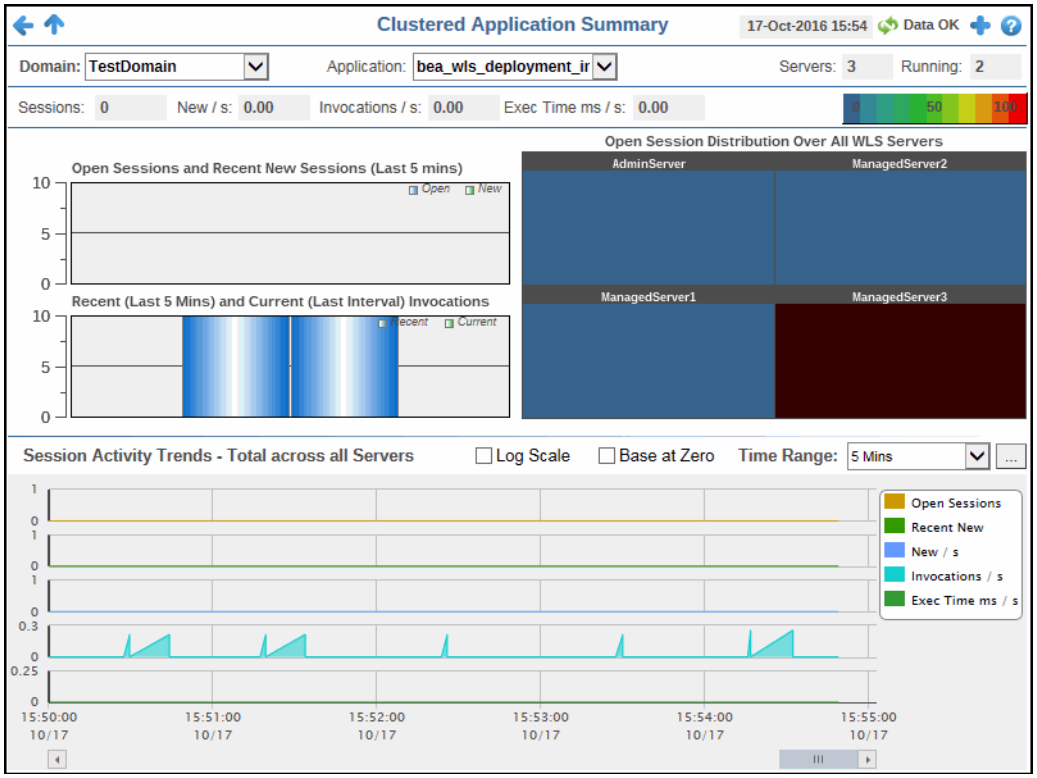
WebLogic Cluster Applications Table

Click a row to view metrics for a single topic in the "Cluster App Summary" display.

Domain	The name of the domain.
Cluster	The name of the cluster.
Application	The name of the application.
Sessions Open	The number of open sessions on the application.
New Sessions	The number of new sessions since the last polling update.
Session New/sec	The rate of new sessions (per second).
Invocations/sec	The rate of invocations (per second).
Exec Time ms/sec	The rate of execution time in milliseconds (per second).
Server Count	The total number of existing servers on the application.
Running Count	The total number of running servers on the application.
Percent Not Running	The percentage of servers that are not running.
time_stamp	The date and time this row of data was last updated.

Cluster App Summary

View session information for a particular application in graph, heatmap, and trend formats.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain	Select the domain containing the application for which you want to view data.
Application	Select the application for which you want to view data.

Servers Displays the total number of servers on the application.*

Running Displays the total number of servers running on the application.*

Sessions Displays the number of open sessions.*

New/s Displays the rate of new sessions being opened (per second).*

Invocations/s Displays the rate of invocations (per second).*

Exec Time ms/s Displays the rate of execution time in milliseconds (per second).*

Open Sessions and Recent New Sessions (Last 5 mins) bar graph Displays the currently open sessions and the sessions created in the last 5 minutes.

Recent (Last 5 Mins) and Current (Last Interval) Invocation bar graph Displays the number of recent invocations (last 5 minutes) and the number of current invocations (created since the last polling interval).

Open Session Distribution Over All WLS Servers heat map Displays the number of open sessions for each WLS server in heatmap form based on the color gradient bar 

.

Trend Graph Shows connection and open cursor data for the connection.

Open Sessions -- Traces the number of open sessions.

Recent New -- Traces the number of newly created sessions.

New/s -- Traces the number of sessions created per second.

Invocations/s -- Traces the number of invocations per second.

Exec Time ms/s -- Traces the execution time in milliseconds per second.

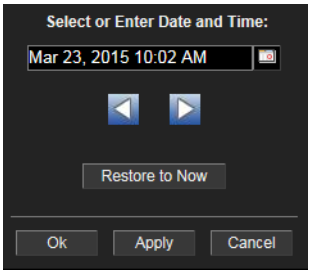
Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



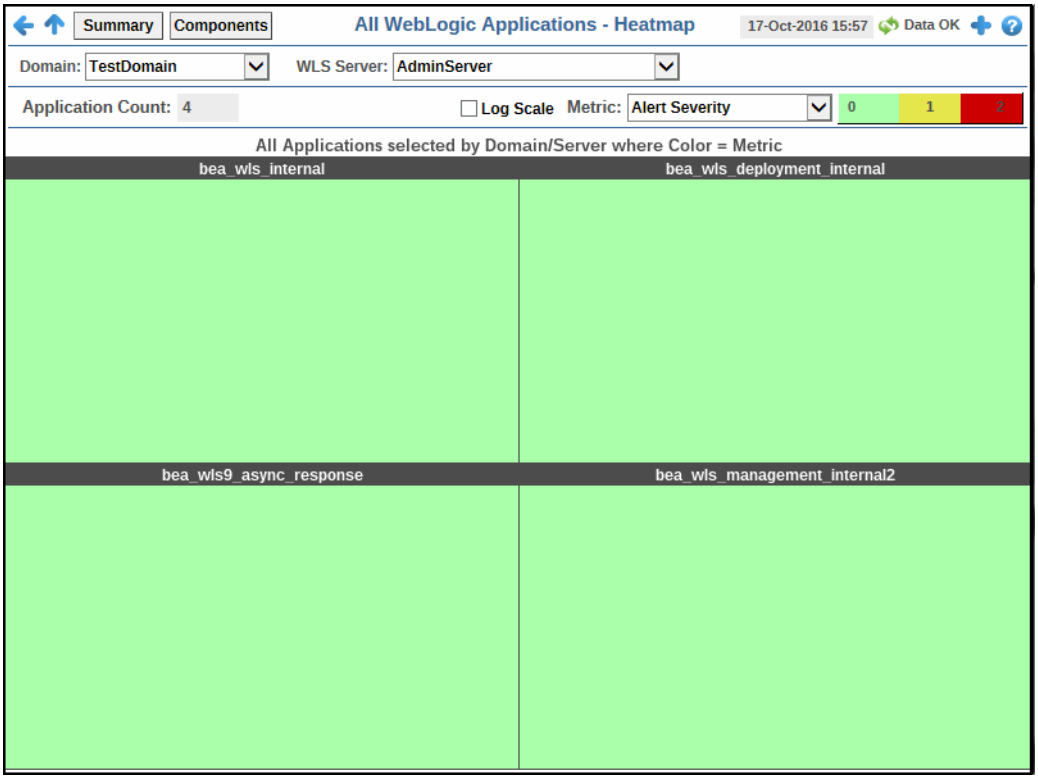
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Server Apps Heatmap

This display provides a heatmap view of the status and alerts of all applications within a specific WebLogic server. The heatmap is organized so that each rectangle represents a collection contained within a specific connection. The rectangle color indicates the value of the selected metric in the **Metric** drop down list. You can mouse-over rectangles to view more details about the performance and status of each collection or click on a rectangle to drill-down to the "Server Apps Trends" display and view metrics for that particular collection. You can click the table icon in this display to navigate to the "Server Apps Summary" display.



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Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

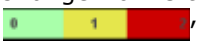
Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server for which you want to view data.

Application Count The total number of applications on the server.

Log Scale This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Metric Select the metric driving the heatmap display. The default is **Alert Severity**. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the collections by connection, where each rectangle represents a collection. Mouse-over any rectangle to display the current values of the metrics for the collection. Click on a rectangle to drill-down to the associated "Server Apps Summary" display for a detailed view of metrics for that particular collection.

Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

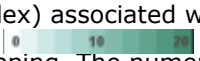
0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

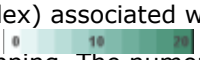
Open Sessions The total number of open sessions in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **WlsOpenSessionsHigh**, which is **10**. The middle value in the gradient bar indicates the middle value of the range (the default is **5**).

Open Sessions/sec The number of sessions opened per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Invocations/sec The number of invocations per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Invocation Total Count The total number of invocations in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

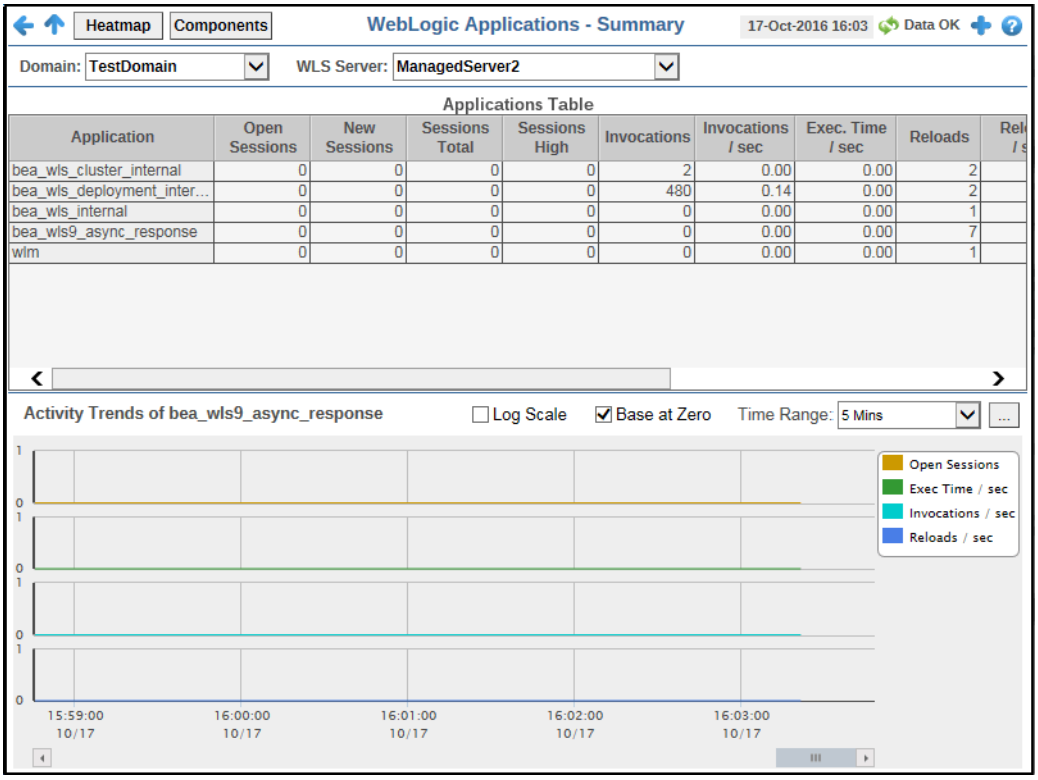
Exec Time/sec The execution time per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Exec Time Total The total amount of execution time in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Reload Total Count The total reload count in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Server Apps Summary

Track performance, utilization, and trend data for all applications on a single WebLogic server.



Title Bar (possible features are):

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Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server for which you want to view data.

Applications Table

This table describes all topics on the selected server. Click a row to view metrics for a single topic in the "Server Apps Trends" display.

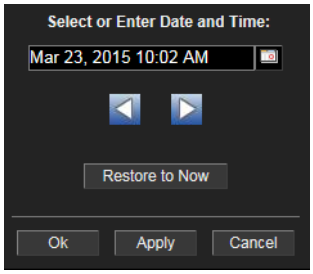
	Application	The name of the application.
	Open Sessions	The number of open sessions.
	New Sessions	The number of new sessions.
	Sessions Total	The total number of sessions.
	Invocations	The number of invocations.
	Invocations/sec	The number of invocations per second.
	Exec. Time/sec	The rate of execution time in milliseconds per second.
	Reloads	The number of reloads.
	Reloads / sec	The rate of reloads (per second).
	Status	The status of the application.
	Deployment State	The current status of the application's deployment.
	Expired	This check box becomes automatically checked when the data displayed in the row has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.
	time_stamp	The date and time this row of data was last updated.
Activity Trends of <application>	Shows the following: **Open Sessions** -- Traces the total number of open sessions in the application. **Exec Time/sec** -- Traces the execution time per second in the application. **Invocations/sec** -- Traces the number of invocations per second. **Reloads/sec** -- Traces the number of reloads per second.	
	Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



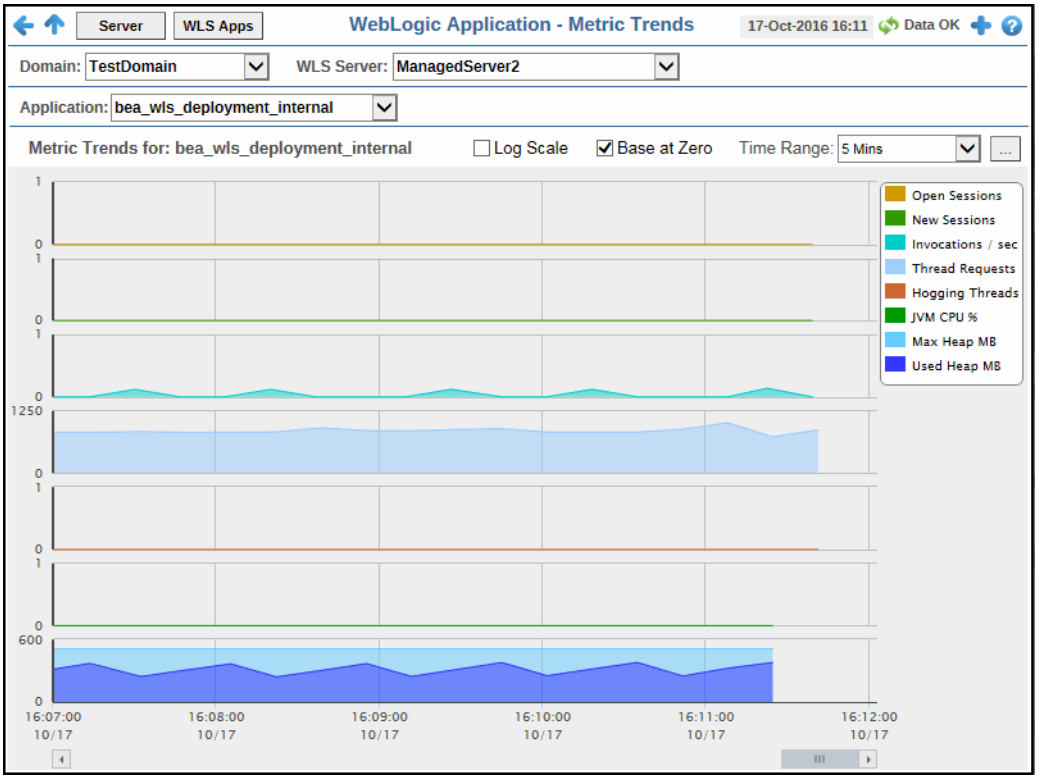
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Server Apps Trends

View trend data for a single application on a particular WebLogic server.



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Fields and Data

This display includes:

Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server containing the application for which you want to view data.

Application Select the application for which you want to view data.

Metric Trends for: Shows message data for the selected collection.

Open Sessions -- Traces the total number of open sessions in the application.

New Sessions -- Traces the number of new sessions in the application.

Invocations/sec -- Traces the number of invocations per second in the application.

Thread Requests -- Traces the number of thread requests in the application.

Hogging Threads -- Traces the number of hogging threads in the application.

JVM CPU % -- Traces the JVM CPU percentage in the application.

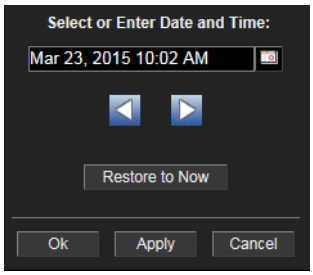
Max Heap MB -- Traces the max heap used, in megabytes, in the application.

Used Heap MB -- Traces the used heap, in megabytes, in the application.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



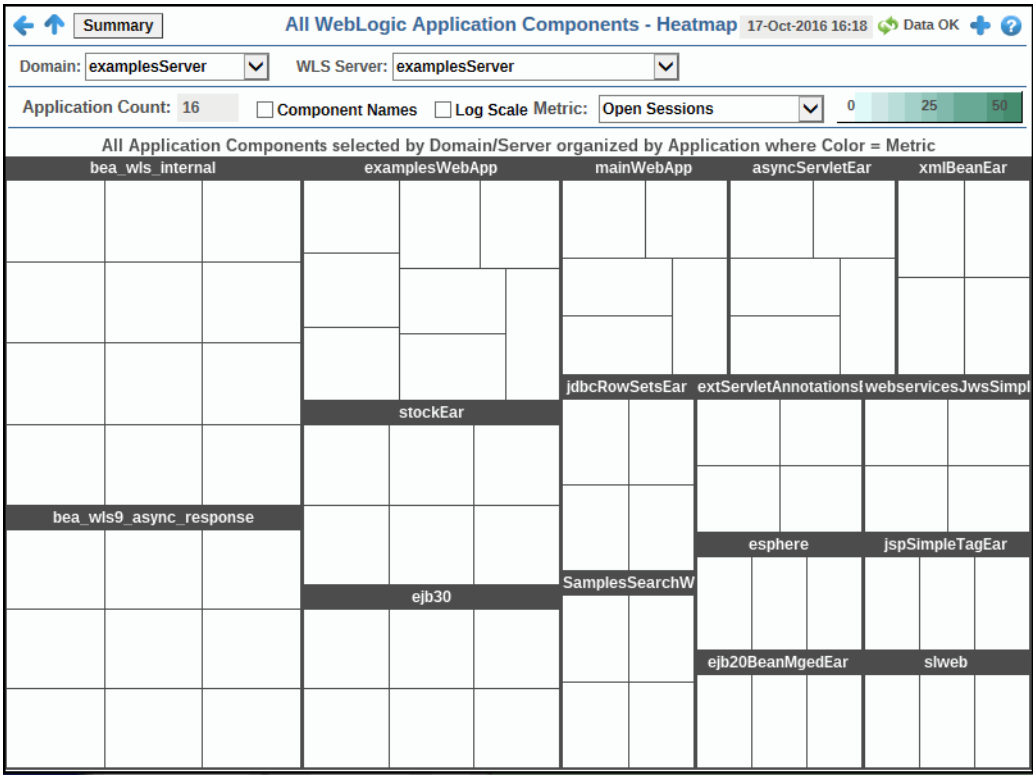
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

App Components Heatmap

This display provides a heatmap view of the status and alerts of all application components contained within each application on a particular WebLogic server. The heatmap is organized so that each rectangle represents a collection contained within a specific connection. The rectangle color indicates the value of the selected metric in the **Metric** drop down list. You can mouse-over rectangles to view more details about the performance and status of each collection or click on a rectangle to drill-down to the "WebLogic Single Application Summary" display and view metrics for that particular collection. You can click the **Summary** button in this display to navigate to the "Server Apps Summary" display.



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- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server for which you want to view data.

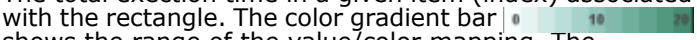
Application Count The total number of application components in the WebLogic server.

Component Names Select this check box to display the names of the application components in the heatmap.

Log Scale This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

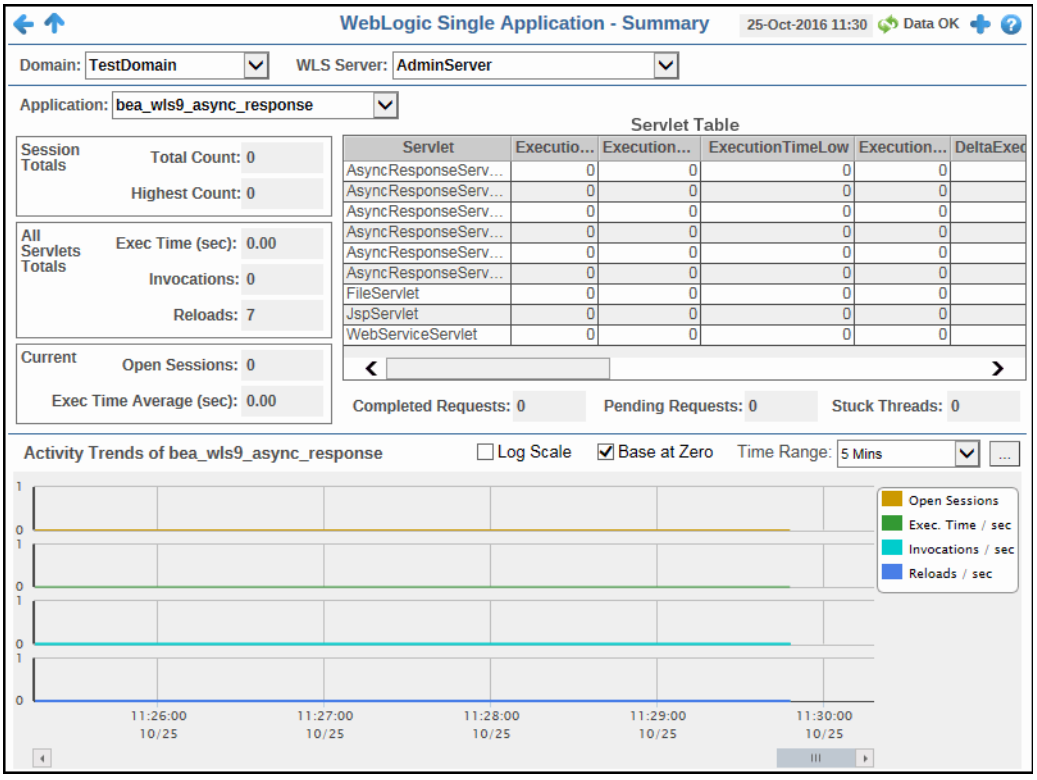
Metric Select the metric driving the heatmap display. The default is **Alert Severity**. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the collections by connection, where each rectangle represents a collection. Mouse-over any rectangle to display the current values of the metrics for the collection. Click on a rectangle to drill-down to the associated "Server Apps Trends" display for a detailed view of metrics for that particular collection.

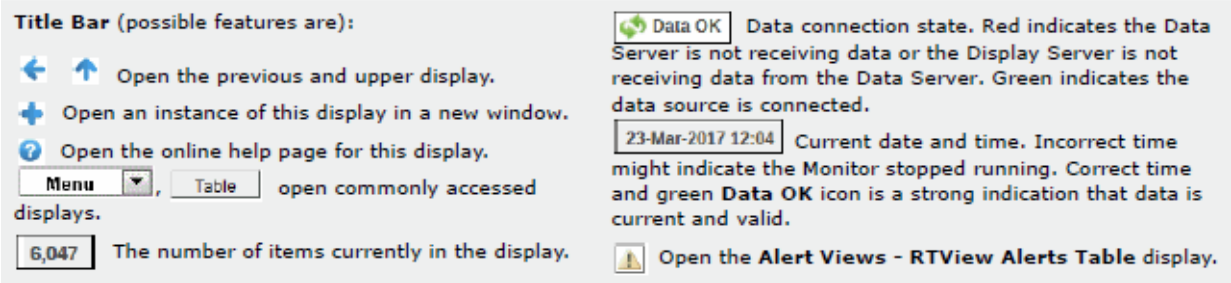
- **Open Sessions** The number of open sessions in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.
- **Open Sessions/sec** The number of open sessions per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.
- **Invocations/sec** The number of invocations per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.
- **Invocation Total Count** The total number of invocations in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Execution Time Total	The total exection time in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.
Reload Total Count	The total number of reloads in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of objects in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

WebLogic Single Application Summary

View performance, utilization, and trend data for a single application component on a single WebLogic server. This display is only accessible by clicking on an application component in the "App Components Heatmap".





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic server for which you want to view data.

WLS Server Select the WebLogic server containing the application for which you want to view data.

Application Select the application for which you want to view data.

Sessions Totals

- **Total Count** The total number of sessions on the application.
- **Highest Count** The highest total number of sessions on the application.

All Servlet Totals

- **Exec Time (sec)** The amount of time all invocations of all servlets have executed since being created.*
- **Invocations** The total count of the times all servlets have been invoked.*
- **Reloads** The total count of the number of times all servlets have been reloaded.*

Current

- **Open Sessions** The number of currently open sessions.
- **Exec Time Average (sec)** The current amount of time invocations of the servlet are being executed.*

Servlet Table

This table describes metrics for each servlet on the application.

- **Servlet** The name of the servlet.
- **Execution Time Average** The average amount of time all invocations of the servlet have executed since being created.*
- **Execution Time High** The amount of time the single longest invocation of the servlet has executed since being created.*
- **Execution Time Low** The amount of time the single shortest invocation of the servlet has executed since being created.*

Execution Time Total	The total amount of time all invocations of the servlet have executed since being created.*
Delta Execution Time	The increase in the execution time (from the previous polling period to the current polling period).
Rate Execution Time Total	The total time taken to execute requests per second.
Invocation Total Count	The total count of the times this servlet has been invoked.*
Delta Invocation Total Count	The increase in the amount of invocations (from the previous polling period to the current polling period).
Rate Invocation Total Count	The total number of invocations per second.*
Reload Total Count	The total count of the number of times this servlet has been reloaded.*
Delta Reload Total Count	The increase in the amount of reloads (from the previous polling period to the current polling period).
Rate Reload Total Count	The number of times this servlet has been reloaded per second.
Expired	This check box becomes automatically checked when the data displayed in the row has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.
time_stamp	The date and time this row of data was last updated.

Completed Requests The total number of completed requests on the application.

Pending Requests The total number of pending requests on the application.

Stuck Threads The total number of stuck threads on the application.

Metric Trends for: <application> Graph Shows message data for the selected collection.

Open Sessions -- Traces the total number of open sessions in the application.

Exec. Time/sec -- Traces the number of executions per second in the application.

Invocations/sec -- Traces the number of invocations per second in the application.

Reloads/sec -- Traces the number of reloads per second in the application.

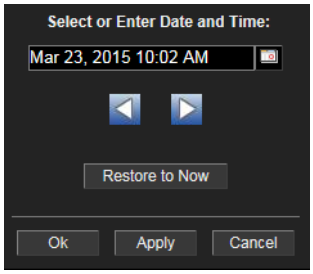
Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



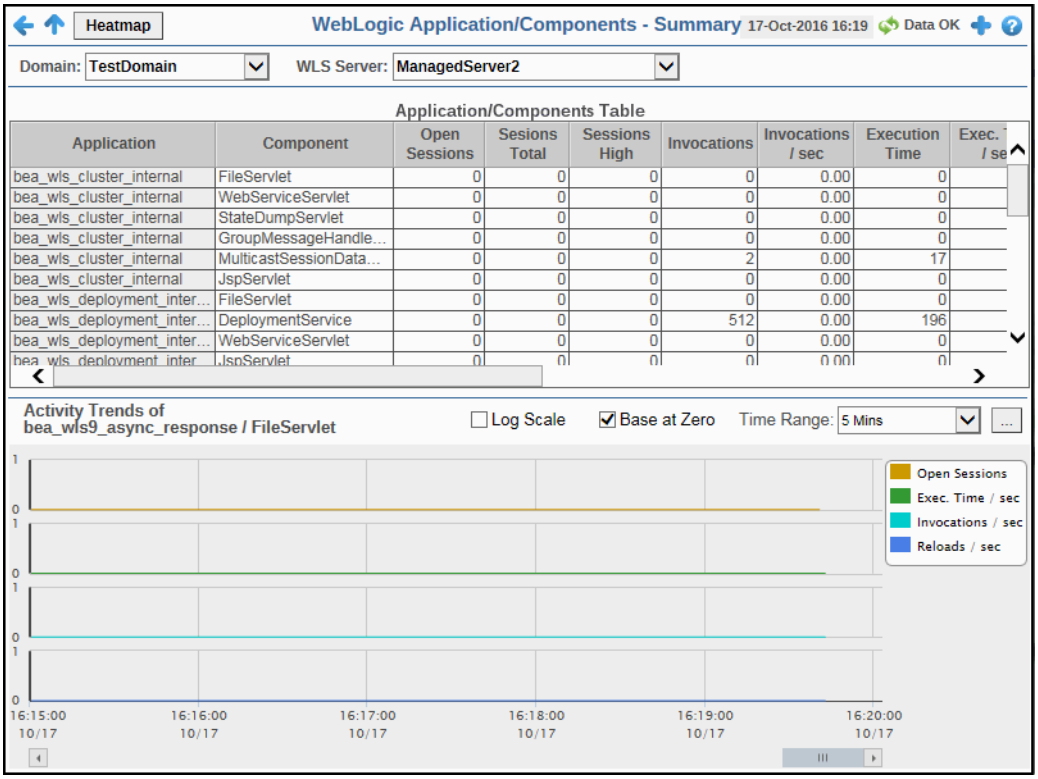
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

App Components Summary

View performance, utilization, and trend data for all application components on a single WebLogic Server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic server for which you want to view data.

WLS Server Select the WebLogic server containing the application for which you want to view data.

Applications/Components Table

This table describes metrics for each application/component combination.

Application	The name of the application.
Component	The name of the component.
Open Sessions	The current total of open sessions.*
Sessions Total	The total number of sessions that have been opened.*
Sessions High	The highest number of sessions opened at one time.*
Invocations	The total number of invocations of the application or component.*
Invocations/sec	The rate of invocations (per second) of the application or component.*
Execution Time	The amount of time (in milliseconds) it took to execute the last invocation.*
Exec. Time Low	The average amount of time the single shortest invocation of the component has executed since it was most recently deployed.*
Exec. Time High	The average amount of time the single longest invocation of the component has executed since it was most recently deployed.**
Exec. Time Average	The average amount of time it took to execute all invocations of the component since it was most recently deployed.**
Reloads	The total number of times the WebLogic server has reloaded the component since it was last deployed.*
Reloads/sec	The rate of reloads (per second).*
Status	The status of the component.*
Expired	This check box becomes automatically checked when the data displayed in the row has exceeded the specified cache expiration time (set by default at 45 seconds) and is no longer current. Once the cache has been refreshed and is displaying current data, the check box will return to being unchecked. This check box will remain unchecked as long as the cache has been refreshed within the specified cache expiration time and the data is current.
time_stamp	The date and time this row of data was last updated.

Metric Trends for: <application> Graph

Shows message data for the selected collection.

Open Sessions -- Traces the total number of open sessions in the application.

Exec. Time/sec -- Traces the number of executions per second in the application.

Invocations/sec -- Traces the number of invocations per second in the application.

Reloads/sec -- Traces the number of reloads per second in the application.

Log Scale

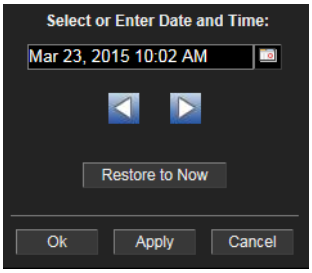
This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

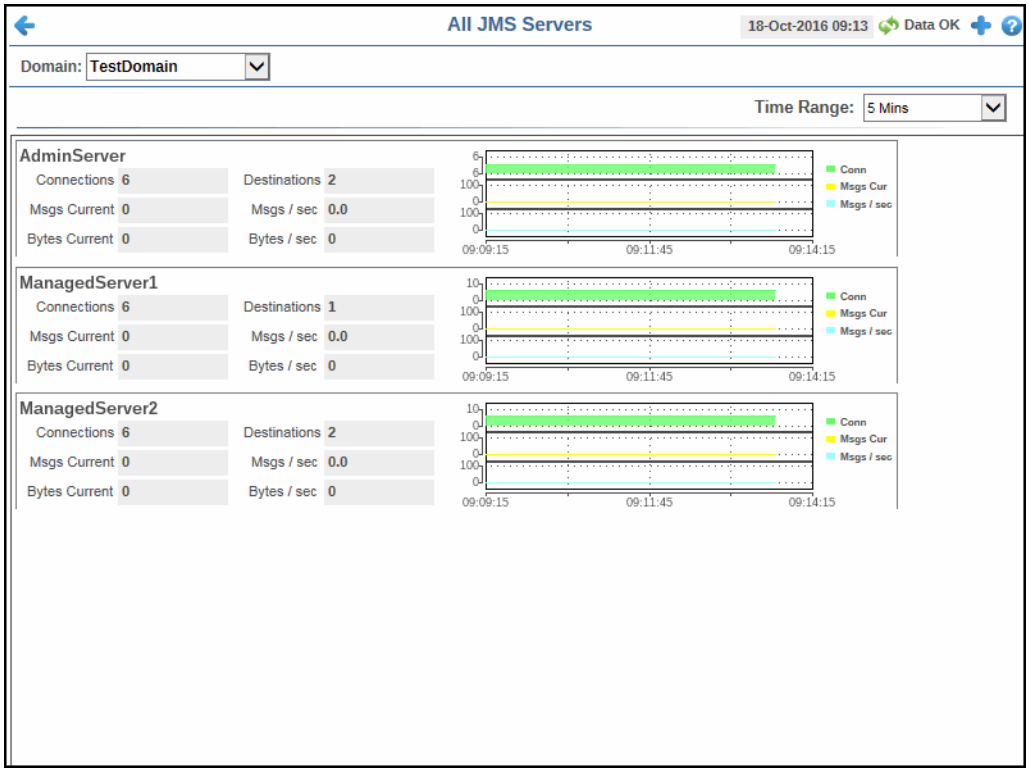
JMS Servers View

These displays present several views of performance metrics for JMS Servers. This view contains the following:

- "JMS Servers Grid": Track performance, utilization, and trend data for all JMS servers on a single domain.
- "JMS Server Summary": View performance, utilization, and trend data for a particular JMS server.
- "JMS Metric Trends": View activity trends for a particular JMS server.
- "JMS Server Detail": Track performance and utilization metrics for all JMS servers on a single WebLogic server.

JMS Servers Grid

Track performance, utilization, and trend data for all JMS servers on a single domain.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic servers for which you want to view data.

Time Range Select the period of time from this drop down for which you want to view data.

Server Trend Graphs

Trend graphs and the following metrics displays for servers within the selected domain.

Conn -- Traces the total number of connections on the server.

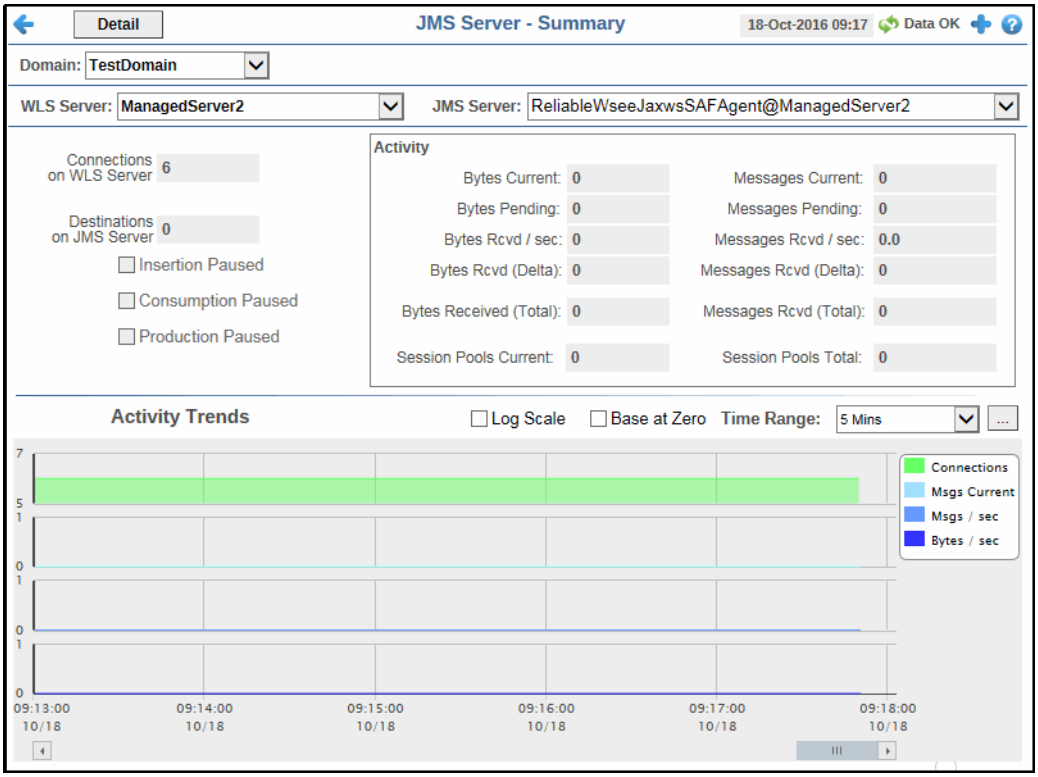
Msgs Cur -- Traces the current number of incoming/outgoing messages on the server.

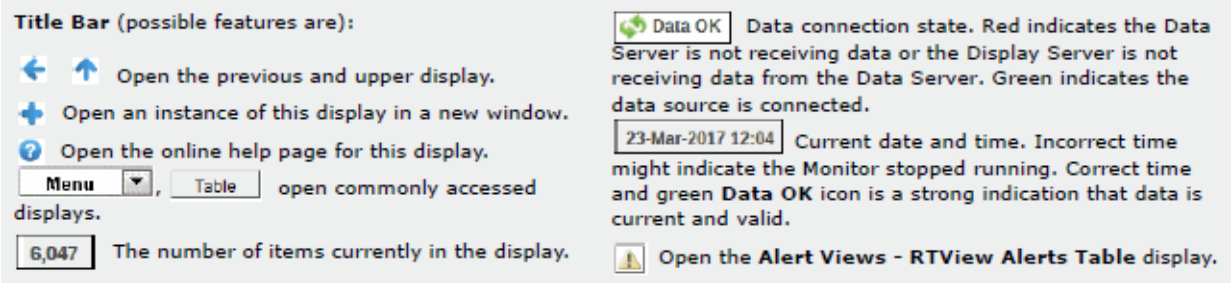
Msgs/sec -- Traces the number of incoming/outgoing messages per second on the server.

Connections	The number of the connections on the server.
Msgs Current	The current number of messages stored on the JMS server. This number does not include the pending messages.*
Bytes Current	The current number of bytes stored on the JMS server.*
Destinations	The current number of destinations stored on the JMS server.*
Msgs/sec	The rate of messages received (per second) on the JMS server.*
Bytes/sec	The rate of bytes received (per second) on the JMS server.*

JMS Server Summary

View performance, utilization, and trend data for a particular JMS server.





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic server for which you want to view data.

WLS Server Select the WebLogic server containing the JMS server for which you want to view data.

JMS Server Select the JMS server for which you want to view data.

Connections on WLS Server The total number of connections on the WebLogic server.

Destinations on JMS Server The number of destinations on the selected JMS server.

Insertion Paused The current insertion paused state of the JMS server.*

Consumption Paused The current consumption paused state of the JMS server.*

Production Paused The current production paused state of the JMS server.*

Activity Region

Bytes Current The current number of bytes stored on the JMS server.*

Bytes Pending The current number of bytes pending (unacknowledged or uncommitted) on the JMS server.*

Bytes Rcvd/sec The number of bytes received per second.

Bytes Rcvd (Delta) The increase in the amount of bytes received (from the previous polling period to the current polling period).*

Bytes Rcvd (Total) The total number of bytes received since the JMS server was last restarted.*

Alert Session Pools Current The current number of session pools instantiated on the server.*

Messages Current The current number of messages stored on the JMS server.*

Messages Pending The current number of messages pending (unacknowledged or uncommitted) on the JMS server.*

Messages Rcvd/sec The number of messages received per second since the server was last restarted.*

Messages Rcvd (Delta) The increase in the amount of messages received (from the previous polling period to the current polling period).

Messages Rcvd (Total) The total number of messages received since the server was last restarted.*

Session Pools Total The total number of session pools on the server.*

Activity Trends

Shows message data for the selected collection.

Connections -- Traces the total number of connections on the server.

Msgs Current -- Traces the number of current messages.

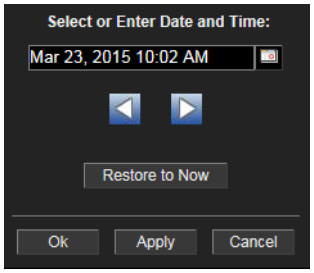
Msgs/sec -- Traces the number of incoming/outgoing messages per second.

Bytes/sec -- Traces the number incoming/outgoing bytes per second.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



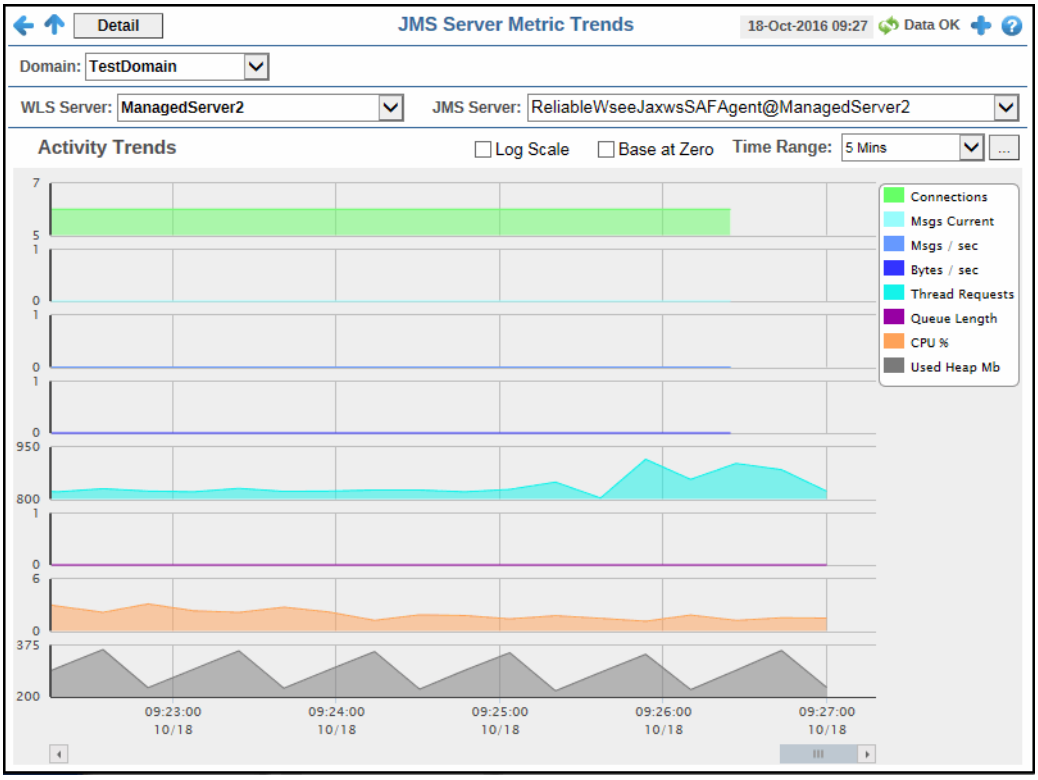
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

JMS Metric Trends

View activity trends for a particular JMS server.



Title Bar (possible features are):

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- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic server for which you want to view data.

WLS Server Select the WebLogic server containing the JMS server for which you want to view data.

JMS Server Select the JMS server for which you want to view data.

Activity Trends Shows message data for the selected collection.

Connections -- Traces the total number of connections on the server.

Msgs Current -- Traces the number of current messages stored on the server.

Msgs/sec -- Traces the number of messages stored per second.

Bytes/sec -- Traces the number bytes received on the server per second.

Thread Requests -- Traces the number of thread requests.

Queue Length -- Traces the length of the queue.

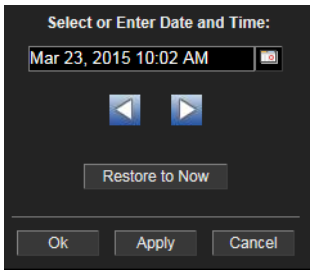
CPU % -- Traces the percentage of CPU used.

Used Heap Mb -- Traces the amount of heap used, in megabytes.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



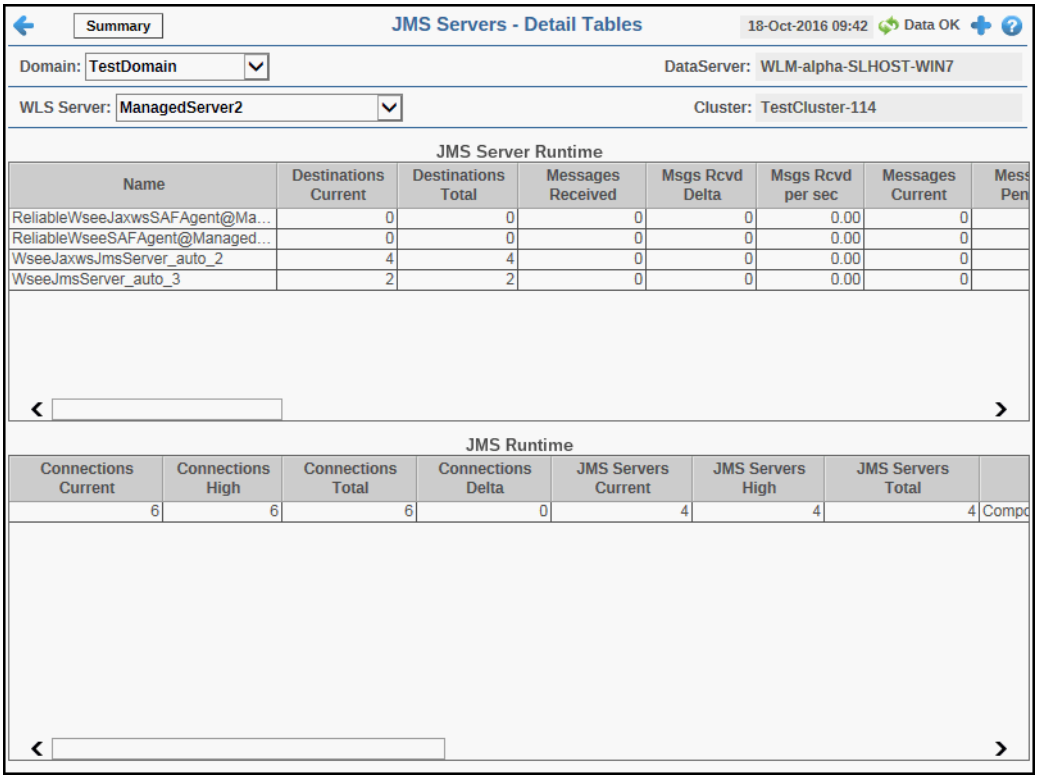
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

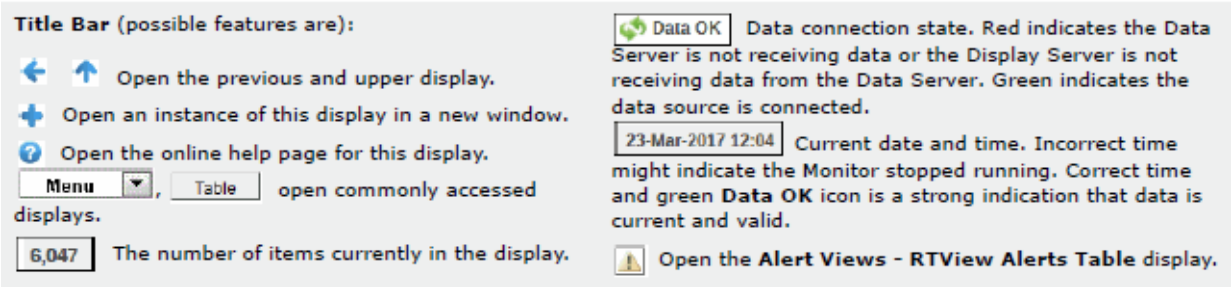
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

JMS Server Detail

View performance and utilization metrics for all JMS servers on a single WebLogic server.





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic server for which you want to view data.

DataServer The name of the data server associated with the domain.

WLS Server Select the WebLogic server containing the JMS server for which you want to view data.

Cluster The name of the cluster associated with the WebLogic Server.

JMS Server Runtime Table

This table describes all runtime statistics on the selected server. Click a row to view metrics for a single server in the "JMS Server Summary" display.

Name	The name of the JMS Server.
Destinations Current	The current number of destinations for the JMS server.*
Destinations Total	The total number of destinations instantiated on the JMS server since the last polling update.*
Messages Received	The total number of messages received by the JMS server since the last polling update.*
Msgs Rcvd Delta	The increase in the amount of messages received (from the previous polling period to the current polling period).
Msgs Rcvd per sec	The rate of messages received (per second) by the server.
Messages Current	The current number of messages stored on the JMS server.*
Messages Pending	The current number of pending messages stored on the JMS server.*
Messages High	The highest number of total messages stored by the JMS server since the last polling update.*
Bytes Received	The number of bytes received by the server since the last polling update.
Bytes Rcvd Delta	The increase in the amount of bytes received (from the previous polling period to the current polling period).
Bytes Rcvd per sec	The rate of bytes received (per second) by the server.*
Bytes Current	The current number of bytes stored on the JMS server.*
Bytes Pending	The current number of bytes pending that are stored on the JMS server.*
Bytes High	The largest number of bytes stored on the JMS server since the last polling update.*
Health State	The current health state of the JMS server.*
Consumption Paused	The current consumption paused state of the JMS server. When checked, consumption is paused.*
Cons Paused Enabled	The current consumption paused state on the JMS server (enabled/disabled).*
Insertion Paused	The current insertion paused state of the JMS server.*
Ins Paused State	The current insertion paused state of the JMS server (enabled/disabled).*
Production Paused	The current production paused state of the JMS server.*
Prod Paused State	The current production paused state of the JMS server (enabled/disabled).*
Session Pools Current	The current number of session pools instantiated on the JMS server.*

Session Pools High	The highest number of session pools instantiated on the server since the last polling update.*
Session Pools Total	The total number of session pools instantiated on the JMS server since the last polling update.*
Destinations	The number of destinations instantiated on the JMS server since the last polling interval.
Transactions	The number of transactions that exist on the JMS server.*
Transactions Pending	The number of pending transactions that exist on the JMS server.*
Server Runtime	The name of the JMS Server.*
time_stamp	The date and time this row of data was last updated.

JMS Runtime Table

This table describes performance metrics about the connectivity of the JMS Server.

Connections Current	The current number of connections to the WebLogic server.*
Connections High	The highest number of connections made to the WebLogic server since the last polling update.*
Connections Total	The total number of connections made to the WebLogic server since the last polling update.*
Connections Delta	The increase in the amount of connections (from the previous polling period to the current polling period).
JMS Servers Current	The number of JMS servers currently deployed on the WebLogic server.*
JMS Servers High	The highest number of JMS servers that were deployed on the WebLogic server since the server was started.*
JMS Servers Total	The total number of JMS servers that were deployed on the WebLogic server since the server was started.*
HealthState	The current state of health of the JMS service.*
JMSServers	The number of JMS servers deployed on the WebLogic server.*
Connections	The number of connections to the WebLogic server.*
JMSPooledConnections	The number of JMS pooled connectons on the server.
ServerRuntime	The name of the server.
time_stamp	The date and time this row of data was last updated.

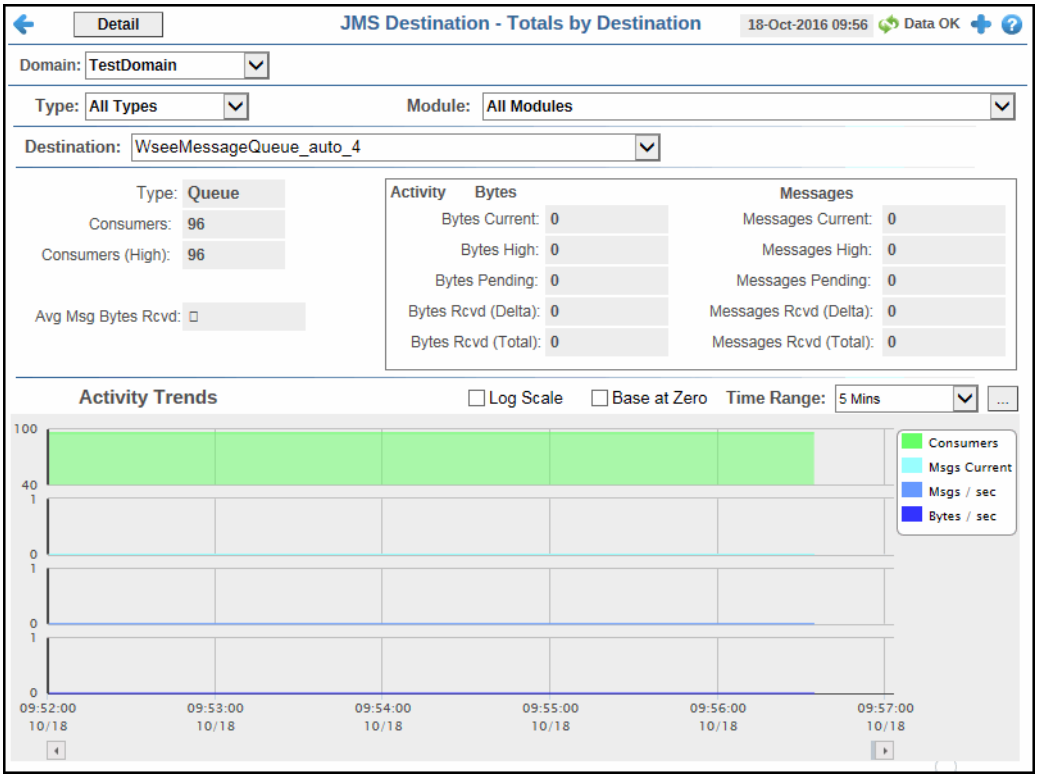
JMS Destinations View

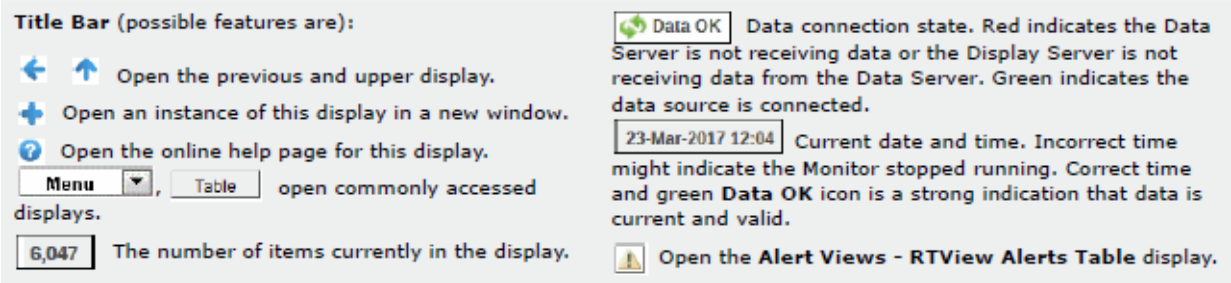
These displays present several views of performance metrics for JMS Destinations. This view contains the following:

- "Totals by Destination": View performance, utilization, and trend data for a particular destination.
- "Detail by Destination": A tabular view that allows you to view performance and utilization metrics for destinations for each JMS Server, as well as destination metrics across all JMS Servers.
- "Distribution by Server": Shows performance and utilization metrics and trends for a destination on a single domain.
- "Destination by Server": Shows metrics and trends for a particular destination on a JMS Server.
- "Detail by Server": Shows metrics for all destinations on one or all modules on a JMS Server.

Totals by Destination

View performance, utilization, and trend data for a particular destination.





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic server for which you want to view data.

Type Select the type of destination (**Queue** or **Topic**) for which you want to view data, or select **All Types**.

Module Select the module containing the destination for which you want to view data.

Destination Select the destination for which you want to view data.

Type The type of destination (queue or topic) selected.

Consumers The current number of consumers accessing the destination.

Consumers (High) The highest number of consumers accessing the destination since the last polling update.

Avg Msg Bytes Rcvd The average number of bytes received in the destination since the last polling update.

Activity Region

Bytes

Bytes Current The current number of bytes stored in the destination.*

Bytes High The highest number of bytes stored in the destination since the last polling update.*

Bytes Pending The current number of pending bytes stored in the destination.*

Bytes Rcvd (Delta) The increase in the amount of bytes received (from the previous polling period to the current polling period).

Bytes Rcvd (Total) The number of bytes received in this destination since the last polling update.*

Messages

Messages Current The current number of messages in the destination.*

Messages High The highest number of messages in the destination since the last polling update.*

Messages Pending	The current number of pending messages in the destination.*
Messages Rcvd (Delta)	The increase in the amount of messages received (from the previous polling period to the current polling period).
Messages Rcvd (Total)	The total number of messages in the destination since the last polling update.*

Activity Trends

Shows message data for the selected collection.

Consumers -- Traces the total number of consumers on the destination.

Msgs Current -- Traces the number of current messages.

Msgs/sec -- Traces the number of messages received per second in the destination.

Bytes/sec -- Traces the number of bytes received per second in the destination.

Log Scale

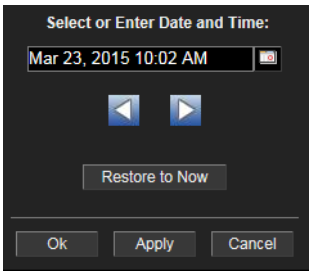
This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



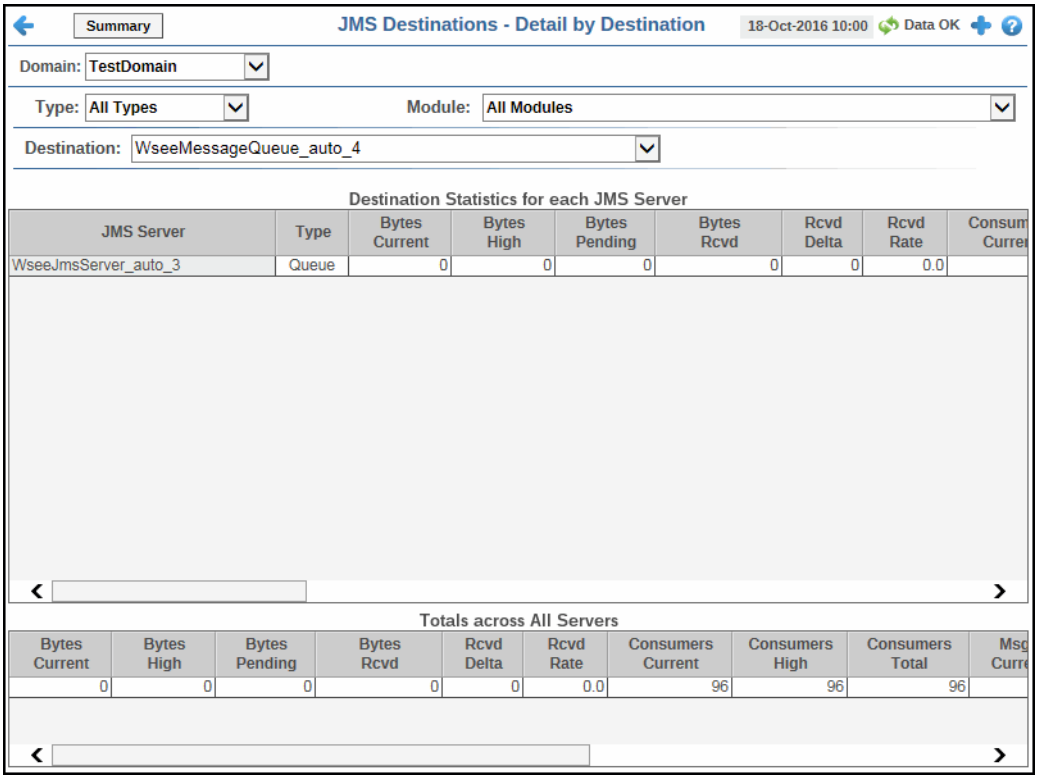
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Detail by Destination

View destination statistics by individual JMS Servers and across all servers.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Domain Select the domain containing the destination for which you want to view data.

Type Select the type of destination (queue or topic) for which you want to view data, or select **All Types**.

Module Select the module containing the destination for which you want to view data.

Destination Select the destination for which you want to view data.

Destination Statistics for each JMS Server Table

Each row in this table describes all destination statistics for a particular JMS Server. Click a row to view additional metrics in the "Destination by Server" display.

JMS Server	The name of the JMS Server.
Type	The type of destination (queue or topic).
Bytes Current	The current number of bytes stored in the destination.*
Bytes High	The highest number of bytes stored in the destination since the last polling update.*
Bytes Pending	The current number of pending bytes stored in the destination.*
Bytes Rcvd	The number of bytes received in this destination since the last polling update.*
Rcvd Delta	The increase in the amount of bytes received (from the previous polling period to the current polling period).
Rcvd Rate	The rate of bytes received (per second) into the destination.*
Consumers Current	The current number of consumers accessing the destination.*
Consumers High	The highest number of consumers accessing the destination since the last polling update.*
Consumers Total	The total number of consumers accessing the destination since the last polling update.*
Msgs Current	The current number of messages in the destination.*
Msgs Deleted	The number of messages that have been deleted from the destination.*
Msgs High	The highest number of messages in the destination since the last polling update.*
Msgs Moved	The number of moved messages in the destination since the last polling update.*
Msgs Pending	The current number of pending messages in the destination.*
Msgs Rcvd	The number of messages received in the destination since the last polling update.*
Rcvd Delta	The increase in the amount of messages received (from the previous polling period to the current polling period).
Rcvd Rate	The rate of messages received (per second) in the destination since the last polling update.*
Msgs Thresh Time	The amount of time in the threshold condition since the last polling update.
Bytes Thresh Time	The amount of time in the threshold condition since the last polling update.
Paused	Indicates whether or not the destination is paused at the current time.*
Consumption Paused	Indicates the consumption paused state of the destination.

Consumption Paused State	The current consumption paused state of the destination.
Production Paused	Indicates the production paused state of the destination.
Production Paused State	The current production paused state of the destination.
Insertion Paused	Indicates the insertion paused state of the destination.
Insertion Paused state	The current insertion pause state of the destination.
State	The current health state of the destination.
time_stamp	The date and time this row of data was last updated.

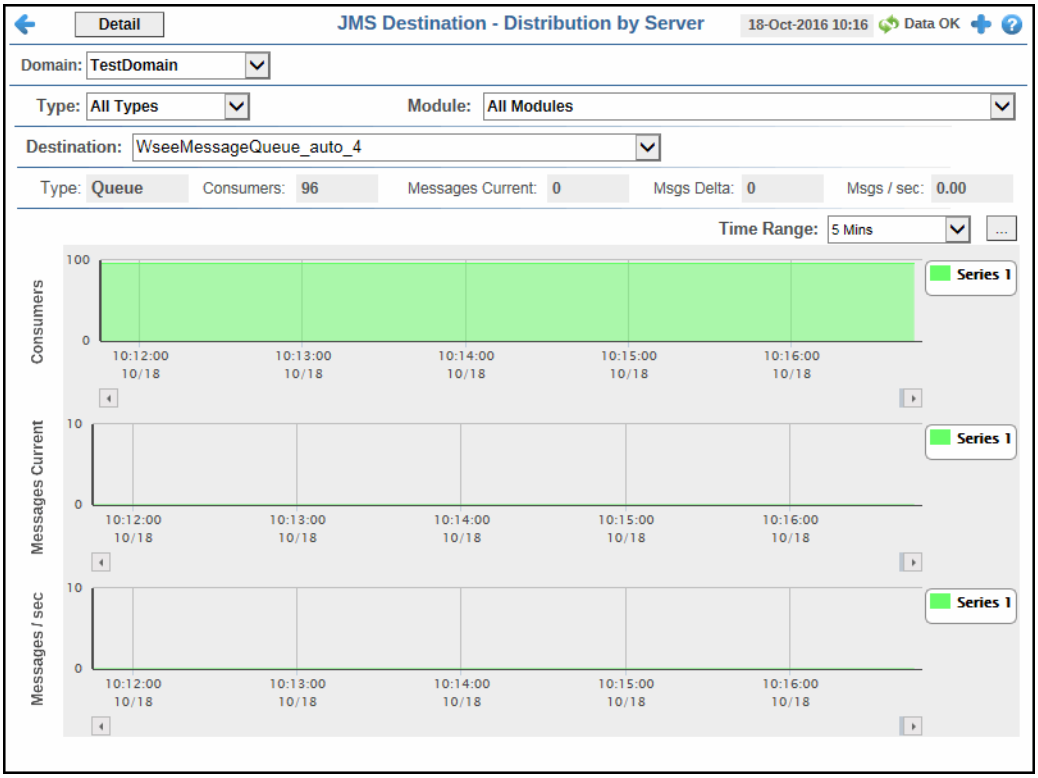
Totals across All Servers Table

This table describes destination metric totals across all servers.

Bytes Current	The current number of bytes stored across all servers.
Bytes High	The highest number of bytes on any one of the servers at one time since the last polling update.*
Bytes Pending	The total number of bytes pending on all servers.*
Bytes Rcvd	The number of bytes received across all servers.*
Rcvd Delta	The increase in the amount of bytes received (from the previous polling period to the current polling period).
Rcvd Rate	The rate of messages received (per second) by all servers.
Consumers Current	The number of current consumers across all servers.
Consumers High	The highest number of consumers at one time across all servers.*
Consumers Total	The total number of consumers across all servers.*
Msgs Current	The current number of messages stored across all destinations on the all servers.*
Msgs Deleted	The number of deleted messages across all destinations on all servers.*
Msgs High	The highest number of total messages stored across all destinations for all servers.*
Msgs Moved	The number of messages across all destinations for all servers that were moved.*
Msgs Pending	The current number of pending messages across all servers.
Msgs Rcvd	The total number of messages received across all servers.
Rcvd Delta	The increase in the amount of messages received (from the previous polling period to the current polling period).
Rcvd Rate	The rate of messages received (per second) across all servers.

Distribution by Server

Track performance and utilization metrics and trends for a destination on a single domain.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain containing the destination for which you want to view data.

Type Select the type of destination (queue or topic) for which you want to view data, or select **All Types**.

Module Select the module containing the destination for which you want to view data.

Destination Select the destination for which you want to view data.

Type The type of destination (queue or topic).

Consumers The number of consumers.

Msgs Current The current number of messages on the destination.*

Msgs Delta The increase in the amount of messages received (from the previous polling period to the current polling period).

Msgs/sec The rate of messages received (per second) by the destination.

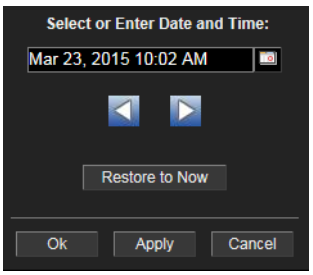
Server Trend Graphs Trend graphs and the following metrics displays for servers within the selected domain.

Consumers -- Traces the total number of consumers on the server.

Messages Current -- Traces the current number of incoming/outgoing messages on the server.

Messages/sec -- Traces the number of incoming/outgoing messages per second on the server.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



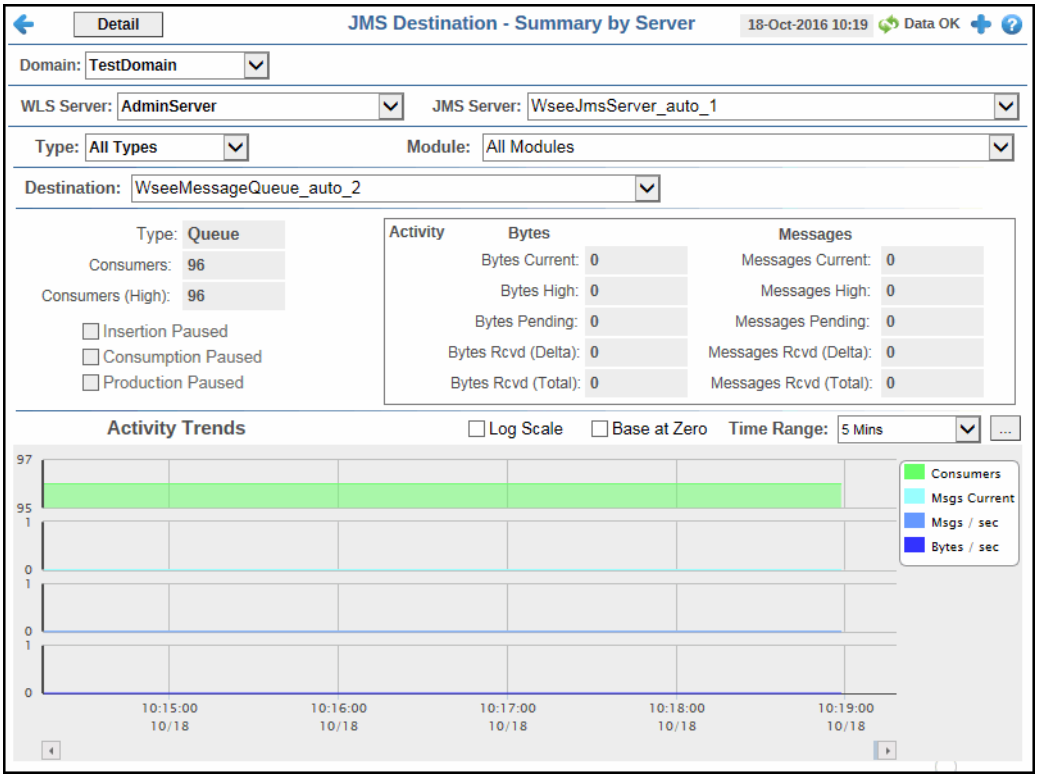
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Destination by Server

Track performance, utilization, and trend data for a particular destination on a single JMS Server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields with an asterisk (*) at the end of the field definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these fields.

Fields and Data

This display includes:

Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server containing the JMS Server for which you want to view data.

JMS Server	Select the JMS Server containing the destination for which you want to view data
Type	Select the type of destination (queue or topic) for which you want to view data, or select **All Types**.
Module	Select the module containing the destination for which you want to view data.
Destination	Select the destination for which you want to view data.
Type	The type (queue or topic) of the selected destination.
Consumers	The current number of consumers accessing the destination.*
Consumer (High)	The highest number of consumers accessing the destination since the last polling update.*
Insertion Paused	Indicates the insertion paused state of the destination.*
Consumption Paused	Indicates the consumption paused state of the destination.*
Production Paused	Indicates the production paused state of the destination.*

Activity Region

Bytes Current	The current number of bytes stored in the destination.*
Bytes High	The highest number of bytes stored in the destination since the last polling update.*
Bytes Pending	The current number of pending bytes stored in the destination.*
Bytes Rcvd (Delta)	The increase in the amount of bytes received (from the previous polling period to the current polling period).
Bytes Rcvd (Total)	The number of bytes received in this destination since the last polling update.*
Messages Current	The current number of messages in the destination.*
Messsages High	The highest number of messages in the destination since the last polling update.*
Messages Pending	The current number of pending messages in the destination.*
Messages Rcvd (Delta)	The increase in the amount of messages received (from the previous polling period to the current polling period).
Messages Rcvd (Total)	The number of messages received in the destination since the last polling update.*

Activity Trends Shows message data for the selected collection.

Consumers -- Traces the total number of consumers accessing the destination.

Msgs Current -- Traces the number of current messages.

Msgs/sec -- Traces the number of messages received per second.

Bytes/sec -- Traces the number bytes received per second.

Log Scale

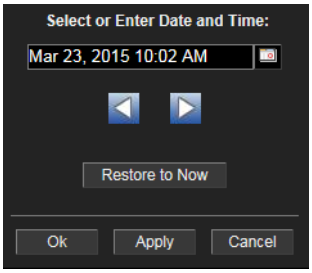
This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



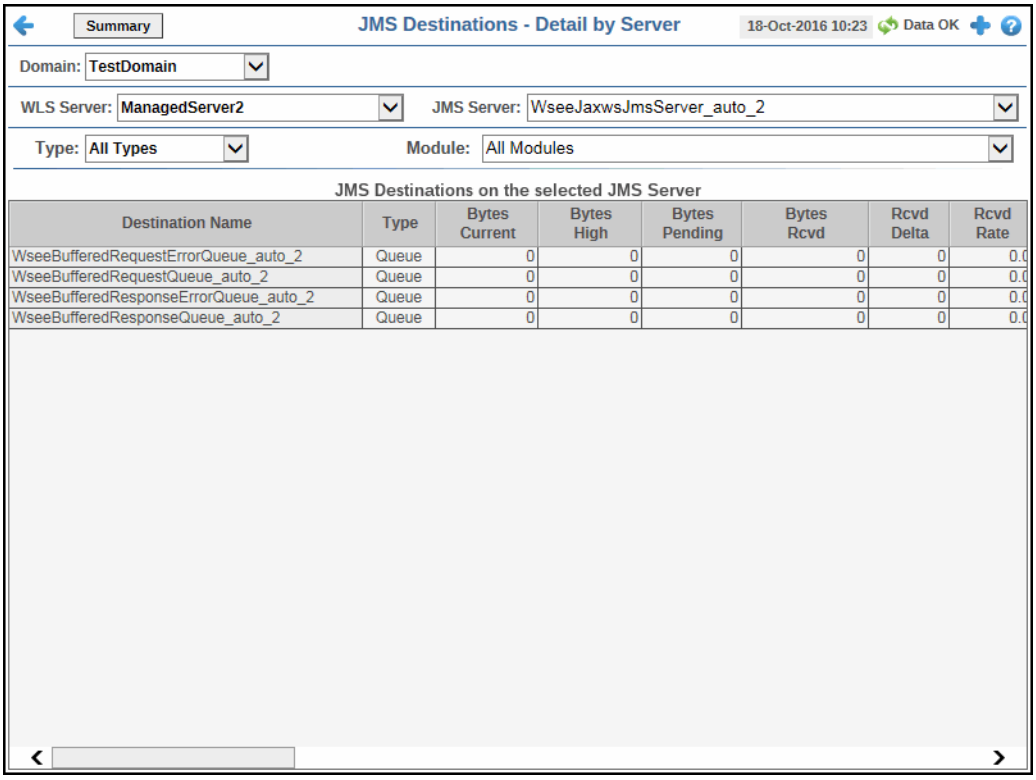
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

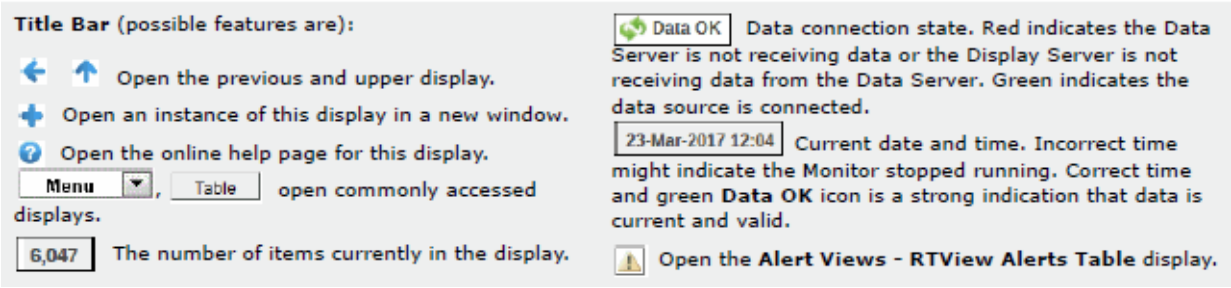
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Detail by Server

Track performance and utilization metrics for all destinations on a single JMS Server.





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

Connection Select the connection for which you want to view collection data.

Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server containing the JMS Server for which you want to view data.

JMS Server Select the JMS Server containing the destination for which you want to view data

Type Select the type of destination (queue or topic) for which you want to view data, or select **All Types**.

Module Select the module containing the destination for which you want to view data.

JMS Destinations on the selected JMS Server Table

This table describes all destinations on the selected JMS Server.

Destination Name	The name of the destination.
Type	The type of destination (queue or topic).
Bytes Current	The current number of bytes stored in the destination.*
Bytes High	The highest number of bytes stored in the destination since the last polling update.*
Bytes Pending	The current number of pending bytes stored in the destination.*
Bytes Rcvd	The number of bytes received in this destination since the last polling update.*
Rcvd Delta	The increase in the amount of bytes received (from the previous polling period to the current polling period).
Rcvd Rate	The rate of bytes received (per second) into the destination.*
Consumers Current	The current number of consumers accessing the destination.*
Consumers High	The highest number of consumers accessing the destination since the last polling update.*
Consumers Total	The total number of consumers accessing the destination since the last polling update.*
Msgs Current	The current number of messages in the destination.*
Msgs Deleted	The number of messages that have been deleted from the destination.*
Msgs High	The highest number of messages in the destination since the last polling update.*
Msgs Moved	The number of moved messages in the destination since the last polling update.*
Msgs Pending	The current number of pending messages in the destination.*
Msgs Rcvd	The number of messages received in the destination since the last polling update.*
Rcvd Delta	The increase in the amount of messages received (from the previous polling period to the current polling period).
Rcvd Rate	The rate of messages received (per second) in the destination since the last polling update.*
Msgs Thresh Time	The amount of time in the threshold condition since the last polling update.
Bytes Thresh Time	The amount of time in the threshold condition since the last polling update.

Paused	Indicates whether or not the destination is paused at the current time.*
Consumption Paused	Indicates the consumption paused state of the destination.
Consumption Paused State	The current consumption paused state of the destination.
Production Paused	Indicates the production paused state of the destination.
Production Paused State	The current production paused state of the destination.
Insertion Paused	Indicates the insertion paused state of the destination.
Insertion Paused state	The current insertion pause state of the destination.
State	The current health state of the destination.
JMSServer Runtime	The name of the JMS Server.
time_stamp	The date and time this row of data was last updated.

JMS Bridges View

This view contains tabular and summary displays that show performance metrics for JMS bridges. The following displays are available:

- "All Bridges Table": A tabular view that allows you to view performance and utilization metrics for all JMS Bridge Destinations.
- "Bridge Summary": A summary view that allows you to view performance and utilization metrics for a bridge associated with a particular JMS Server.

All Bridges Table

This table allows you to view performance and utilization metrics for all JMS Bridge Destinations.

Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns.

Fields and Data

This display includes:

JMS Bridge Destinations Table

This table describes all JMS Bridge Destinations.

Name	The user-specified name of the instance.
Source Destination Name	The name of the source destination from which the messaging bridge instance reads messages.
Target Destination Name	The name of the target destination where the messaging bridge instance sends the messages it receives from the source destination.
Async Enabled	When checked, denotes that the messaging bridge instance forwards in asynchronous messaging mode.*
Batch Interval	The maximum amount of time, in milliseconds, that a messaging bridge instance waits before sending a batch of messages in one transaction.*
Batch Size	The number of messages that are processed within one transaction.*
Deployment Order	The priority that the server uses to determine when it deploys an item.*
Durability Enabled	Denotes whether or not the messaging bridge allows durable messages.*
Idle Time Maximum	The maximum amount of time, in seconds, that a message bridge instance remains idle.*
Preserve Message Property	Specifies if message properties are preserved when messages are forwarded by a bridge instance.*
QOS Degradation Allowed	Specifies if this messaging bridge instance allows the degradation of its quality of service (QOS) when the configured QOS is not available.*
Quality Of Service	The quality of service for this messaging bridge instance.*
Reconnect Delay Increase	The incremental delay time, in seconds, that a messaging bridge instance increases its waiting time between one failed reconnection attempt and the next retry.*
Reconnect Delay Maximum	The longest time, in seconds, that a messaging bridge instance waits between one failed attempt to connect to the source or target and the next retry.*
Reconnect Delay Minimum	The minimum amount of time, in seconds, that a messaging bridge instance waits before it tries to reconnect to the source or target destination after a failure.*
Selector	The filter for messages that are sent across the messaging bridge instance.*
Started	Specifies the initial operating state of a targeted messaging bridge instance.*
time_stamp	The date and time this row of data was last updated.
Transaction Timeout	The amount of time, in seconds, that the transaction manager waits for each transaction before timing it out.*
Source Destination	The source destination from which the messaging bridge instance reads messages.*
Target Destination	The target destination where the messaging bridge instance sends the messages it receives from the source destination.*

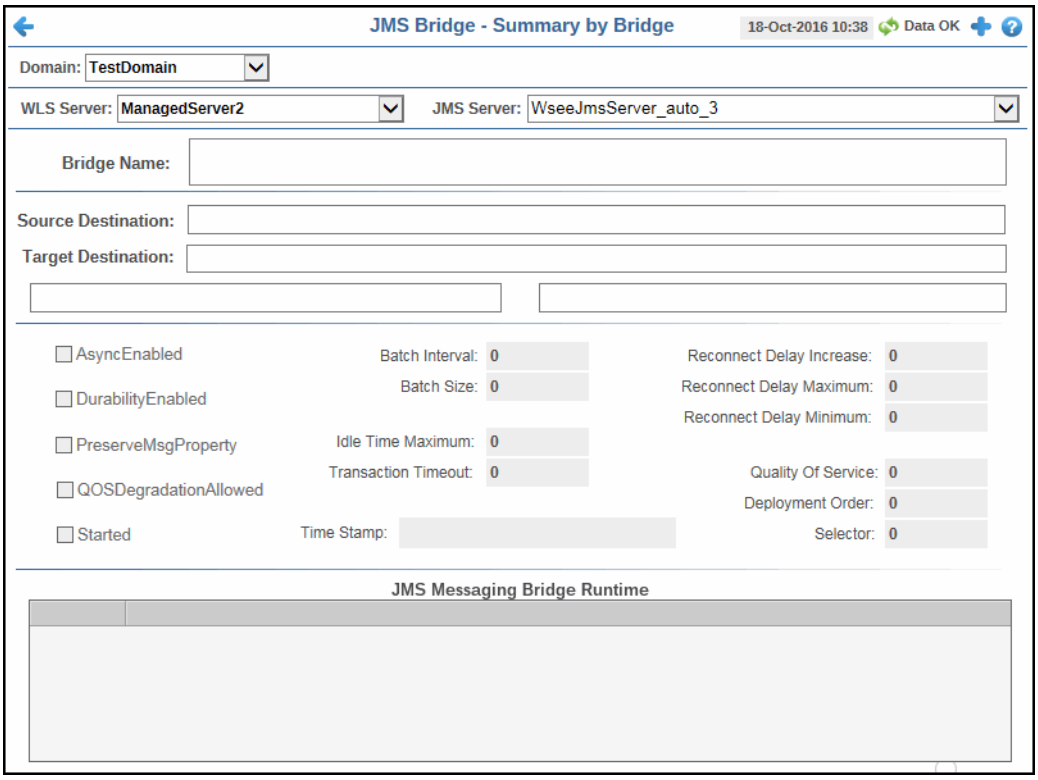
JMS Messaging Bridge Runtime Table

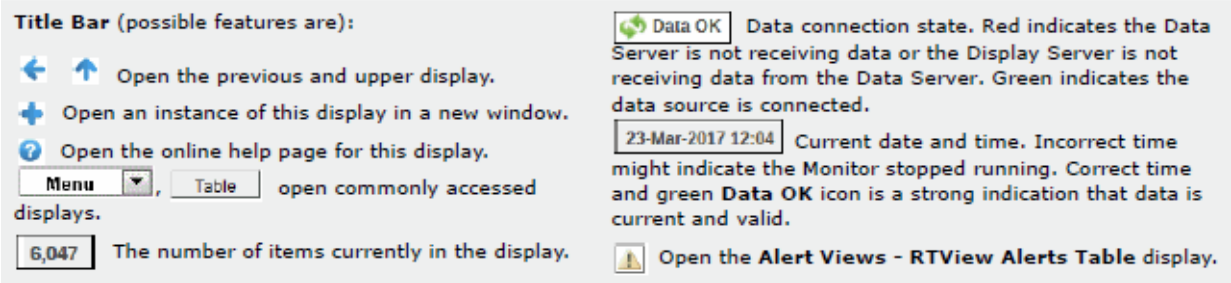
This table describes the messaging bridge metrics.

Name	The name of the messaging bridge.*
Location	The location of the messaging bridge.*
State	The current state of the messaging bridge. If **Inactive**, the color of this row is set to red.*
Description	If the message bridge is not running, the reason why it is not running is listed here.*
time_stamp	The date and time this row of data was last updated.

Bridge Summary

This summary view allows you to view performance and utilization metrics for a bridge associated with a particular JMS Server.





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns

Fields and Data

This display includes:

Domain	Select the domain containing the WebLogic Server for which you want to view data.
WLS Server	Select the WebLogic server containing the JMS Server for which you want to view data.
JMS Server	Select the JMS Server containing the destination for which you want to view data
Bridge Name	The name of the bridge associated with the JMS Server.
Source Destination	The source destination from which the messaging bridge instance reads messages.*
Target Destination	The target destination where the messaging bridge instance sends the messages it receives from the source destination.*
Async Enabled	When checked, denotes that the messaging bridge instance forwards in asynchronous messaging mode.*
Durability Enabled	Denotes whether or not the messaging bridge allows durable messages.*
Preserve Msg Property	Specifies if message properties are preserved when messages are forwarded by a bridge instance.*
QOS Degradation Allowed	Specifies if this messaging bridge instance allows the degradation of its quality of service (QOS) when the configured QOS is not available.*
Started	Specifies the initial operating state of a targeted messaging bridge instance.*
Batch Interval	The maximum amount of time, in milliseconds, that a messaging bridge instance waits before sending a batch of messages in one transaction.*
Batch Size	The number of messages that are processed within one transaction.*
Idle Time Maximum	The maximum amount of time, in seconds, that a message bridge instance remains idle.*
Transaction Timeout	The amount of time, in seconds, that the transaction manager waits for each transaction before timing it out.*
time_stamp	The date and time the data in this display was last updated.
Reconnect Delay Increase	The incremental delay time, in seconds, that a messaging bridge instance increases its waiting time between one failed reconnection attempt and the next retry.*

Reconnect Delay Maximum	The longest time, in seconds, that a messaging bridge instance waits between one failed attempt to connect to the source or target and the next retry.*
Reconnect Delay Minimum	The minimum amount of time, in seconds, that a messaging bridge instance waits before it tries to reconnect to the source or target destination after a failure.*
Quality of Service	The quality of service for this messaging bridge instance.*
Deployment Order	The priority that the server uses to determine when it deploys an item.*
Selector	The filter for messages that are sent across the messaging bridge instance.*

JMS Messaging Bridge Runtime Table

This table describes the messaging bridge metrics.

Location	The location of the messaging bridge.*
State	The current state of the messaging bridge. If **Inactive**, the color of this row is set to red.*
Description	If the message bridge is not running, the reason why it is not running is listed here.*

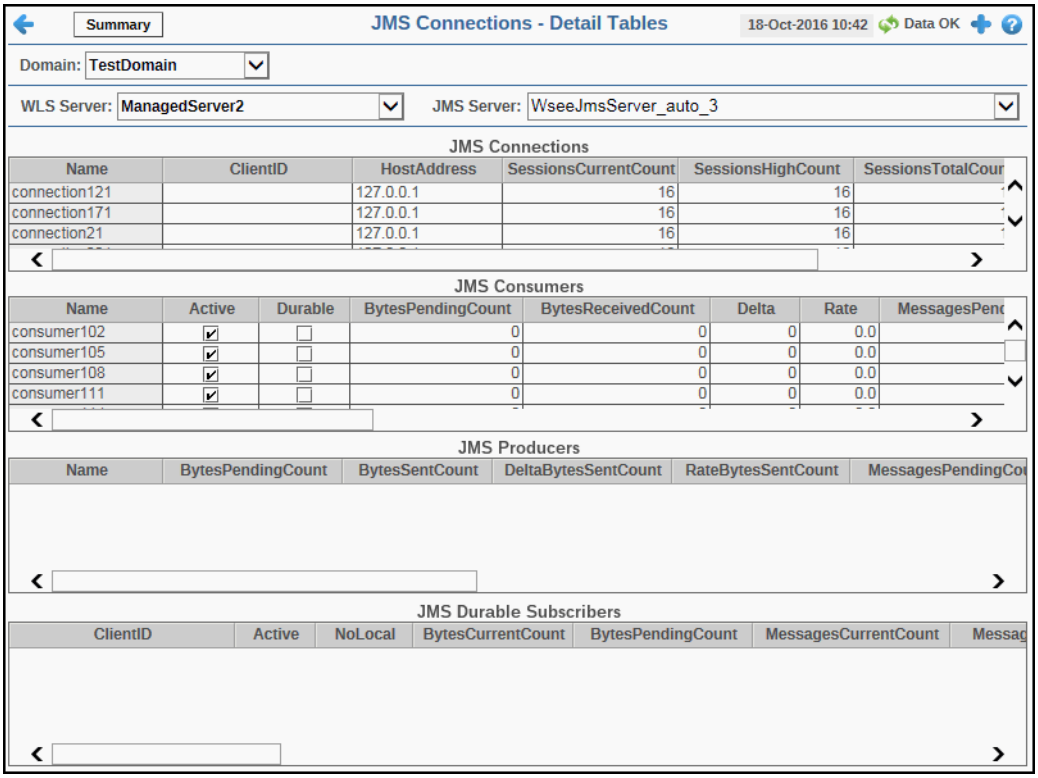
JMS Connections View

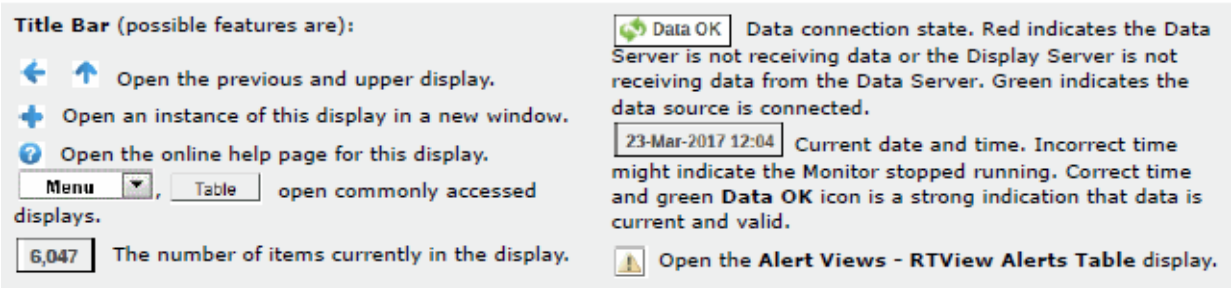
This view includes a display that presents a view of JMS performance metrics for a particular server.

- "JMS Connections - Detail by Server": A series of tables that allow you to view performance and utilization metrics for all JMS connections, JMS consumers, JMS producers, and JMS durable subscribers on a particular JMS server.

JMS Connections - Detail by Server

Track performance and utilization metrics for all JMS connections, JMS consumers, JMS producers, and JMS durable subscribers on a particular JMS server.





Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the WebLogic Server MBean interface. Refer to WebLogic documentation for more information regarding these columns

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Fields and Data

This display includes:

Domain Select the domain containing the WebLogic Server for which you want to view data.

WLS Server Select the WebLogic server containing the JMS Server for which you want to view data.

JMS Server Select the JMS Server containing the destination for which you want to view data

JMS Connections Table

This table describes all JMS connections on the selected JMS server.

Name	The name of the connection.
ClientID	The client id for the connection.*
HostAddress	The host address of the client JVM as a string.*
Sessions Current Count	The current number of sessions for the connection.*
Sessions High Count	The highest number of sessions for the connection since the last polling update.
Sessions Total Count	The total number of sessions for the connection since the last polling update.
time_stamp	The date and time this row of data was last updated.

JMS Consumers Table

This table describes all JMS consumers on the selected JMS server.

Name	The name of the consumer.
Active	When checked, denotes that the consumer is active.*
Durable	When checked, denotes that the consumer is durable.*
Bytes Pending Count	The number of bytes pending by the consumer.*
Bytes Received Count	The number of bytes received by the consumer since the last polling update.*
Delta	The increase in the amount of bytes received (from the previous polling period to the current polling period).
Rate	The rate of bytes received (per second) by the consumer.
Messages Pending Count	The number of pending messages by the consumer.*
Messages Received Count	The number of messages received by the consumer since the last polling update.*
Delta	The increase in the amount of messages received (from the previous polling period to the current polling period).
Rate	The number of messages received per second by the consumer.
JMS Connection Runtime	The name of the JMS connection.
JMS Session Runtime	The name of the JMS session.
Destination Name	The name of the destination for the consumer.
Selector	The name of the selector associated with the consumer.
time_stamp	The date and time this row of data was last updated.

JMS Producers Table

This table describes all JMS producers on the selected JMS server.

Name	The name of the producer.

Bytes Pending Count	The current number of bytes that are pending by the producer.*
Bytes Sent Count	The number of bytes sent by the producer since the last polling update.*
Delta Bytes Sent Count	The increase in the amount of bytes sent (from the previous polling period to the current polling period).
Rate Bytes Sent Count	The number of bytes sent per second by the producer.
Messages Pending Count	The number of messages pending by the producer.*
Messages Sent Count	The number of messages sent by the producer since the last polling update.*
Delta Messages Sent Count	The increase in the amount of messages sent (from the previous polling period to the current polling period).
Rate Messages Sent Count	The number of messages sent by the producer per second.
JMS Connection Runtime	The name of the JMS connection.
JMS Session Runtime	The name of the JMS session.
time_stamp	The date and time this row of data was last updated.

JMS Durable Subscribers Table

This table describes all JMS durable subscribers on the selected JMS server.

ClientID	The client ID for the durable subscriber.*
Active	When checked, denotes that the subscription is being used by a durable subscriber.*
No Local	Indicates whether the durable subscriber receives local messages that it has published.*
Bytes Current Count	The number of bytes received by the durable subscriber.*
Bytes Pending Count	The current number of bytes that are pending by the durable subscriber.*
Messages Current Count	The number of messages still available by this durable subscriber.*
Messages Deleted Current Count	The number of messages deleted from the destination.*
Messages High Count	The highest number of messages for the durable subscriber since the last polling update.
Messages Moved Current Count	The number of messages that have been moved from the destination.*
Messages Pending Count	The number of messages pending by this durable subscriber.*
Messages Received Count	The number of messages received by the durable subscriber since the last polling update.
Current Consumer Info Client ID	The client ID for the consumer.*
Current Consumer Info Connection Address	The connection address of the consumer.*
Current Consumer Info Durable	When checked, denotes that the current consumer is durable.*

Current Consumer Info Name	The name of the current consumer.*
Current Consumer Info No Local	Indicates whether the consumer receives local messages it has published itself.*
Current Consumer Info Selector	The message selector defined for this consumer.*
Name	The name of the durable subscriber.*
Subscription Name	The subscription name for the durable subscriber.*
Selector	The message selector defined for the durable subscriber.*
time_stamp	The date and time this row of data was last updated.

CHAPTER 20 Solution Package for Red Hat JBoss

Gain real-time insight into JBoss performance and resource utilization and the performance impact on adjacent middleware technologies by moving from reactive monitoring to proactive monitoring.

With the Solution Package for Red Hat® JBoss® you are able to identify potential problems before they become critical and impact overall application performance. Typical installations of RTView Enterprise Monitor and its Solution Packages take only a few hours, while developing custom views for a variety of IT and development roles can be achieved in just days.

This chapter includes:

Product Overview

Key Features

- Monitor real-time performance for early warning
- Analyze historical performance to differentiate trends and spikes
- Out of the box discovery and monitoring of key metrics and resources
- Powerful diagnostics and correlations for complex performance analysis
- View JBoss in an application context
- Instant insight for JBoss resource management
- Application-centric monitoring of JBoss operations
- Minimal training, highly configurable by business and technical users

Metrics for JBoss JVMs

- **Server Information for easy identification:**

  Uptime, Version, Mode, Arch, Processors, Edition, Last Updated
- **Performance metrics:**

  Process & System CPU Load

  Thread Usage & Loaded Classes
- **Memory Usage (% and MB):**

  Swap / Free / Used / Total
- **Session Totals and Rates:**

  Created / Rejected / Active / Expired / Avg. Alive Time
- **Alert Status / Level:**

  Server & Web Apps

  Alert Impact, Alert Severity, Alert Count and Criticality
- **Performance Time-series:**

  Displayable with configurable time ranges (Add data, 2 mins, 5 mins, 20 mins, 1 hour, 2 hours, 4 hours, 8 hours, 24 hours, 2 days, 7 days
- **Prebuilt Displays:**

  All Servers Heatmap, Table & Individual Server Summary

  Applications Heatmap, Table and Applications Summary

End-to-End Context for JBoss

- Custom flow diagrams help visualize complex applications and JBoss's place in that architecture
- Troubleshoot bottlenecks between application server and middleware messaging
- Provides an intuitive view of how JBoss interacts with other Enterprise PaaS Components
- Designed and developed for large scale, mission critical environments

See **README_sysreq.txt** for the full system requirements for RTView®.

Configuration Parameters You Need

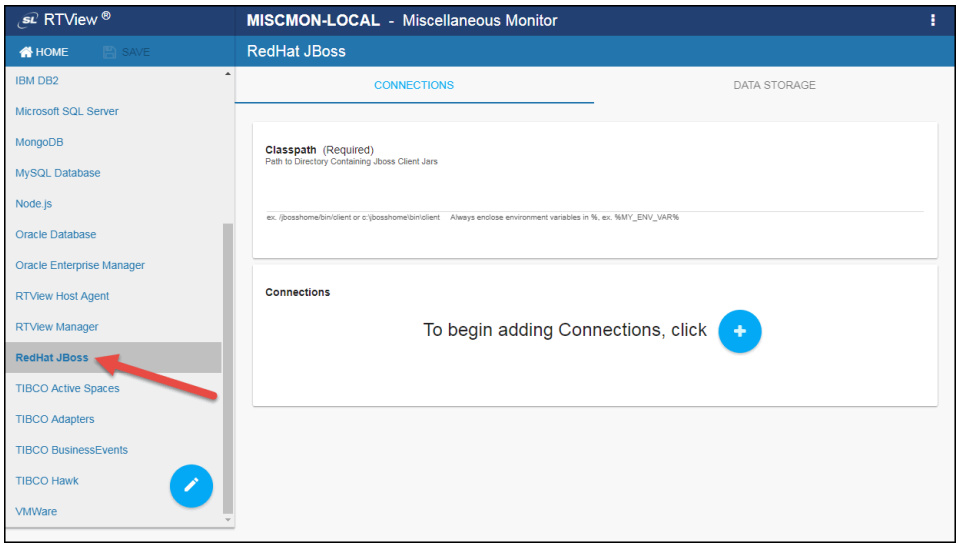
To configure the Solution Package for Red Hat® JBoss®, make a note of the following values:

- **PackageName=jbossmon**
- **ServerDirectory=miscmon**
- **AlertPrefix=Jboss**

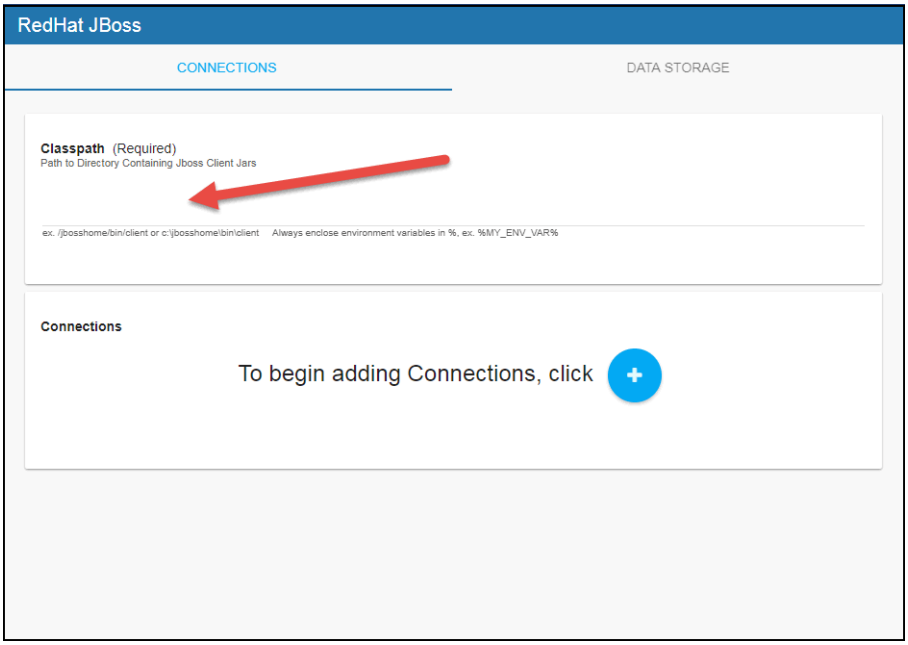
Configure Data Collection

Use the "RTView Configuration Application" to configure your data collection.

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **RedHat JBoss** from the list.

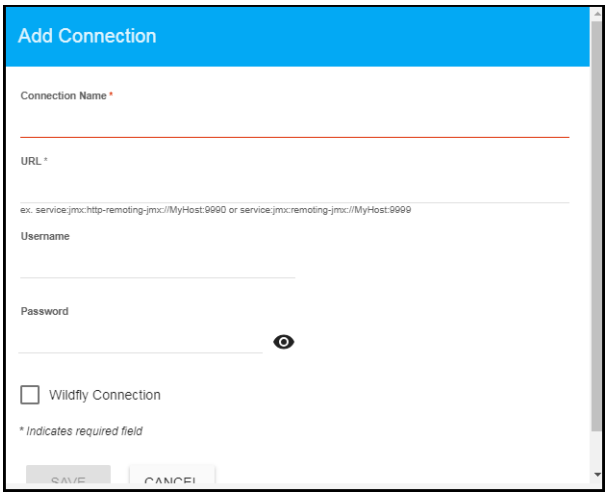


2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the RedJat JBoss client jar files in the **Classpath** field.



3. In the **Connections** section, click the + icon.

The **Add Connection** dialog displays.



4. Specify the connection information and click **Save** where:

Connection Name: Enter the desired name for the connection.

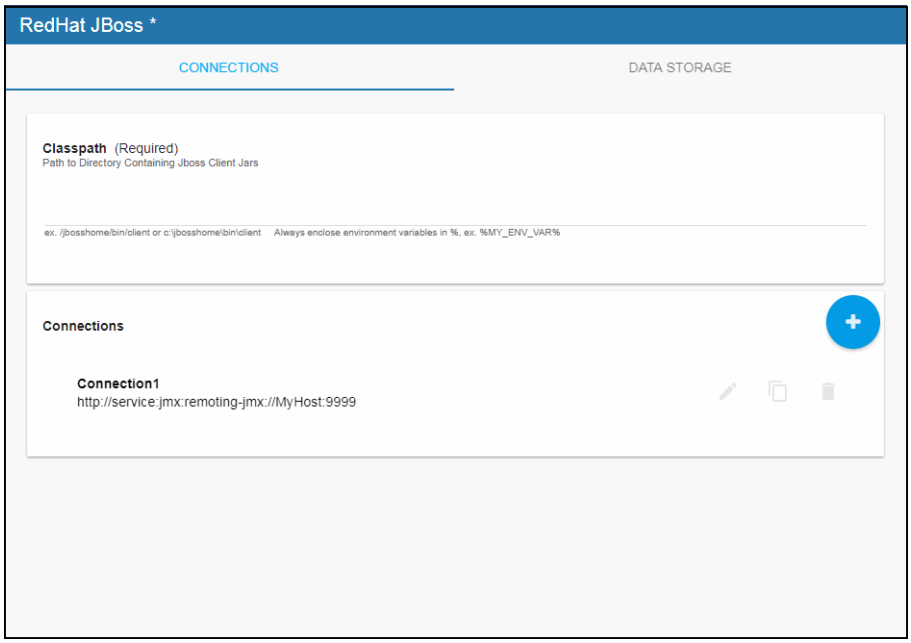
URL: Enter the complete URL for the connection.

Username: The username is used when creating the connection to the host. This field is optional.

Password: This password is used when creating the connection to the host. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Wildfly Connection: Select this check box if the connection you are creating is a JBOSS Wildfly connection.

The newly created connection displays in the **Connections** section.



Additional Configurations

This section describes the additional option RedHat JBoss Monitor configurations.

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

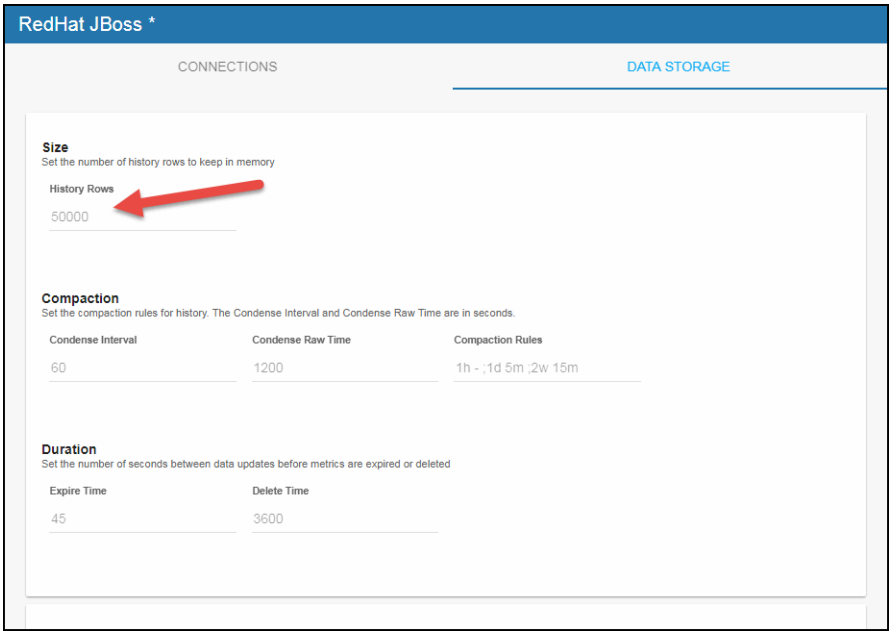
- "Defining the Storage of In-Memory History for RedHat JBoss"
- "Defining RedHat JBoss Compaction Rules"
- "Defining Expiration and Deletion Duration for RedHat JBoss Metrics"
- "Enabling/Disabling Storage of RedHat JBoss Historical Data"
- "Defining a Prefix for All History Table Names for RedHat JBoss Metrics"

Defining the Storage of In-Memory History for RedHat JBoss

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the JbossDeployments, JbossDeploymentTotals, and JbossServerStats caches. The default settings for **History Rows** is 50,000. To update the default setting:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **RedHat JBoss** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining RedHat JBoss Compaction Rules

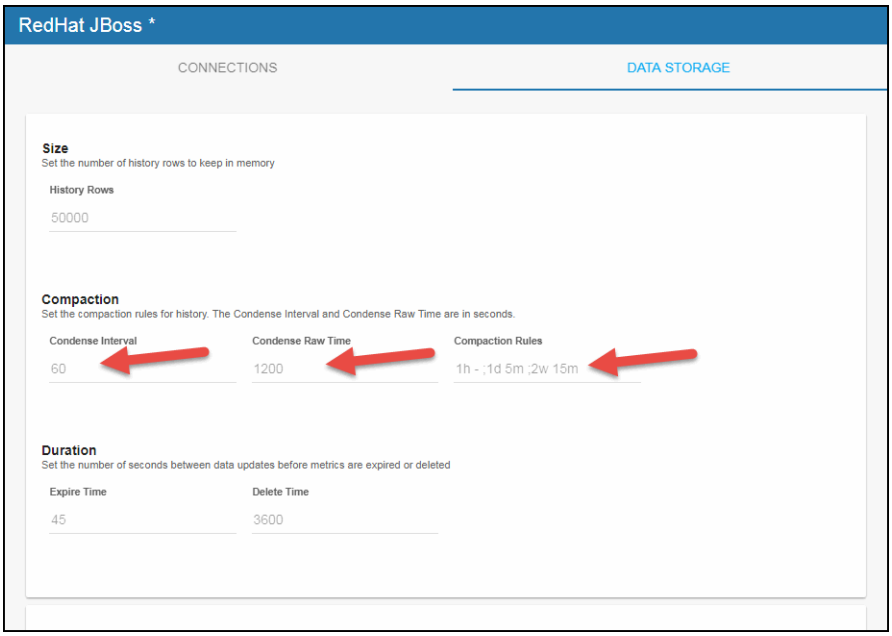
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: JbossDeployments, JbossDeploymentTotals, and JbossServerStats. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: JbossDeployments, JbossDeploymentTotals, and JbossServerStats. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: JbossDeployments and JbossDeploymentTotals. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **RedHat JBoss** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



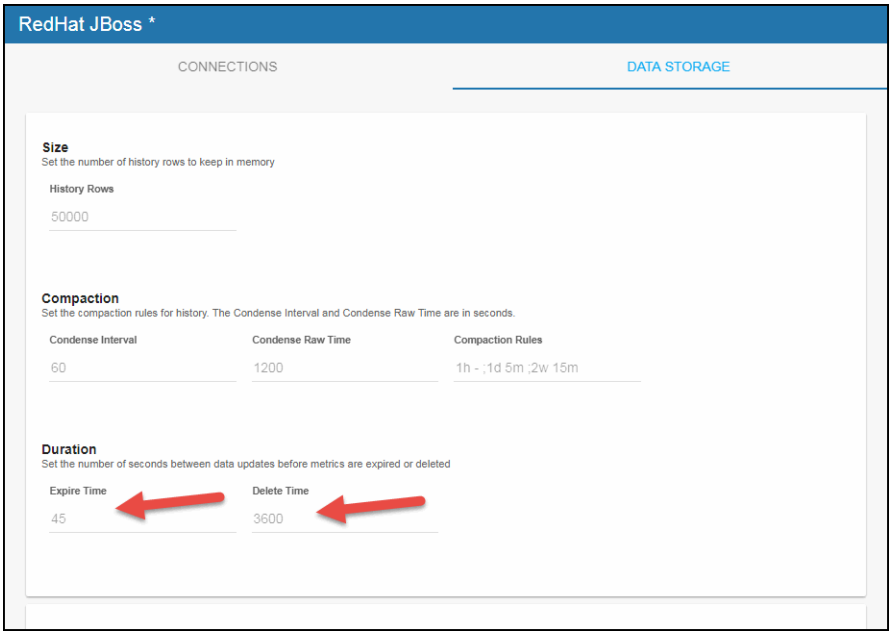
Defining Expiration and Deletion Duration for RedHat JBoss Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The following caches are impacted by settings in the **Expire Time** field: JbossDeployments, JbossDeploymentTotals, JbossServerStats, and JbossServerInfo. The following caches are impacted by the **Delete Time** field: JbossDeployments, JbossDeploymentTotals, and JbossServerStats. To modify these defaults:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **RedHat JBoss** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

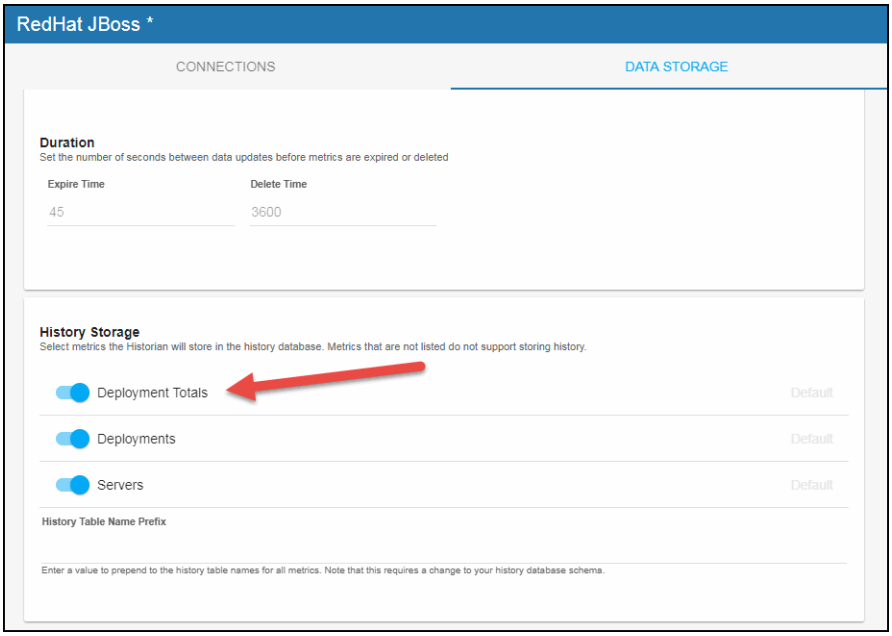


Enabling/Disabling Storage of RedHat JBoss Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical Deployment Totals (JbosDeploymentTotals cache), Deployments (JbossDeployments cache), and Servers (JBossServerStats cache) are saved to the database. To disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **ReHat JBoss** > **DATA STORAGE** tab.

2. In the **History Storage** region, deselect the toggles for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



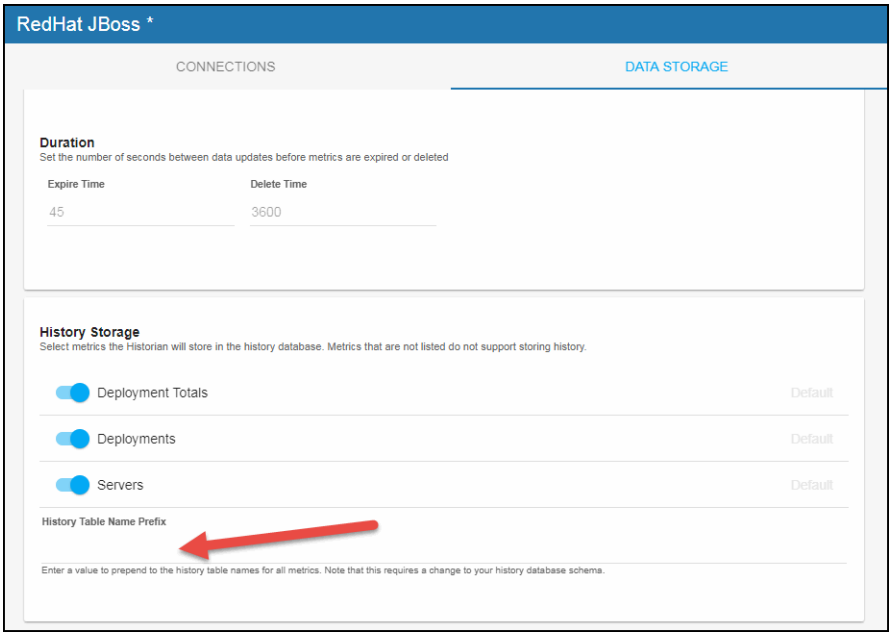
Defining a Prefix for All History Table Names for RedHat JBoss Metrics

The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME/jbossmon/dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **RedHat JBoss** > **DATA STORAGE** tab.
2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

- "Log Files"
- "JAVA_HOME"
- "Permissions"
- "Network/DNS"
- "Verify Data Received from Data Server"
- "Verify Port Assignments"

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Jboss." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

JBoss Monitor Views/Displays

The following JBoss Monitor Views (and their associated displays) can be found under **Components** tab **> Application/Web Servers> JBoss** after the Solution Package for Red Hat JBoss is installed.

This section contains the following:

- "JBoss Servers View" on page 879: The displays in this View present server performance metrics such as CPU and memory utilization.
- "JBoss Applications" on page 885: The displays in this View present views of the VPN-level metrics.

JBoss Servers View

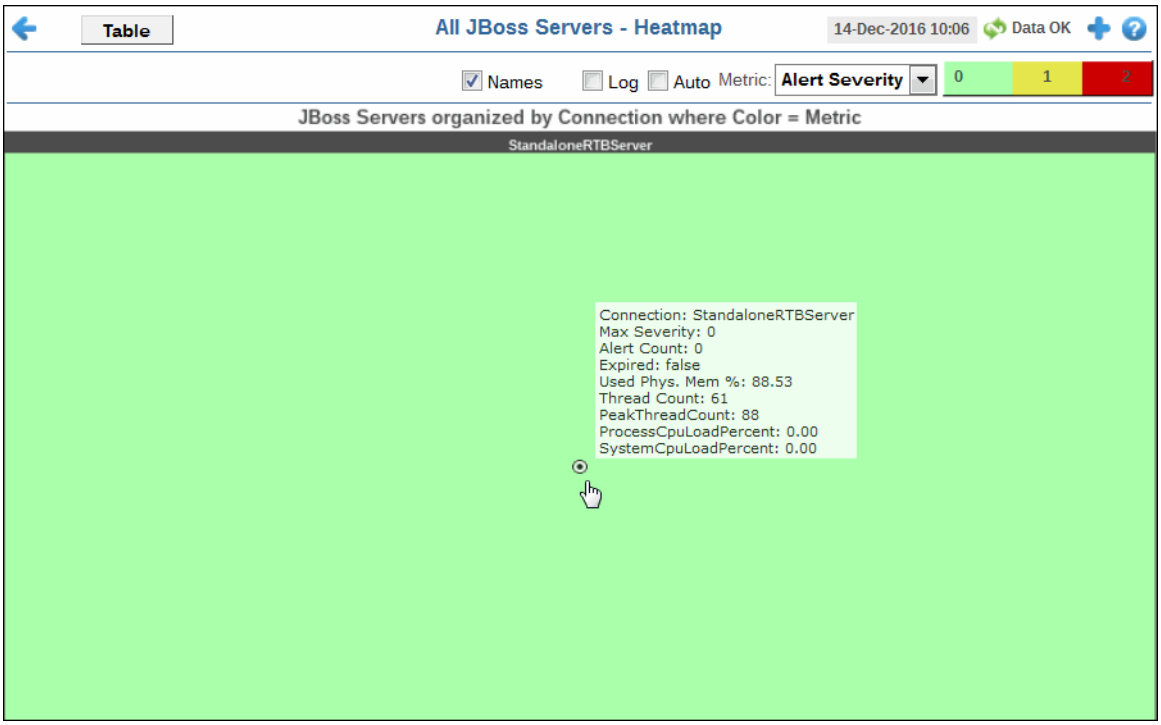
Displays in this View are:

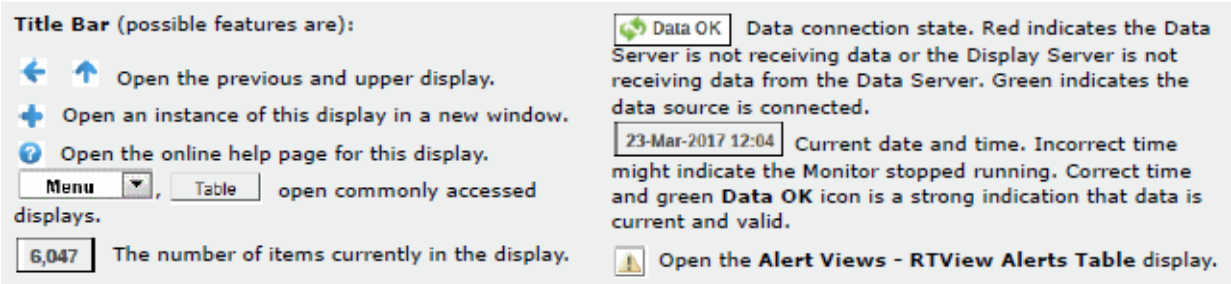
- "All Servers Heatmap" on page 880
- "All Servers Table" on page 881
- "Server Summary" on page 883

All Servers Heatmap

This heatmap shows the current status of connections on all JBoss servers. Use this display to quickly assess the current status of connections using various metrics, including **Alert Count** and **CPU Used %** and **Virtual Memory Used %**. By default, this display shows the heatmap based on the **Alert Severity** metric.

Each rectangle is a different JBoss server. Use the **Names** check-box ☑ to include or exclude labels in the heatmap, and mouse over a rectangle to see additional metrics for a server. Click a rectangles to drill down to the "Server Summary" display, which shows additional details about the server.





Fields and Data:

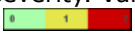
Names Select to include labels in the heatmap.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Used% The percent CPU used. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **JbsServerCpuUsedHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

V Memory Used% The percent virtual memory used. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **JbsServerMemUsedHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

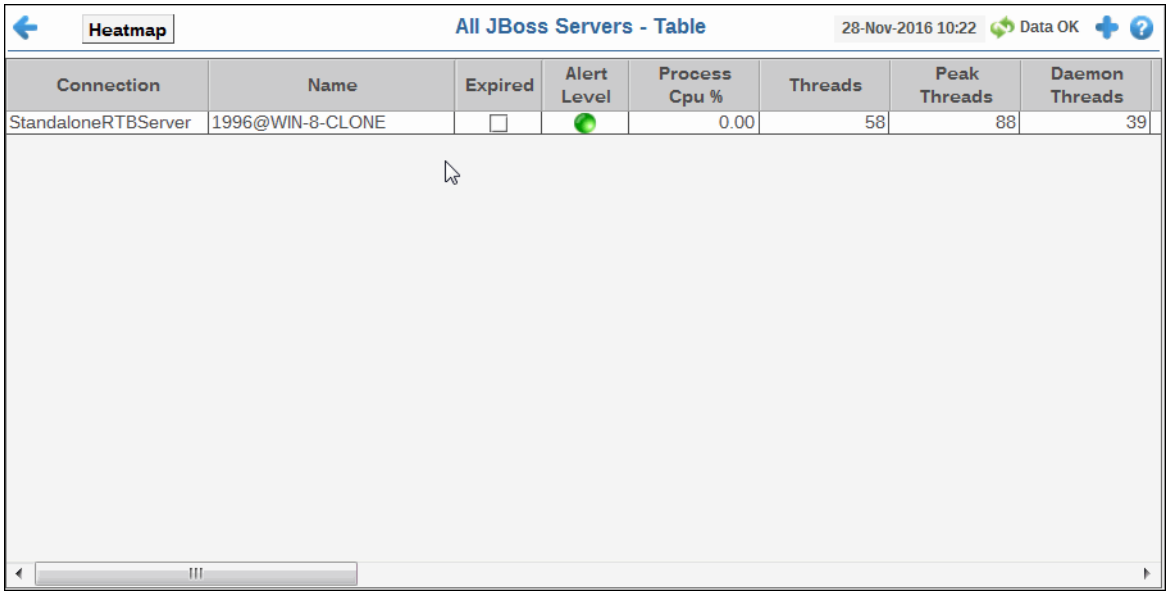
Free Memory The total amount of available memory. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount of available memory. The middle value in the gradient bar indicates the average amount.

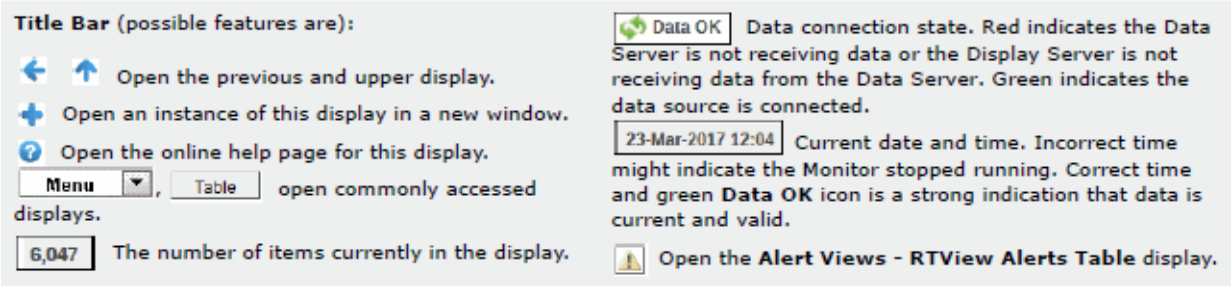
The **Auto** flag does not have any impact on this metric.

All Servers Table

View JBoss server details per connection such as the total number of sessions, bytes sent/ received, and processing time. Each row in the table is a different server. The row color for inactive servers is dark red.

Drill-down and investigate by clicking a row in the table to view details for the selected connection in the "Server Summary" display.





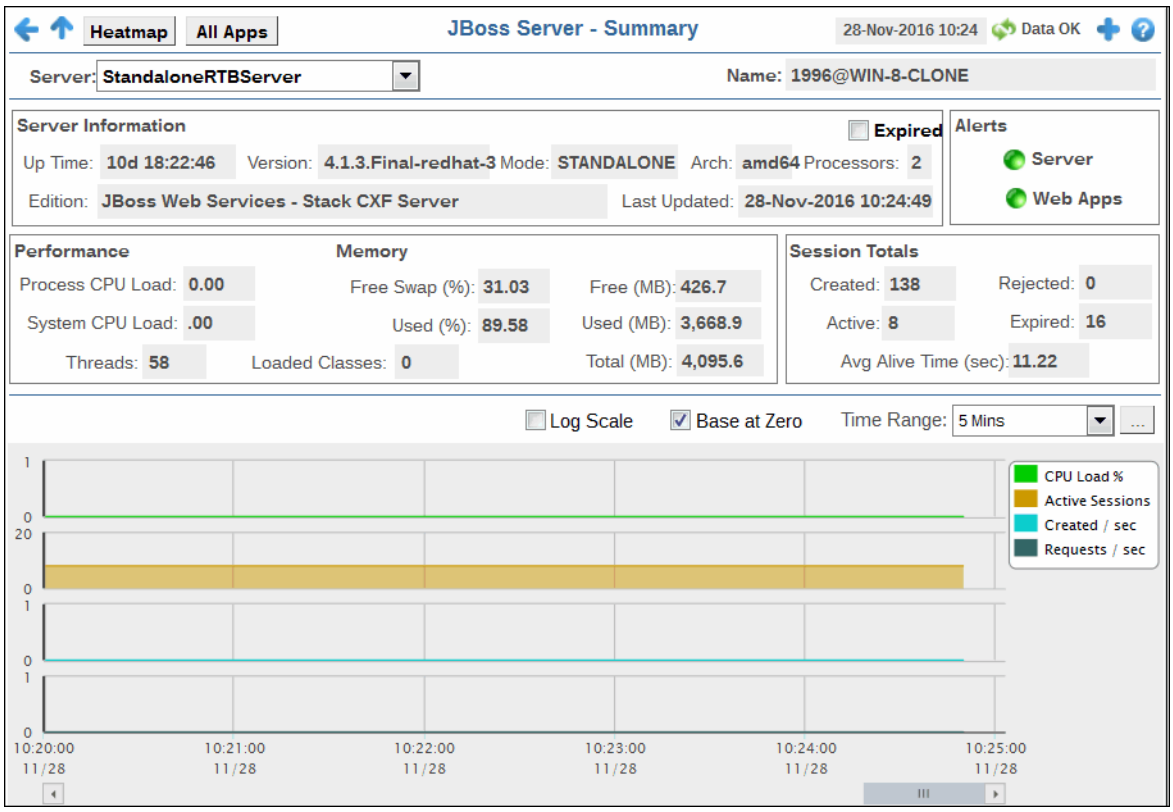
Fields and Data
This display includes:

Connection	The name of the connected server.
Name	The name of the connection.
Expired	When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Process Cpu%	The amount of CPU used by processes, in percent.
Threads	The total number of currently active threads.
Peak Threads	The maximum number of active threads.

Daemon Threads	The total number of currently active daemon threads.
Started Threads	The total number of threads started since the server was last started.

Server Summary

Track the performance of one server, see detailed current information as well as historical trends. You can drill down to this display from the "All Servers Heatmap" and "All Servers Table" displays.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Server	Select a server.

Name The name of the connection.

Server Information

Up Time	The amount of time that the server has been up and running.
Version	The version of the operating system.
Mode	The current server mode: • STANDALONE • DOMAIN MODE
Arch	The type of server architecture.
Processors	The number of processors on the server.
Expired	When checked, data has not been received from this server in the specified amount of time. The server will be removed from the Monitor per the specified amount of time. The default setting is **35** seconds.
Edition	Refers to the vendor edition.
Last Updated	The date and time of the last data update.

Alerts The current alert severity.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Performance

Process CPU Load	The amount of process CPU utilization, in megabytes.
System CPU Load	The amount of process CPU utilization, in megabytes.
Threads	The number of active threads.
Load Classes	The number of active load classes.

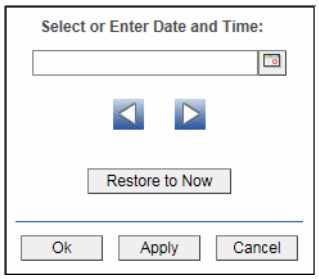
Memory

Free Swap %	The amount of free swap memory, in percent.
Free MB	The amount of free swap memory, in megabytes.
Used %	The amount of used memory, in percent.
Used MB	The amount of used memory, in megabytes.
Total MB	The memory sum total (**Free MB** + **Used MB**), in megabytes.

Session Totals

Created	The total number of sessions created since the server was restarted.
Rejected	The total number of sessions rejected since the server was restarted.
Active	The total number of currently active sessions.
Expired	The total number of currently expired sessions.
Average Alive Time sec	The average amount of time per session, in seconds.

Trend Graph
Traces metrics for the selected server.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Use zero as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .  By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**. Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu. Click **Restore to Now** to reset the time range end point to the current time.
CPU Load %	Traces the amount of process CPU utilization, in percent.
Active Sessions	Traces the number of active sessions.
Created/sec	Traces the number of active sessions per second.
Requests/sec	Traces the number of requests per second.

JBoss Applications

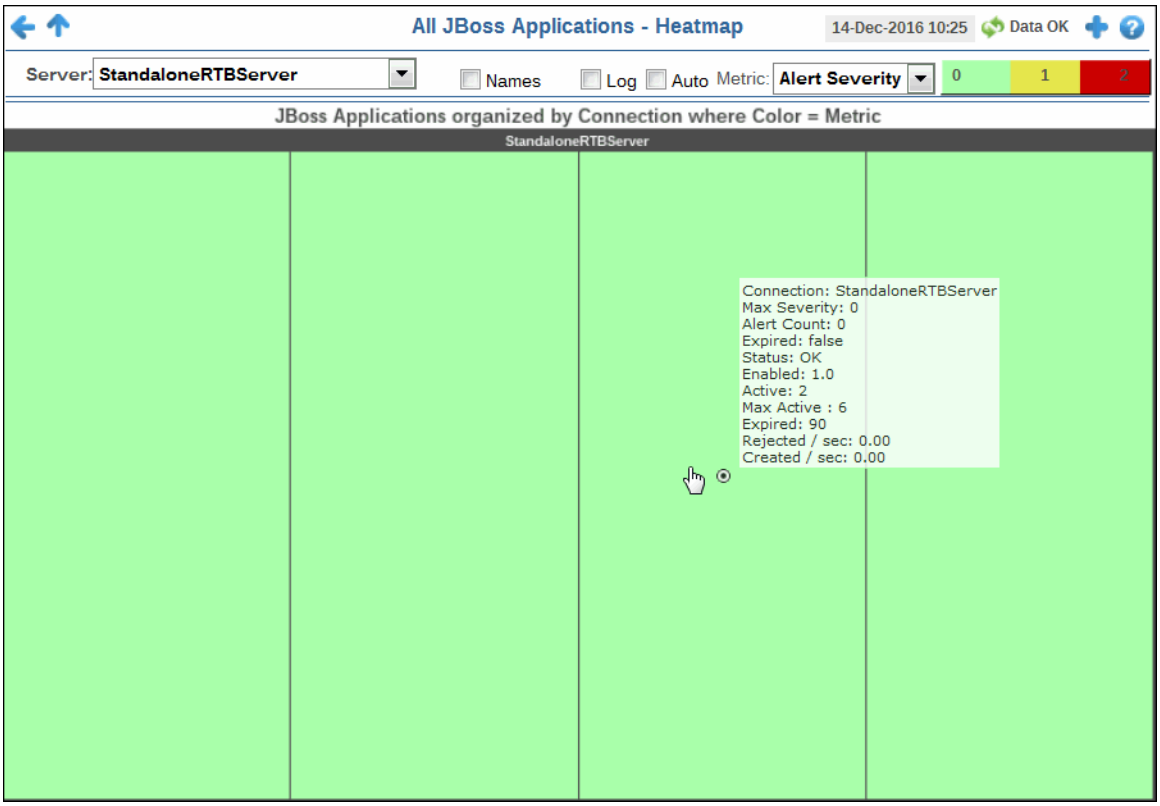
Displays in this View are:

- "Applications Heatmap" on page 885
- "Applications Summary" on page 888

Applications Heatmap

This heatmap shows the current status of all JBoss application connections. Use this to quickly identify the current session metrics for connections on one server or **All Servers**. Select a **Metric** from the drop-down menu, such as **Active Sessions** and **Average Alive Time**. By default, this display shows the **Alert Severity** metric.

Use the **Names** check-box ☑ to include or exclude labels in the heatmap, or mouse over a rectangle to see additional metrics for connections. Clicking one of the rectangles in the heatmap opens the "Applications Summary" display, which allows you to see additional details for the selected server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

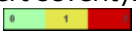
23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

Server	Choose a server to display.
Names	Select this to include labels in the heatmap.
Log	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. **Note:** Some metrics auto-scale automatically, even when **Auto** is not selected.

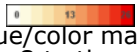
Metric Choose a metric to view in the display.

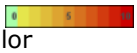
Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning unacknowledged alerts. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

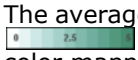
Active Sessions The number of currently active sessions. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined **JbossDeploymentActiveSessionsHigh** alert threshold. The middle value in the gradient bar indicates the middle value of the range.

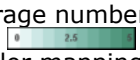
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Max Active Count The total amount of active sessions. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount. The middle value in the gradient bar indicates the average amount.

The **Auto** flag does not have any impact on this metric.

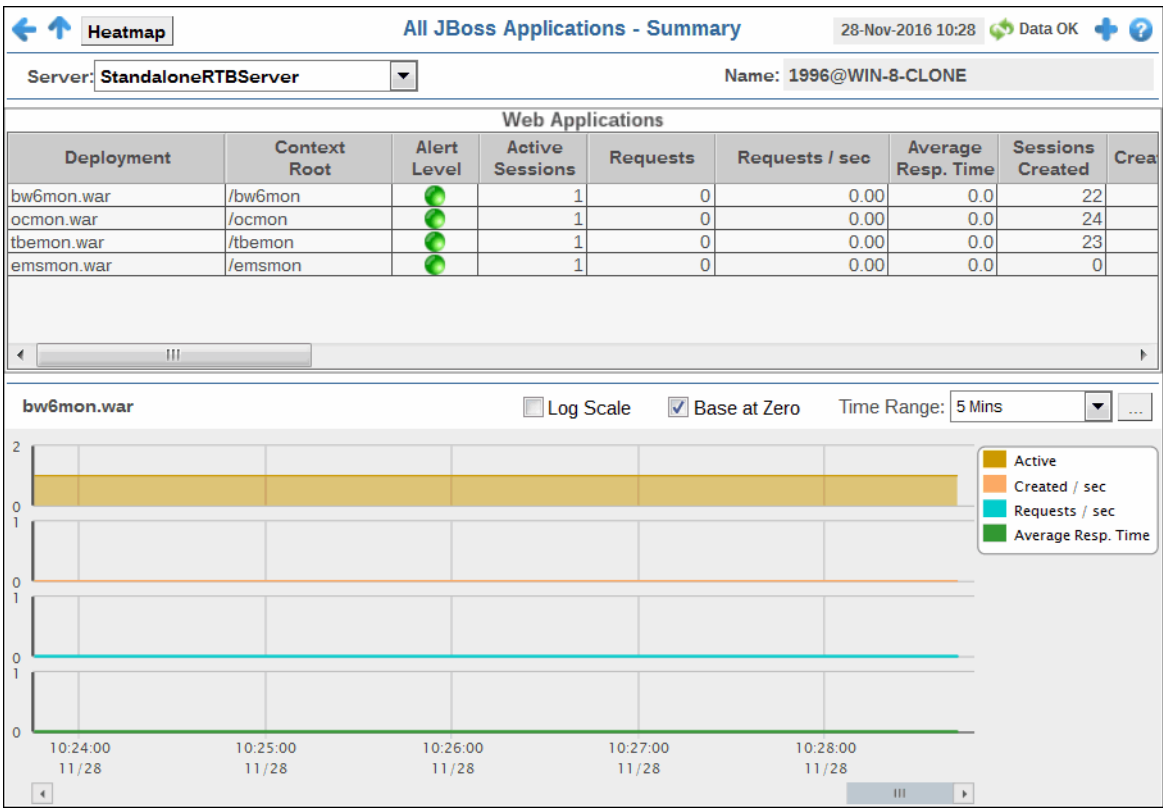
Avg Alive Time The average amount of time a session lasts, in seconds. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum amount recorded. The middle value in the gradient bar indicates the average amount.

Created/ sec The average number of sessions created per second. The color gradient  bar, populated by the current heatmap, shows the value/ color mapping. The numerical values in the gradient bar range from **0** to the maximum number recorded. The middle value in the gradient bar indicates the average number.

Rejected/ sec The average number of rejected sessions per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum number recorded. The middle value in the gradient bar indicates the average number.

Applications Summary

Track current and historical performance of web applications on one server. Select a server from the **Server:** drop-down menu. Each row in the table is a different application on the selected server. Click a table row to populate the trend graphs.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Server Choose a server to display.

Name The name of the connection.

Web Application Table
Each table row is a different web application on the selected server.

Deployment The name of the **.war** file for the application.

Context Root	The location of the **.war** file for the application.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Active Sessions	The number of currently active sessions for the application.
Requests/ sec	The number of requests per second for the application.
Average Resp. Time	The average response time for the application, in seconds.
Sessions Created	The total number of sessions created for the application.
Created/ sec	The number of sessions created per second for the application.
Sessions Rejected	The total number of sessions rejected for the application.
Rejected/ sec	The number of sessions rejected per second for the application.
Max Active Sessions	The maximum number of simultaneously active sessions counted for the application.
Expired	When checked, the monitor has not received monitoring data for the application in the defined time interval.
Enabled	Indicates whether the application has been enabled for use in the JBoss Server.
Status	Indicates the application status.
Avg. Alive Time	The average amount of time, in seconds,
Max Alive Time	The average amount of time, in seconds,
Expired Sessions	The number of expired sessions for the application.
content	The application content.
Duplicated Session Ids	The number of sessions containing duplicated session IDs.
name	The name of the **.war** file for the application.
persistent	Indicates whether
Runtime Name	The name of the **.war** file for the application.
subsystem	The subsystem of the application.
Virtual Host	The name of the virtual machine that hosts the application.

Time Stamp The date and time of the last data update.

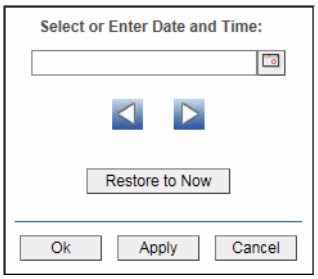
Connection The connection name.

Trend Graph
Traces metrics for the selected server.

Log Scale Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Active The number of currently active sessions for the application.

Created/ sec The number of sessions created per second for the application.

Requests/ sec The number of requests per second for the application.

Average Resp. Time The average response time for the application, in seconds.

CHAPTER 21 Solution Package for RTView Host Agent

The Solution Package for RTView Host Agent monitors the health and performance of your physical servers. These predefined displays allow you to be alerted when hosts reach a critical condition. You can also see their performance impact on the technologies and applications they support. Metrics include CPU, memory and storage utilization, process resource consumption and network traffic load.

You install the Solution Package for RTView Host Agent onto each host you wish to monitor by extracting the zip file located in the **EnterpriseMonitor\rtvapm\hostmon\agents** directory. Refer to the **README_rtvHostAgent.txt** file in that directory for details about how to configure and run the host agent.

The Solution Package for RTView Host Agent displays come with RTView Enterprise Monitor. However, the displays are empty until you install and configure the Solution Package for RTView Host Agent.

Many medium to large organizations must deal with multiple monitoring solutions that are gathering important host information such as CPU and memory consumption. You can incorporate that information into the RTView® Enterprise Monitor by either deploying released Connectors (currently Connectors are available for TIBCO Hawk and Oracle Enterprise Manager), creating a custom connector, or using the RTView Host Agent.

Typically users choose to deploy the RTView Host Agent if the host is not already being monitored by another system, or if there are extra benefits in using this agent in addition to currently existing monitoring solutions. For example, sometimes the RTView Host Agent provides deeper information, or reports metrics at a much more rapid rate (default configurations are set at 10 second updates).

This section includes:

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/rtvmgr/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEntepriseMonitor/emsample/servers/rtvmgr/logs** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

General Hosts Views/Displays

RTView Host Agent displays provide extensive visibility into the health and performance of your hosts. The following RTView Host Agent Monitor Views (and their associated displays) can be found under **Components** tab **> Hosts/VMs > General Hosts**. The Solution Package for RTView Host Agent comes with RTView Enterprise Monitor. However, the displays are empty until you configure the Solution Package for RTView Host Agent.

RTView Host Agent has the following Views:

- "All Hosts"
- "Single Host"

All Hosts

These displays present performance data for monitored hosts. Use these displays to examine the state and performance of your hosts. The server displays include summary overviews and detail pages with historical trends.

To see your data in these displays you must install and configure the Solution Package for RTView Host Agent. Displays in this View are:

- "All Hosts Heatmap"
- "All Hosts Table"
- "All Hosts Grid"
- "All Processes Table"
- "All Network Table"
- "All Storage Table"
- "Host Summary"

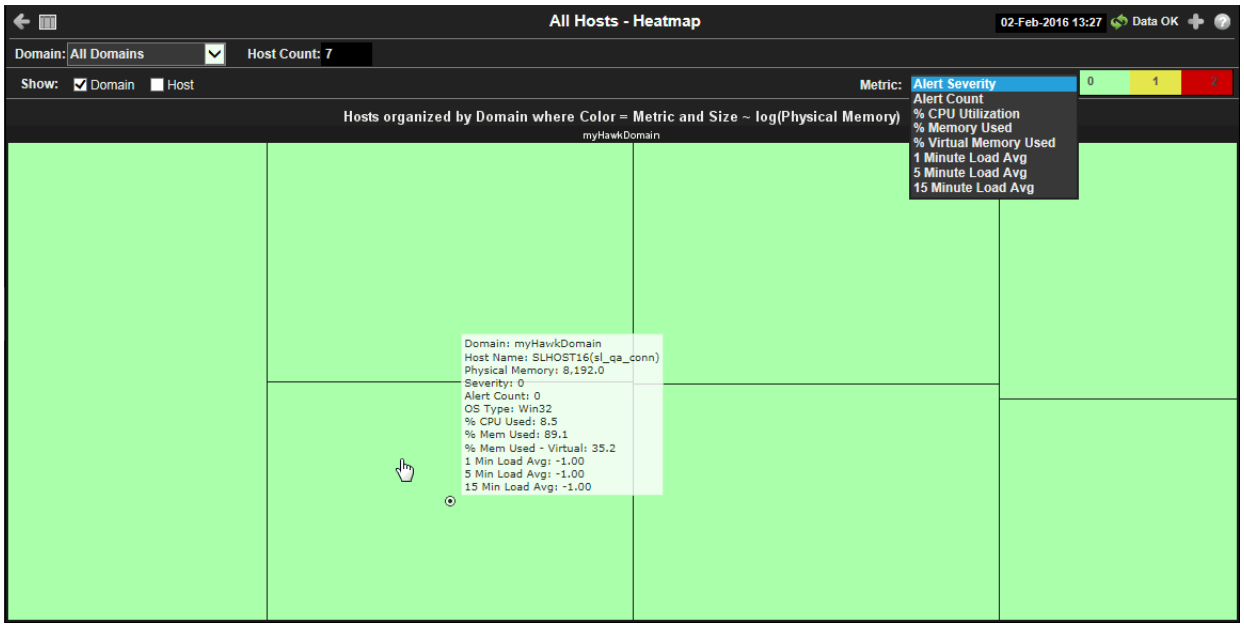
All Hosts Heatmap

View the most critical alert states pertaining to your hosts. Use this display to quickly identify hosts with critical alerts.

Each rectangle in the heatmap represents a host. The rectangle color indicates the most critical alert state associated with the host for the selected **Metric**. The rectangle size represents the amount of physical memory present on the host; a larger size is a larger value.

Choose a domain or **All Domains** from the **Domain** drop-down menu to filter data shown in the display. Choose a different metric to display from the **Metric** drop-down menu. Mouse over a rectangle to see additional metrics. By default, this display shows **Alert Severity**.

Drill-down and investigate a host by clicking a rectangle in the heatmap to view details in the **Host Summary** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

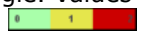
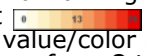
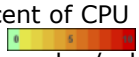
Domain: Choose a domain to show data for in the display. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.

Fields and Data:

Host Count: The total number of hosts currently shown in the display.

Show:
- **Domain** When selected, includes the Domain name in the display.
- **Host** When selected, includes the Host name in the display.

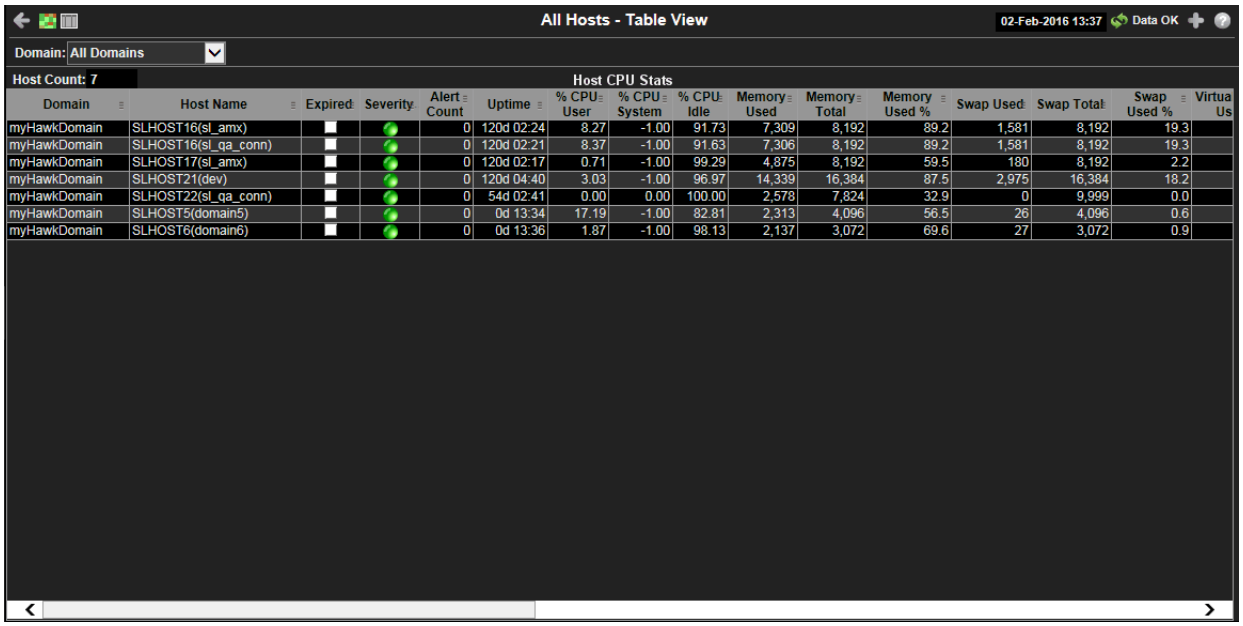
Metric Choose a metric to view in the display.

Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
% CPU Utilization	The percent of CPU used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
% Memory Used	The percent of memory used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
% Virtual Memory Used	The percent of virtual memory used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
1 Minute Load Avg	The average number of processes running over 1 minute.
5 Minute Load Avg	The average number of processes running over 5 minutes.
15 Minute Load Avg	The average number of processes running over 15 minutes.

All Hosts Table

View host utilization data in a tabular format. Use this display to see all available data for this View.

Each row in the table is a different host. Choose a domain or **All Domains** from the **Domain** drop-down menu. Click a column header to sort column data in numerical or alphabetical order. Drill-down and investigate by clicking a row to view details for the selected application in the **Host Summary** display.



Domain	Host Name	Expired	Severity	Alert Count	Uptime	% CPU User	% CPU System	% CPU Idle	Memory Used	Memory Total	Memory Used %	Swap Used	Swap Total	Swap Used %	Virtua Us
myHawkDomain	SLHOST16(sl_amx)			0	120d 02:24	8.27	-1.00	91.73	7,309	8,192	89.2	1,581	8,192	19.3	
myHawkDomain	SLHOST16(sl_qa_conn)			0	120d 02:21	8.37	-1.00	91.63	7,306	8,192	89.2	1,581	8,192	19.3	
myHawkDomain	SLHOST17(sl_amx)			0	120d 02:17	0.71	-1.00	99.29	4,875	8,192	59.5	180	8,192	2.2	
myHawkDomain	SLHOST21(dev)			0	120d 04:40	3.03	-1.00	96.97	14,339	16,384	87.5	2,975	16,384	18.2	
myHawkDomain	SLHOST22(sl_qa_conn)			0	54d 02:41	0.00	0.00	100.00	2,578	7,824	32.9	0	9,999	0.0	
myHawkDomain	SLHOST5(domain5)			0	0d 13:34	17.19	-1.00	82.81	2,313	4,096	56.5	26	4,096	0.6	
myHawkDomain	SLHOST6(domain6)			0	0d 13:36	1.87	-1.00	98.13	2,137	3,072	69.6	27	3,072	0.9	

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

Fields and Data:

Host Count: The total number of hosts in the table.

Table:
Each row in the table is a different host.

Domain The domain in which the host resides. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.

Host Name The name of the host.

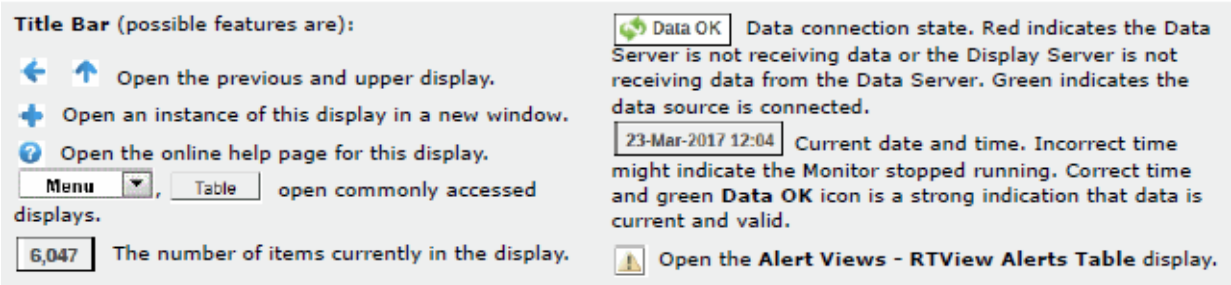
Expired When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.

Severity	The maximum level of alerts in the row. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics exceeded their alert thresholds.
Alert Count	The total number of active alerts associated with the host.
Uptime	The amount of time the application has been running, in the following format: **0d 00:00 <days>d <hours>:<minutes>:<seconds>** For example: **10d 08:41:38**
% CPU Used	The amount of CPU used, in percent.
% CPU System	The amount of CPU used, in percent.
% CPU Idle	The amount of CPU not used, in percent.
Memory Used	The amount of memory, in megabytes, currently used.
Memory Total	The total amount of memory, in megabytes.
Memory Used%	The amount of memory used, in percent.
Swap Used	The amount of swap space, in megabytes, currently used.
Swap Total	The total amount of swap space, in megabytes.
Swap Used %	The amount of swap space used, in percent.
Virtual Mem(ory) Used	The amount of virtual memory currently used, in megabytes.
Virtual Mem(ory) Total	The total amount of virtual memory, in megabytes.
Virtual Mem(ory) Used%	The amount of virtual memory used, in percent.
Load Avg 1 Minute	The average number of processes running over 1 minute.
Load Avg 5 Minute	The average number of processes running over 5 minutes.
Load Avg 15 Minute	The average number of processes running over 15 minutes.
OS Type	The type of operating system (for example, Linux, HP-UX, Windows 2003).
OS Description	The name of the operating system.
OS Version	The operating system version.
CPU Model	The CPU model.
# CPUs	The number of node connections.

Agent Type	The type of agent from which the data was collected: **HOSTMON** (a SL Host Agent), **Hawk**, **WMI** or **SNMP**.
Agent Class	The specific version of the agent software.
Source	The name of the SL Data Server where the host data was collected.
Timestamp	The date and time the data was last updated.

All Hosts Grid

This grid provides a list view of utilization metrics for all hosts. Use this display to track and view in parallel the general performance of your hosts. Drill down and investigate by clicking a host to view details in the **Host Summary** display.



Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.
Host Count	Displays the number of hosts (including expired hosts) listed in the display.

Time Range: Choose a time range to show data for in the display. Options are: **All Data**, **2 Mins**, **5 Mins**, **20 Mins**, **1 Hour, 2 Hours**, **4 Hours**, **8 Hours**, **24 Hours**, **2 Days and 7 Days**.

Grid
Utilization data shown for hosts in the selected domain.

Host Name The name of the host.

OS Type The name of the operating system.

Uptime The amount of time (days, hours, seconds) the operating system has been running.

Phys Mem The amount of physical memory used, in megabytes.

Virtual Mem The amount of virtual memory used, in megabytes.

Load Avg

- **1** The average number of processes running over 1 minute.
- **5** The average number of processes running over 5 minutes.
- **15** The average number of processes running over 15 minutes.

CPU Usage The bar graph shows the amount of CPU currently used.

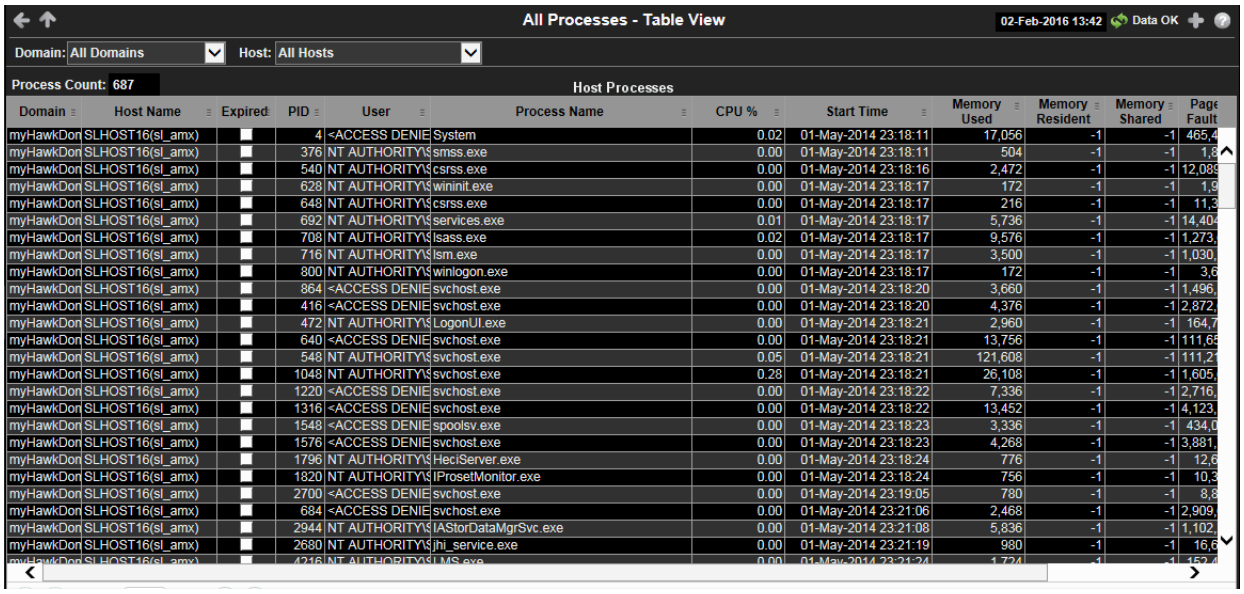
VMem Usage The bar graph shows the amount of virtual memory currently used.

Trend Graphs

- **CPU** Traces the amount of CPU currently used.
- **VM Usage** Traces the amount of virtual memory currently used.
- **Rx KB/s** Traces the amount data currently being received per second.
- **Tx KB/s** Traces the amount data currently being transmitted per second.

All Processes Table

View host utilization data in a tabular format. Use this display to see all available data for this View. Each row in the table is a different host. Choose a domain or **All Domains** and a host or **All Hosts** from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order. Drill-down and investigate by clicking a row to view details for the selected application in the **Host Summary** display.



Title Bar (possible features are):

- Open the previous and upper display.
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- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.

Host: Choose a host to show data for in the display.

Fields and Data:

Process Count: The total number of processes in the table.

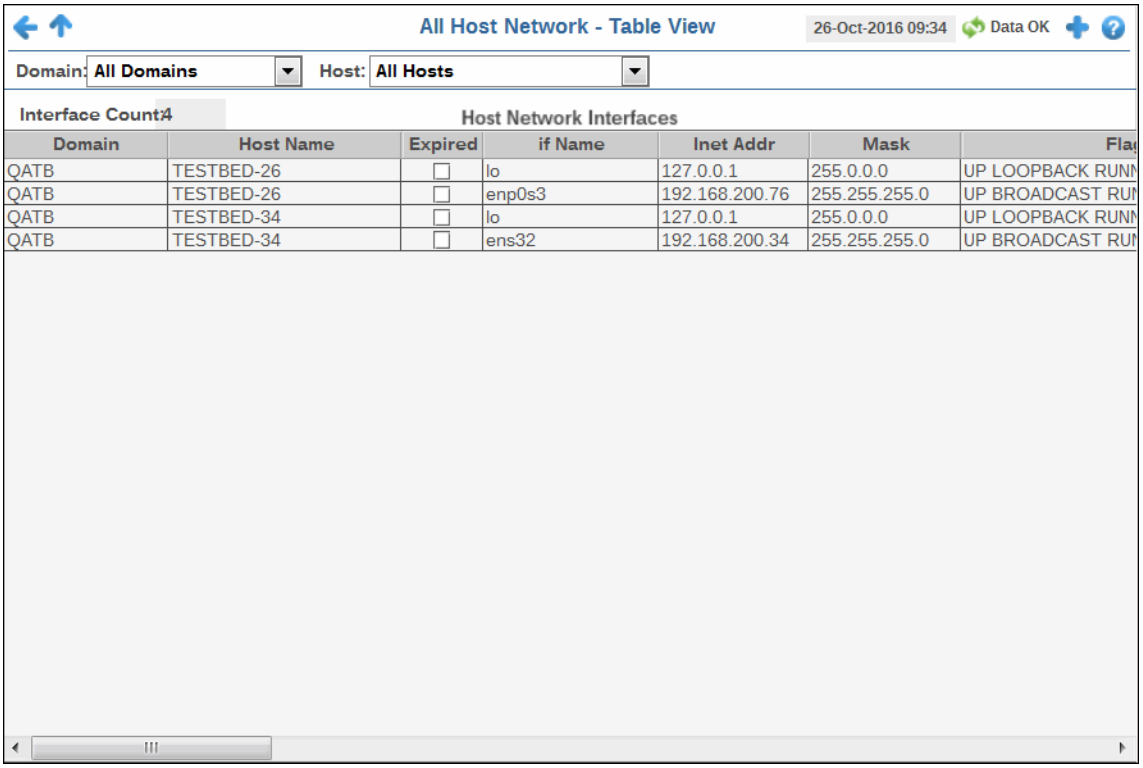
Table:
Each row in the table is a different host.

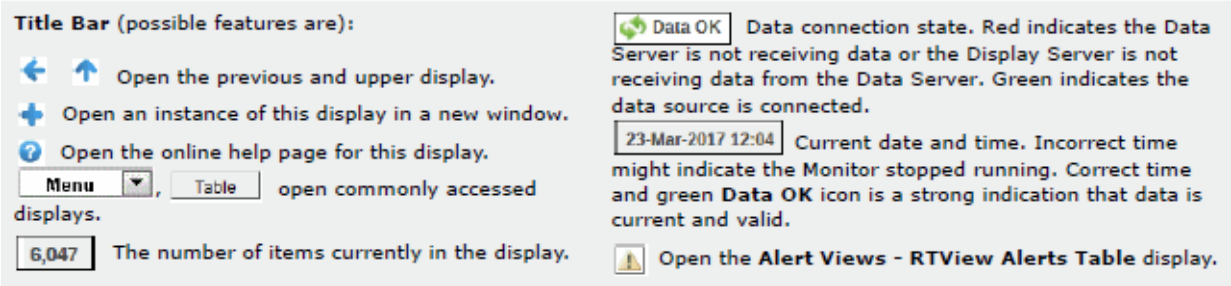
Domain The domain in which the host resides.

Host Name	The name of the host.
Expired	When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is 60 seconds.
PID	The process ID.
User	The user name.
Process Name	The name of the process.
CPU%	The amount of CPU used, in percent.
Start Time	The host start time, in the following format: **0d 00:00 <days>d <hours>:<minutes>:<seconds>** For example: **10d 08:41:38**
Memory Used	The amount of memory currently used, in megabytes.
Memory Resident	The amount of memory currently used by the process that resides in physical memory and is not paged out. Set to **-1** when the data is not available from an agent. (Hawk does not provide this data.)
Memory Shared	The amount of physical memory that is shared with other processes. Set to **-1** when the data is not available from an agent. (Hawk does not provide this data.)
Page Faults	The number of page faults.
Page Faults /sec	The number of page faults per second.
Timestamp	The date and time the data was last updated.

All Network Table

View network interface data in a tabular format. Each row in the table is a different network interface card (NIC). Choose a domain or **All Domains** and a host or **All Hosts** from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order.





.

Filter By:
The display might include these filtering options:

Domain: Choose a domain for which to show NIC data. Domain names are specified when your administrator configures your Data Server.

Host: Choose a host for which to show NIC data.

Fields and Data:

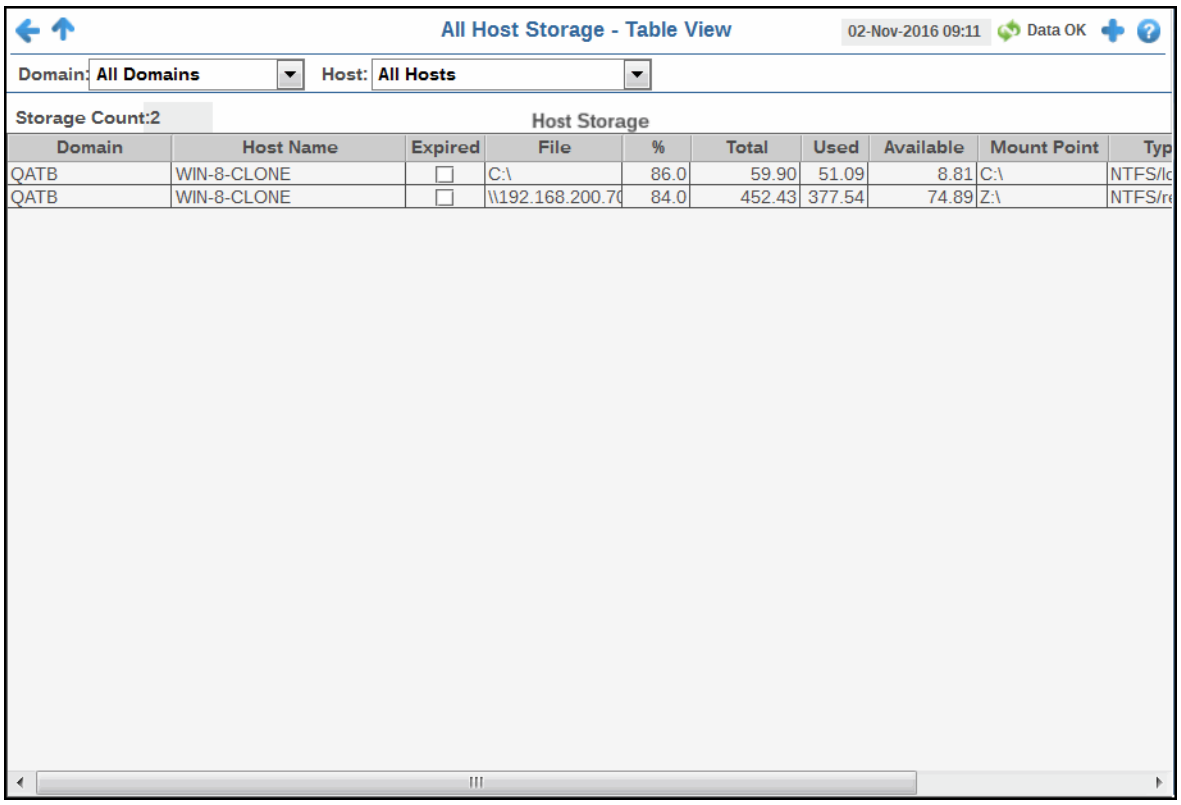
Interface Count: The total number of NICs in the table.

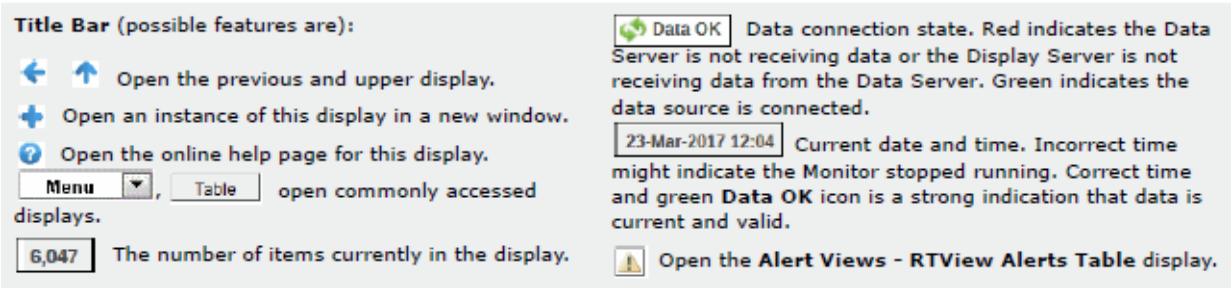
Table:
Each row in the table is a different NIC.

Domain	The domain in which the NIC resides.
Host Name	The name of the NIC in which the network interface resides.
Expired	When checked, data has not been received from this NIC in the specified amount of time. The NIC will be removed from the Monitor in the specified amount of time. The default setting is 60 seconds.
if Name	The name of the NIC.
Inet Addr	The NIC IP address.
Mask	The NIC subnet mask IP address.
Flags	Descriptive text for NIC flag.
MTU	The largest size packet or frame for the NIC.
Metric	Indicates...
Point To Point	Indicates whether the NIC is a point to point configuration.
Broadcast	Indicates whether the NIC is a broadcast configuration.
rxKBytes	The total number of kilobytes received by the NIC.
rxPackets	The total number of packets received by the NIC.
rxDropped	The total number of received packets that were dropped by the NIC.
rxErrors	The total number of received errors on the NIC.
rxOverruns	The total number of received overruns on the NIC.
rxFrame	The total number of received frames on the NIC.
txKBytes	The total number of kilobytes transmitted by the NIC.
txPackets	The total number of packets transmitted by the NIC.
txDropped	The total number of transmitted packets that were dropped by the NIC.
txErrors	The total number of transmission errors for the NIC.
txOverruns	The total number of transmission overruns for the NIC.
txCollisions	The total number of transmission collisions for the NIC.
txCarrier	The total number of transmission carrier errors for the NIC.
MAC Address	The NIC MAC address.
Rx KB/s	The number of kilobytes received per second.
Tx KB/s	The number of kilobytes transmitted per second.
Rx Packets/s	The number of packets received per second.
Tx Packets/s	The number of packets transmitted per second.
Timestamp	The date and time the data was last updated.

All Storage Table

View storage data in a tabular format. Each row in the table is a different storage partition. Choose a domain or **All Domains** and a host or **All Hosts** from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order.





.

Filter By:
The display might include these filtering options:

Domain: Choose a domain or **All Domains** to show data for in the display. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.

Host: Choose a host or **All Hosts** to show data for in the display.

Fields and Data:

Storage Count:	The total number of storage partitions in the table.

Table:
Each row in the table is a different host.

Domain	The domain in which the host resides.
Host Name	The name of the host in which the storage partition resides.
Expired	When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is 60 seconds.
File System	The storage partition location.
% Used	The amount of storage partition used, in percent.
Total Size (GB)	The storage partition size, in gigabytes.
Used (GB)	The amount of storage partition used, in gigabytes.
Available (GB)	The amount of storage partition available, in gigabytes.
Mount Point	The storage partition parent directory.
Type	The file system type.
Timestamp	The date and time the data was last updated.

Single Host

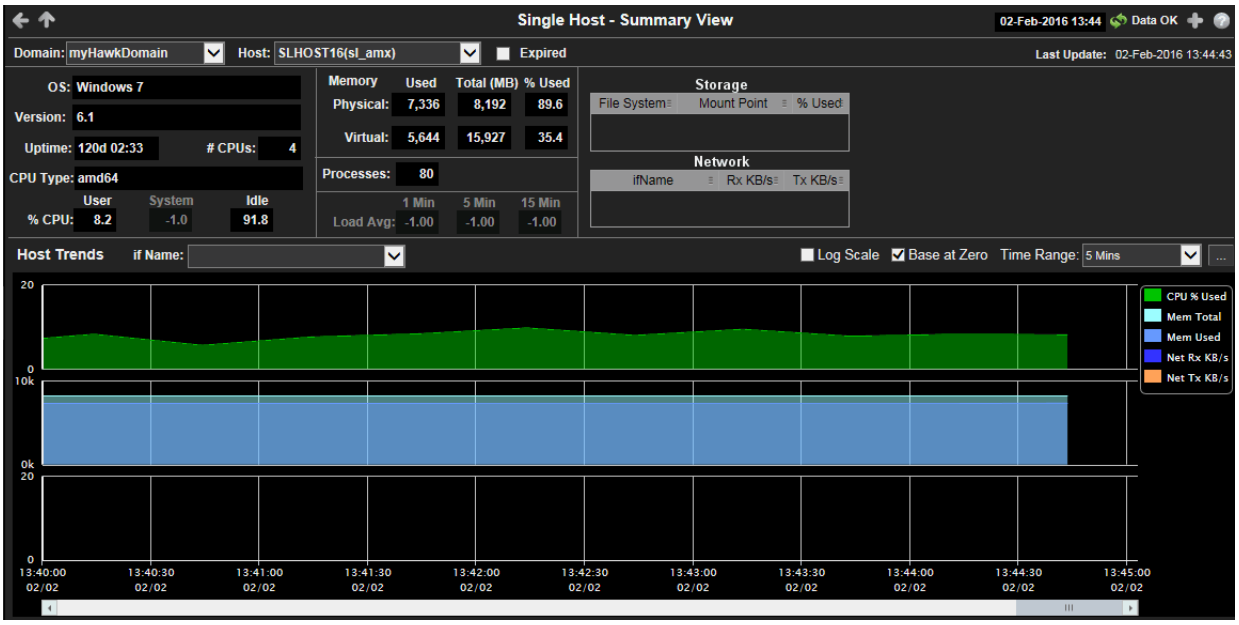
These displays present performance data for a single monitored host. Examine details about the health of your hosts.

To see your data in these displays you must install and configure the Solution Package for RTView Host Agent. Displays in this View are:

- "Host Summary"

Host Summary

This display provides a detailed view of utilization metrics for a single server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.
Host:	Choose a host to show data for in the display.
Expired	When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
Last Update	The time the display was last updated.

Fields and Data:
Data describes the selected host except where noted.

OS:	The operating system.
Version:	The operating system version.
Uptime:	The number of days, hours and minutes since started.

	#CPUs	The number of node connections.
CPU Type:	The type of CPU.	
%CPU	**User**	The amount of CPU used by the user, in percent.
	System	The amount of CPU used by the system, in percent.
	Idle	The amount of CPU that is not used, in percent.
Physical Memory	**Used**	The amount of physical memory used, in kilobytes.
	Total(MB)	The amount of physical memory available, in kilobytes.
	%Used	The amount of physical memory used, in percent.
Virtual Memory	**Used**	The amount of virtual memory used, in kilobytes.
	Total(MB)	The amount of virtual memory available, in kilobytes.
	%Used	The amount of virtual memory used, in percent.
Processes	The number of processes running.	
Load Avg:	**1 Min**	The average number of processes running over 1 minute.
	5 Min	The average number of processes running over 5 minutes.
	15 Min	The average number of processes running over 15 minutes.
Storage	**File System**	The amount of storage space used for the file system, in kilobytes.
	Mount Point	The name used by the operating system to mount and provide an entry point to other storage volumes.
	%Used	The amount of storage space used, in percent.
Network	**ifName**	The name assigned to the network interface by the operating system.
	RxKB/s	The amount of network data received per second, in kilobytes.
	TxKB/s	The amount of network data transmitted per second, in kilobytes.

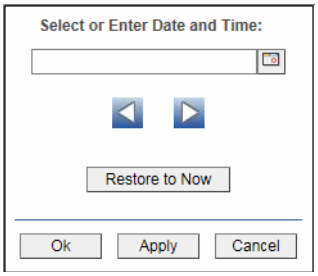
Trend Graphs
Traces metrics for the selected host.

- **CPU% Used**: The amount of CPU used, in percent.
- **Mem Total:** The amount of available memory, in kilobytes.
- **Mem Used**: The amount of memory used, in kilobytes.
- **Net Rx KB/s**: The amount of network data received per second, in kilobytes.
- **Net Tx KB/s**: The amount of network data transmitted per second, in kilobytes.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 22 Solution Package for RTView Manager

The Solution Package for RTView Manager lets you monitor the health and performance of any java process. It is broken down into the following categories:

- RTView Server metrics
- JVM metrics
- Apache Tomcat Metrics

RTView Server metrics include connected state, number of clients and other status information for Data Server, Historian and Display Server processes.

JVM metrics track garbage collection information and trends, including memory usage before and after garbage collection, duration and duty cycles. This, combined

with tracking of JVM memory pool trends, enables users to be notified of memory leaks, unusual garbage collection activities and CPU and memory resource issues automatically with

minimal user analysis, speeding the discovery of the root cause of any issue. It also monitors a Java Virtual Machine's memory heap, non-heap memory, monitor threads and other key metrics to ensure the JVM has good performance. Detailed metrics including JVM CPU usage, Max Heap, Current Heap, Used Heap and Live Threads can all be tracked over time.

Apache Tomcat metrics enable Tomcat users to continually assess and analyze the health and performance of their infrastructure, gain early warning of issues with historical

context, and effectively plan for capacity of their system. It does so by aggregating and analyzing key performance metrics across all instances, databases, and collections, and

presents the results, in real time, through meaningful dashboards as data is collected.

This section describes how to configure the Solution Package using the "RTView Configuration Application" and also describes the available displays.

The Solution Package for RTView Server Manager comes with RTView Enterprise Monitor.

See **README_sysreq.txt** for the full system requirements for RTView®.

This section includes:

Configuration Parameters You Need

- **PackageName=rtvmgr**
- **ServerDirectory=rtvmgr**
- **AlertPrefix=Rtvmgr**

Configure Data Collection

This section describes how to collect data from the RTView Servers you want to monitor. Use the "RTView Configuration Application" to do the following in the order provided:

- "Configure CONNECTIONS": Provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Modify the poll rate interval for collecting data and enable/disable autodiscover (this option is enabled by default). This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

Note: For changes made in the "RTView Configuration Application" to take place, you must restart your data server after making and saving your changes.

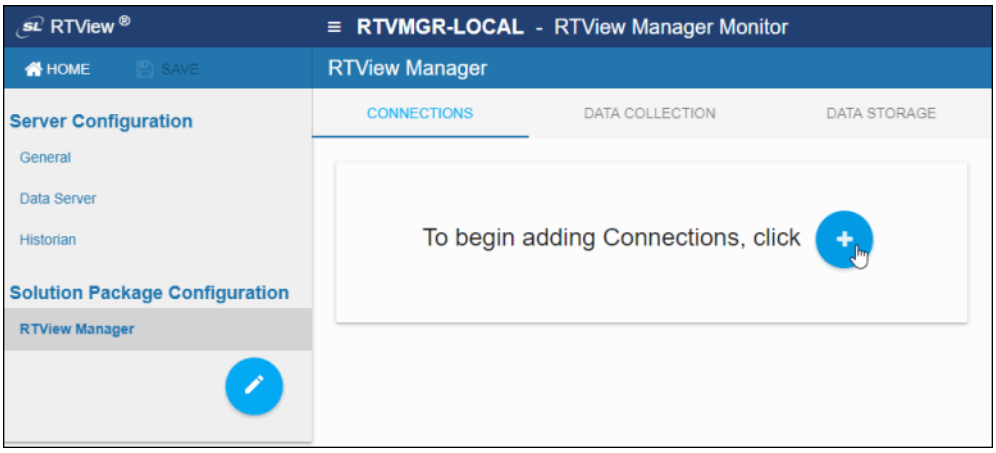
Configure CONNECTIONS

This section describes how to establish the data connection for Solution Package for RTView Manager. This part of the configuration is required.

To configure data connections for the Solution Package for RTView Manager:

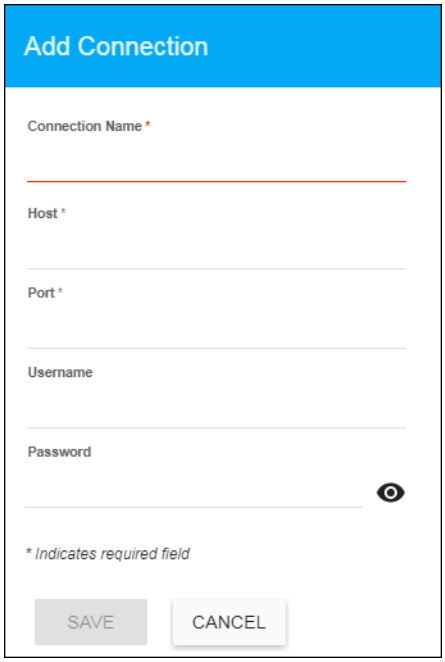
1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **RTView Manager** from the navigation tree (left panel).

2. On the **CONNECTIONS** tab, click to open the **Add Connection** dialog.

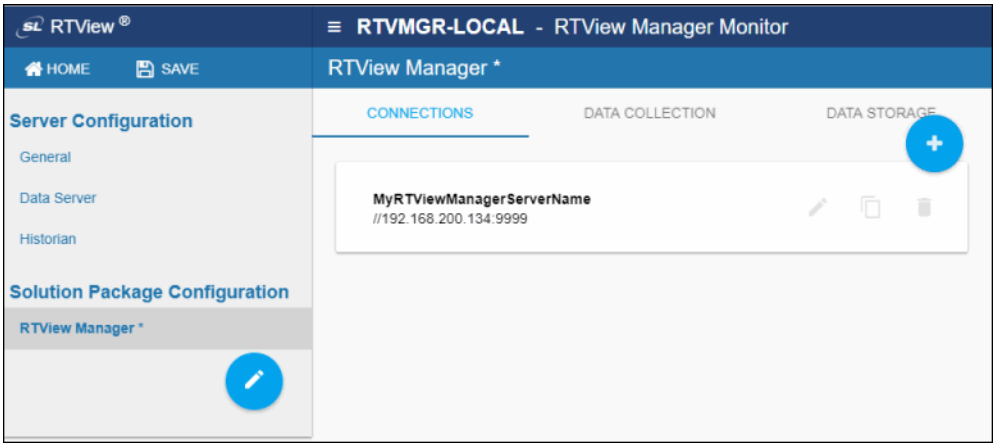


3. In the **Add Connection** dialog, enter the following:

- **Connection Name**: Name to use when referencing this connection. This must be unique.
- **Host**: Host name or IP address of the MBean server.
- **Port**: Port exposed by your MBean server.
- Optionally enter a **Usename** and **Password**.



4. **SAVE** to connect to the server. The newly created connection displays in the **CONNECTIONS** list.



5. Repeat these **Add Connection** dialog instructions for each server to be monitored.

Optionally, proceed to "Setup DATA COLLECTION," next.

Setup DATA COLLECTION

This step is optional.

This section describes how to modify the default values for data update frequency for various server-related caches, and also to specify **Connection Discovery** for automatic discovery and connection to local JMX MBean Servers.

To configure data collection poll rates and connection discovery for the Solution Package for RTView Manager:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **RTView Manager** from the navigation tree (left panel).

2. In the **DATA COLLECTION** tab, make the following entries as appropriate:

   Poll Rate: Enter the query interval, in seconds, to collect data updates. All caches are impacted by this field.

Autodiscover JMX Connections: Enable to automatically discover and connect to all local JMX MBean Servers. Disable to connect only to the JMX MBean Server listed in the **Connections** tab.

Note: When modifying your update rates, you should take your system architecture and number of elements per cache into account and ensure that you are not changing your update rates to values that might negatively impact system performance.

Tip: Disable **Connection Discovery** to connect only to the JMX MBean Servers listed in the **CONNECTIONS** tab.

Optionally, proceed to "Configure DATA STORAGE," next.

Configure DATA STORAGE

This step is optional.

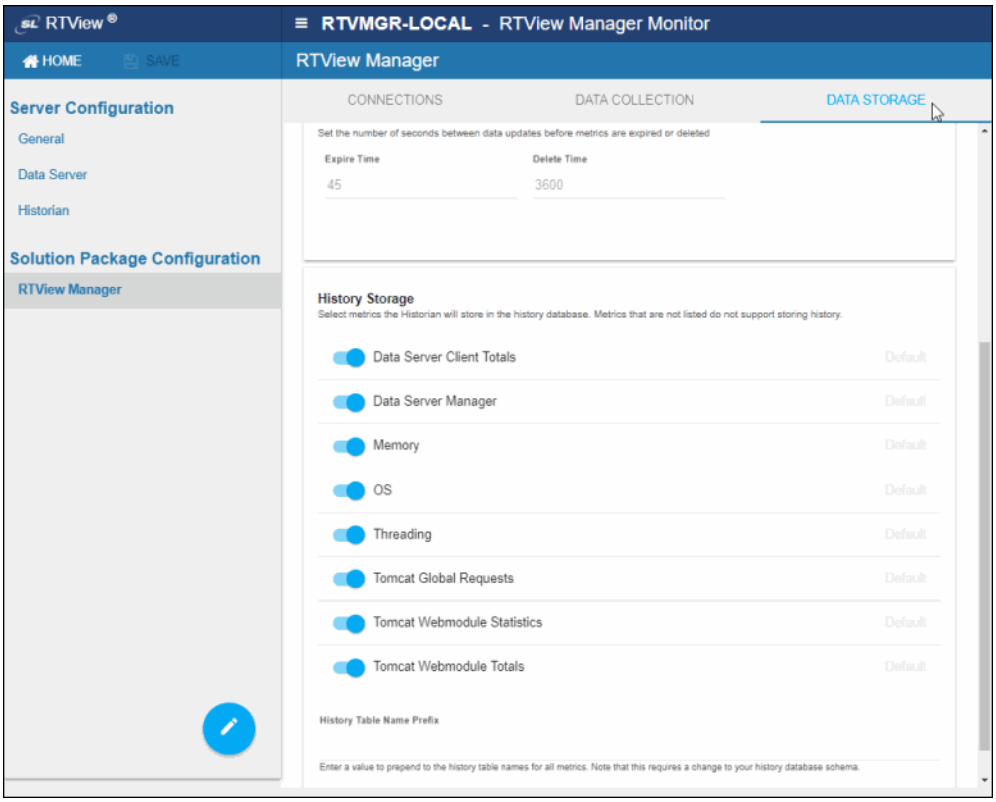
This section describes options for managing and reducing the amount of history data you store in your cache tables. The data for each metric is stored in a specific cache and, when the data is not updated in a given period of time, that data is either marked as *expired* or, if it has been an extended period of time, it is deleted from the cache altogether. By default, metric data is set to expired when the data in the cache has not been updated within **45** seconds. Also, by default, if the data is not updated in the cache within **3600** seconds, it is removed from the cache.

There are three main approaches to reducing the amount of storage in your cache tables. You can:

- **Set size limits**: So that when the number of rows in the cache table exceeds the limit specified here, the oldest row of data in the cache table is deleted. Set these values in the **History Rows** and **History Rows Large** fields.
- **Set time limits**: So that when the amount of time to wait for a row in the cache table to receive a data update exceeds the limit specified here, the data is marked expired or deleted. Set these values in the **Expire Time** and **Delete Time** fields.
- **Compact data**: Data compaction allows you to create rules that reduce the amount of stored history data to a reasonably sized sample of your data to prevent overloading your database. The rules include a schedule for automatically reducing the amount of data. Set these values in the **Condense Interval**, **Condense Interval** and **Compaction Rules** fields.

To modify data storage default settings:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **RTView Manager** from the navigation tree (left panel)..



2. On the **DATA STORAGE** tab, make the following entries:

   Size - Enter the maximum number of table rows to keep in memory:

   - **History Rows** - The maximum number of rows to store in the History table for the JvmGcInfo, JvmMemoryPool, RtvDataServerManager, RtvDisplayServerManager and RtvDataServerClientTotals caches. If set to **0**, no History table is created. The default setting is **50,000**.
   - **History Rows Large**- The maximum number of rows to store in the History table for the JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerClientStats and TomcatWebModuleStats caches. If set to **0**, no History table is created. The default setting is **200,000**.

   Compaction - Define scheduled rules that reduce the amount of stored history data to a reasonably sized sample of your data to prevent overloading your database.

   - **Condense Interval -** The time interval at which the cache history is condensed. The default is **60** seconds. This value impacts the JvmGcInfo, JvmMemoryPool, JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerManager and RtvDataServerClientTotals caches.

- **Condense Raw Time -** The time span of raw data kept in the cache history table. The default is **1200** seconds. This value impacts the JvmGcInfo, JvmMemoryPool, JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerManager, RtvDataServerClientTotals, TomcatWebModuleStats, TomcatGlobalRequestStats and TomcatWebModuleTotals caches.
- **Compaction Rules** - This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). This value impacts the JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerManager, RtvDataServerClientTotals, TomcatWebModuleStats, TomcatGlobalRequestStats and TomcatWebModuleTotals.

Duration - Enter the amount of time between data updates before data is expired or deleted:

- **Expire Time** - The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The caches impacted by this field are JvmConnections, JvmGcInfo, JvmMemoryPool, JvmClassLoading, JvmCompilation, JvmOperatingSystem and JvmThreading.
- **Delete Time** - The number of seconds to wait for a data update before cached history data is removed from displays. The caches impacted by this field are JvmConnections, JvmGcInfo, JvmMemoryPool, JvmClassLoading, JvmCompilation, JvmOperatingSystem, JvmRuntime, JvmThreading, JvmMemory, JvmMemoryManager, JvmSystemProperties, RtvDataServerManager, RtvDisplayServerManager, TomcatWebModuleStats, TomcatGlobalRequestStats, TomcatWebModuleTotals, RtvHistorianManager, RtvDataServerClientStats, RtvDataServerClientTotals, RtvServerVersion, TomcatWebModuleStats, TomcatConnectorInfo, TomcatGlobalRequestStats, TomcatHostInfo and TomcatWebModuleTotals.

History Storage - Toggle to Enable/Disable the types of data you want the Historian to store in the history database for the Solution Package.

- **History Table Name Prefix** - Enter a prefix to prepend to the history data table names for these metrics.

  The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under RTVAPM_HOME/rtvmgr/dbconfig and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

3. **SAVE** your project settings (choose  if **SAVE** is not visible, or expand your browser width).

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/rtvmgr/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEntepriseMonitor/emsample/servers/rtvmgr/logs** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to **Administration>RTView Cache Tables** in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

RTView Manager Displays

The following Solution Package for RTView Servers displays can be found under **Components** tab **> Processes > RTView Processes** after installation:

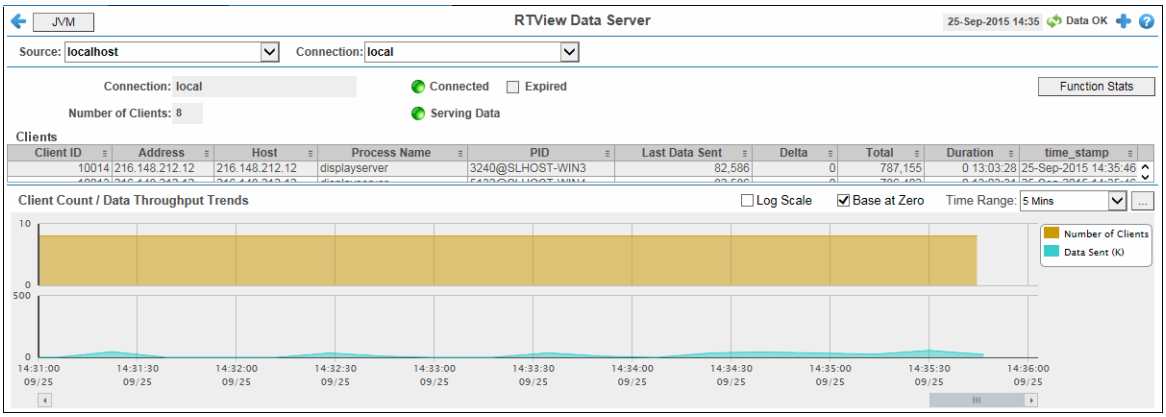
These displays present performance data for all RTView Enterprise monitor Servers. Use these displays to monitor the health of the servers monitoring your system. Displays in this View are:

- "Data Servers": Shows metrics for RTView Data Servers.
- "Display Servers": Shows metrics for RTView Display Servers.
- "Historian Servers": Shows metrics for RTView Historian Servers.
- "Version Info": Shows the version information of each jar used in each connected RTView application.

Data Servers

Track data transfer metrics for RTView Data Servers, client count and throughput trends.

Use the available drop-down menus or right-click to filter data shown in the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connection	The connection selected from the **Connection** drop-down menu.
Number of Clients	The number of clients currently server on this Data Server.
Connected	The Data Server connection state: Disconnected. Connected.
Serving Data	The Data Server is not currently serving data. The Data Server is currently serving data.
Expired	This server has been marked as expired after no activity.
Function Stats	Opens the **RTView Function Stats** display which shows detailed performance statistics for RTView functions in the selected Data Server. This button is only enabled if the RTView Monitor has a JMX connection defined for the selected Data Server.

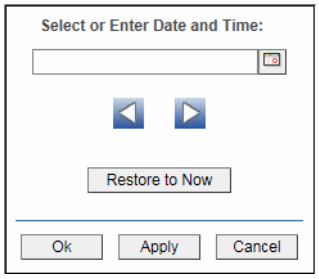
Clients
This table describes all clients on the selected server.

Address	The client IP address.
Client ID	The unique client identifier.
Duration	The amount of time for this client session. Format: **dd HH:MM:SS** **<days> <hours>:<minutes>:<seconds>** **For example:** **10d 08:41:38**
Host	The client host name.
Last Data Sent	The amount of data, in bytes, last sent to the client.
Delta	The amount of data, in bytes, sent since the last update.
Total	The total amount of data, in bytes, sent to the client.
TIME_STAMP	The date and time this row of data was last updated.

Client Count / Data Throughput Trends
Shows throughput metrics for all clients on the selected server.

Log Scale	Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

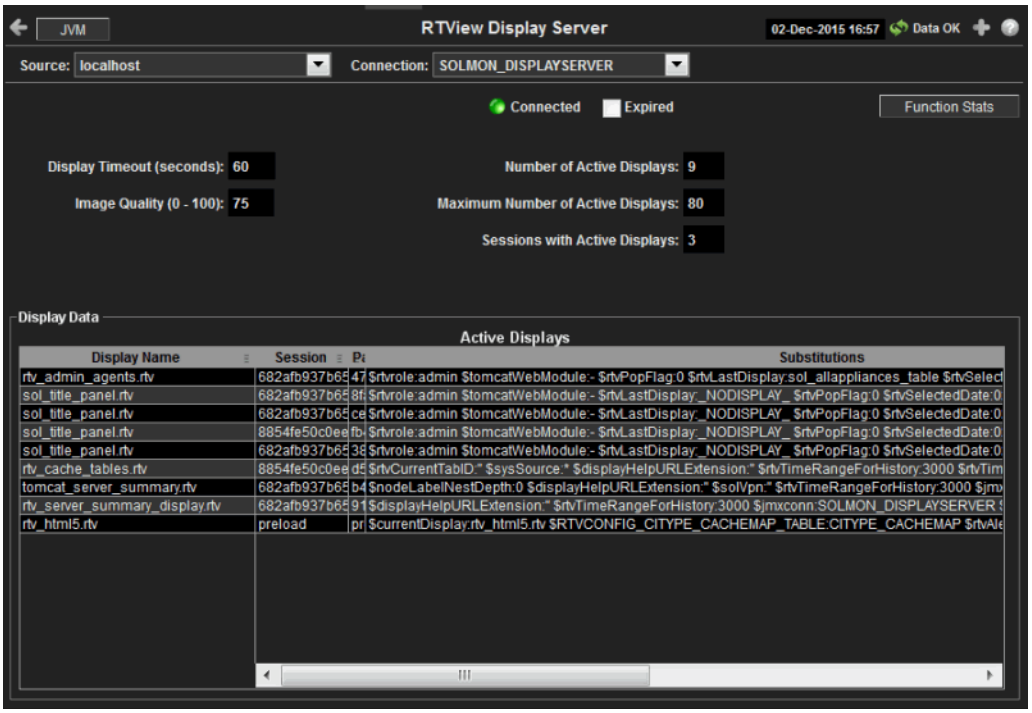
Number of Clients Traces the number of clients being served by the Data Server.

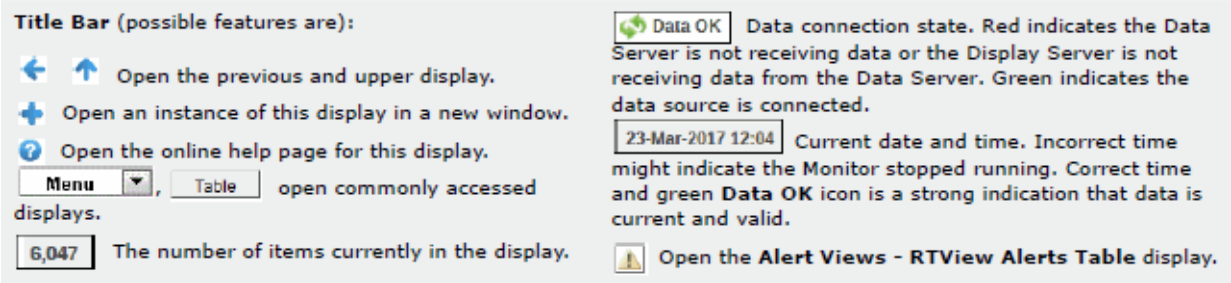
Data Sent Traces the total amount of data, in Kilobytes, sent to all clients.

Display Servers

Track display utilization metrics for RTView Display Servers.

Use the available drop-down menus or right-click to filter data shown in the display.





Fields and Data
This display includes:

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connected	The Display Server connection state: Disconnected. Connected.
Expired	This server has been marked as expired after no activity.
Function Stats	Opens the **RTView Function Stats** display which shows detailed performance statistics for RTView functions in the selected Display Server. This button is only enabled if the RTVMGR has a JMX connection defined for the selected Display Server.
Display Timeout (seconds)	The amount of time, in seconds, that a display can be kept in memory after the Display Servlet has stopped requesting it. The default is **60** seconds (to allow faster load time when switching between displays).
Image Quality (0-100)	A value between **0** and **100**, which controls the quality of the generated images. If the value is **100**, the Display Server outputs the highest quality image with the lowest compression. If the value is **0**, the Display Server outputs the lowest quality image using the highest compression. The default is **75**.
Number of Active Displays	The total number of displays currently being viewed by a user.
Maximum Number of Active Displays	The maximum number of displays kept in memory. The default is **20** (to optimize memory used by the Display Server).
Sessions with Active Displays	Number of clients accessing the Display Server.

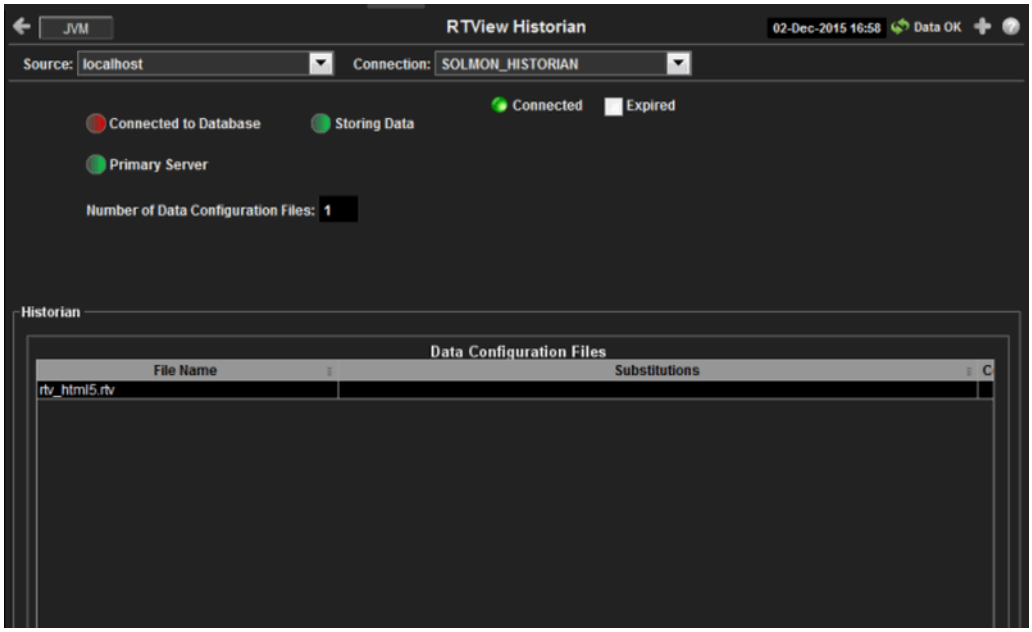
Display Data / Active Displays

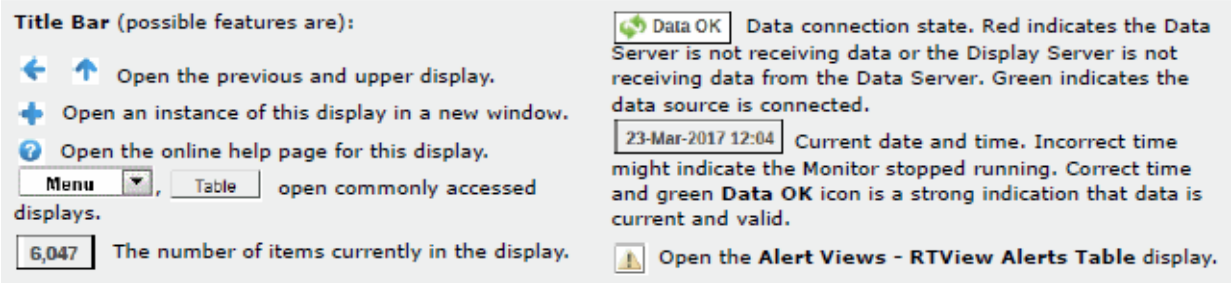
Display Name	The name of the currently open display.
Session	A unique string identifier assigned to each session.
Panel ID	A unique string identifier assigned to each panel. The Display Server loads each display requested by each client into a panel. This ID can be useful in troubleshooting.
Substitutions	Lists the substitutions used for the display.
Last Ref	The amount of time that has elapsed since the display was last requested by a client.
ID	The client ID.
Preloaded	When checked, indicates that the display (**.rtv**) file is configured in the **DISPLAYSERVER.ini** file to be preloaded. The **history_config** option is used to configure display preloading. Preloading a display makes data immediately available. Preloaded displays are not unloaded unless the Display Server is restarted or the display cache is cleared via JMX. This option can be used multiple times to specify multiple displays to preload.

Historian Servers

Track the status of RTView Historian Servers and data configuration file usage. View the caches that are archived by the Historian application, substitution variables associated with the history cache configuration file, as well as the history cache status. You can also stop and start the Historian, and purge data.

Use the available drop-down menus or right-click to filter data shown in the display.





Fields and Data
This display includes:

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connected	The Historian Server connection state: Disconnected. Connected.
Expired	This server has been marked as expired after no activity.
Connected to Database	The Historian Server database connection state: Disconnected. Connected.
Primary Server	When green, indicates that this Historian, when used within a group of Historians, is the primary group member. If the primary member fails or shuts down, the standby member with the highest priority becomes the primary group member. When red, indicates that the Historian is a secondary server. The Historian Server member state: The Historian Server is a secondary group member. This Historian is the primary group member.
Number of Data Configuration Files	The number of configuration files that are used by the history cache.

Historian / Data Configuration Files

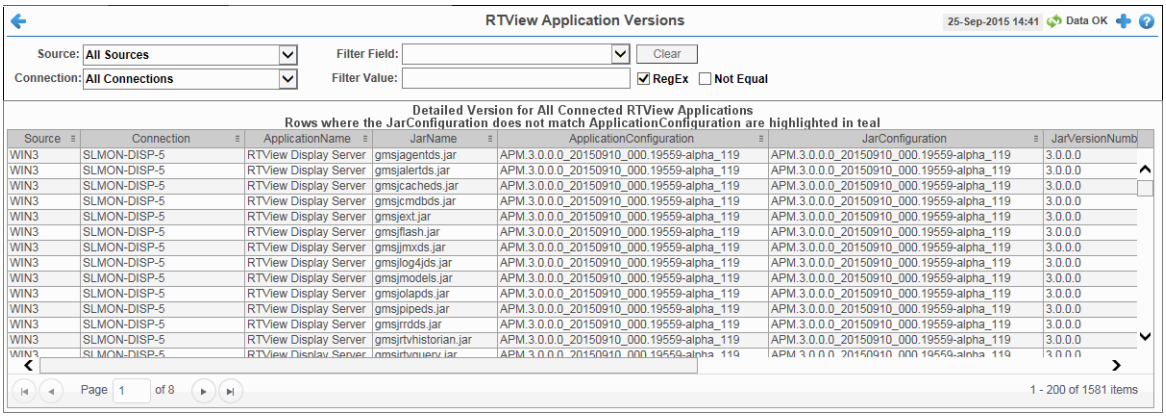
File Name	The name of the history cache configuration file.
Substitutions	Lists the substitutions specified in the history cache configuration file.

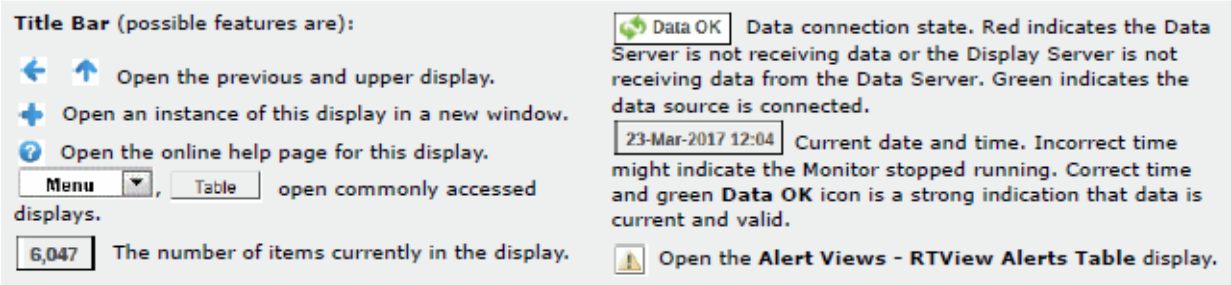
Version Info

This display provides detailed version information for all of the connected RTView applications. You can view specific applications by filtering data using the **Source**, **Connection**, **Filter Field**, and **Filter Value** fields at the top of the display. This display provides valuable information about the version of each jar that is used in each connected RTView application that can be used to help Technical Support when issues arise. All RTView applications use multiple jars and this display lists the version information for each jar in the application. The **ApplicationConfiguration** column shows the version of the jar that contains the main class

for the application which is also the version that is printed to the console at startup. The **JarConfiguration** shows the version of the jar specified in the **JarName** field. When **ApplicationConfiguration** and **JarConfiguration** do not match, it indicates that the application is using jars from multiple releases of RTView or that the application is using a patched jar. Rows in the table where the **JarConfiguration** does not match the **ApplicationConfiguration** are highlighted in teal.

Note: RTView applications running versions previous to this enhancement will only have one row in the table and will display "version info not supported in this version" in the **ApplicationConfiguration** column.





Fields and Data
This display includes:

Source	Select a filter value for the **Source** column.
Connection	Select a filter value for the **Connection** column.
Filter Field	Select a table column from the drop-down menu to perform a search in: **ApplicationName, JarName, ApplicationConfiguration, JarConfiguration, JarVersionNumber,JarVersionDate, JarReleaseDate,** and **JarMicroVersion**. Filters limit display content and drop-down menu selections to only those items that pass through the selected filter's criteria. If no items match the filter, you might have zero search results (an empty table). Double-clicking on a specific field in the table will populate this field with the selected field's content. For example, double-clicking on the **DataServerName** field in one of the rows displays the entire field's content into this field.

Clear	Clears entries in the **Filter Field** display list, **Filter Value** field, and **Not Equal** check box.
Filter Value	Enter the (case-sensitive) string to search for in the selected **Filter Field**.
RegEx	Select to use the **Filter Value** as a regular expression when filtering. When selected, the **Not Equal** check box displays.
Not Equal	Works in conjunction with the **RegEx** field. Selecting this check box searches for values in the specified **Filter Field** that are NOT equal to the value defined in the **Filter Value** field. For example, if the **Filter Field** specified is **JarMicroVersion**, the **Filter Value** is specified as **317,** and this check box is selected, then only those rows containing **JarMicroVersion** fields NOT EQUAL to **317** will display. This field is only enabled when the **RegEx** check box is checked.
Source	The name of the source of the RTView Monitor.
Connection	Lists the name of the JMX connection to the RTView application.
Application Name	Lists the name of the application.
JarName	Lists the name of the jar used in the connected application.
Application Configuration	Lists the configuration string of the application. This string contains the main application version that corresponds to the version information printed to the console at startup.
JarConfiguration	Lists the configuration string for the jar.
JarVersionNumber	Lists the version number for the jar.
JarVersionDate	Lists the version date for the jar.
JarReleaseType	Lists the release type for the jar.
JarMicroVersion	Lists the micro version for the jar.
Expired	When checked, this connection is expired due to inactivity.
time_stamp	The time at which the information in the current row was last received.
DataServerName	The name of the RTView Monitor Data Server connection.

JVM Displays

The Solution Package for JVM displays present performance data for monitored Java Virtual Machine (JVM) Processes. Use these displays to examine the current and historical performance metrics and resource usage of JVMs. Any JVM that is enabled for monitoring can be included in these displays. The displays include summary overviews and detail pages with historical trends.

You can set alert thresholds on performance and resource metrics for your JVMs, including **CPU Percent**, **Memory Used** and **Gc Duty cycle**. Alerts are shown in the "All JVMs Heatmap" display. Use the detailed JVM displays to investigate further; for example a **Memory Used** alarm might take you to the "JVM Summary" display to get historical memory use, or a **Gc Duty Cycle** alarm might take you to the "JVM GC Trends" display. Displays in this View are:

The following JVM Monitor Views (and associated displays) can be found under **Components** tab **> Processes /JVM Processes > JVM**. To see your data in these displays you must install and configure the Solution Package for JVM. Displays in this View are:

- "All JVMs"
- "Single JVM"

All JVMs

Check the health status for all your JVMs, then drilldown and investigate issues in the "Single JVM" displays. The JVM displays come with RTView Enterprise Monitor. However, the displays are empty until you configure the Solution Package for JVM. Displays in this View are:

- "All JVMs Heatmap": Heatmap of alert states for all JVM connections
- "All JVMs Table": Table of connection details for all JVM connections.

All JVMs Heatmap

View the most critical alert state for all monitored JVM connections for one or all sources, as well as CPU and memory utilization. The heatmap organizes JVM connections by source and host, and uses color to show the most critical Metric value for each JVM connection associated with the selected source. Each rectangle in the heatmap represents a JVM connection. The rectangle size represents the amount of memory reserved for that process; a larger size is a larger value. Each Metric (selected from the drop-down menu) has a color gradient bar that maps relative values to colors.

Choose one or **All Sources** from the **Source** drop-down menu. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see detailed JVM connection information (including **PID**). Drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected connection in the **JVM Summary** display.

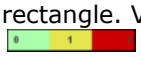
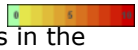
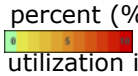
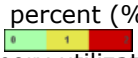
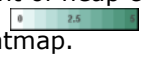
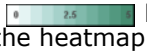
Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Source	Choose one or **All Sources** to display.
JVM Count	The number of JVM connections shown in the display.
Show Inactive	Select to show inactive connections.
Connection	Select to show JVM connections names.

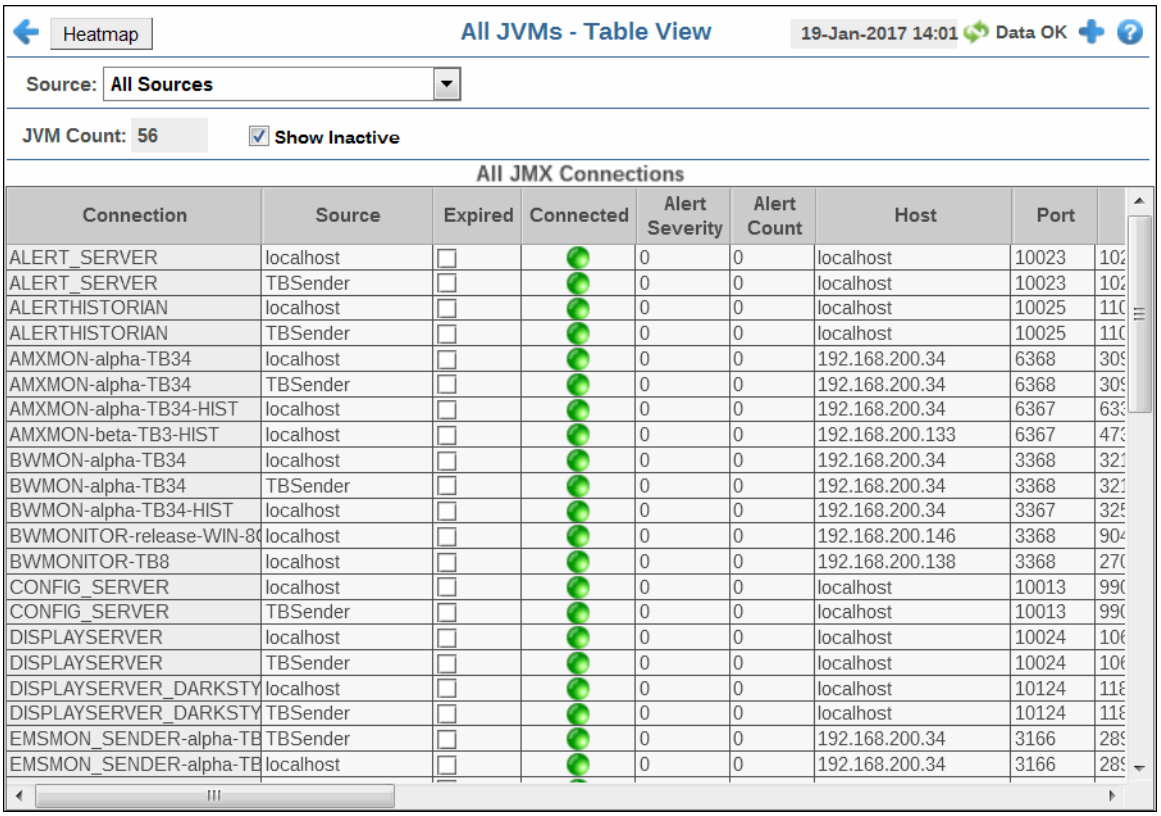
Metric
Select the Metric to display in the heatmap. Each Metric has a color gradient bar that maps relative values to colors.

Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity. Red indicates that one or more alerts have reached their alarm threshold. Alerts that have exceeded their specified ALARM LEVEL threshold have an Alert Severity value of **2**. Yellow indicates that one or more alerts have reached their alarm threshold. Alerts that have exceeded their specified WARNING LEVEL threshold have an Alert Severity value of **1**. Green indicates that no alerts have reached their alert thresholds. Alerts that have not exceeded their specified thresholds have an Alert Severity value of **0**.
Alert Count	The number of alerts for the rectangle. The color gradient  bar values range from **0** to the maximum number of alerts in the heatmap.
CPU %	The total percent (%) CPU utilization for the rectangle. The color gradient  bar values range from **0** to the maximum percent (%) CPU utilization in the heatmap.
Memory %	The total percent (%) memory utilization for the rectangle. The color gradient  bar values range from **0** to the maximum percent (%) memory utilization in the heatmap.
Current Heap	The current amount of heap committed for the connection, in kilobytes. The color gradient  bar values range from **0** to the maximum amount in the heatmap.
Used Heap	The total amount of heap used by the connection, in kilobytes. The color gradient  bar values range from **0** to the maximum amount used in the heatmap.

All JVMs Table

View JVM connection details for one or all sources, the most critical alert state for each JVM connection, as well as CPU and memory utilization in a tabular format. Each row in the table is a different connection.

Choose one or **All Sources** from the **Source** drop-down menu. Check the **Show Inactive** box to include inactive connections. The row color for inactive connections is dark red. Click Sort to order column data. Drill-down and investigate by clicking a row in the table to view details for the selected connection in the **JVM Summary** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Fields and Data
This display includes:

Source Choose one or **All Sources** to display.

JVM Count: The number of JVM connections in the table.

Show Inactive Select to include inactive connections.

All JMX Connections Table

Connection	The name of the JVM connection.
Source	The name of the source.
Expired	When checked, this connection is expired due to inactivity.
Connected	The data connection state: Disconnected. Connected.
Alert Severity	The maximum level of alerts associated with the connection. Values range from **0** to **2**, where **2** is the greatest Alert Severity. One or more alerts associated with the connection exceeded their ALARM LEVEL threshold. One or more alerts associated with the connection exceeded their WARNING LEVEL threshold. No alerts associated with the connection have exceeded their thresholds.
Alert Count	The current number of alerts for the connection.
Host	The name of the host for this connection.
Port	The port number for the connection.
PID	The connection PID.
CPU %	The amount of CPU, in percent (%) used by this connection.
Max Heap	The maximum amount of heap used by this connection, in kilobytes.
Current Heap	The current amount of committed heap for this connection, in kilobytes.
Used Heap	The current amount of heap used by this connection, in kilobytes.
Mem % Used	The amount of JVM memory used by this connection, in percent (%).
RtvAppType	The type of RTView application, where: **1** is for the Historian, **3** is for the Data Server; **5** is for the Display Server, and **0** is a non-RTView application.
Source	The Data Server that sent this value.
time_stamp	The date and time this row of data was last updated.

Single JVM

Use these detailed JVM displays to investigate performance issues on a JVM. To see your data in these displays you must install and configure the Solution Package for JVM. Displays in this View are:

- "JVM Summary": Table of connection details for a single JVM as well as performance trend graphs.
- "JVM System Properties": Table of system details for a single JVM.
- "JVM Memory Pool Trends": Trend graphs of memory pool utilization.
- "JVM GC Trends": Trend graphs of garbage collection memory utilization.

JVM Summary

Track JVM memory and CPU usage, get JVM system information, application performance metrics, and input arguments for a single connection. Verify whether the memory usage has reached a plateau. Or, if usage is getting close to the limit, determine whether to allocate more memory.

Use the available drop-down menus or right-click to filter data shown in the display.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Source Select the type of connection to the RTView Server.

Connection Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.

Operating System
Displays data pertaining to the operating system running on the host on which the JVM resides.

Connected	The data connection state: Disconnected. Connected.
Expired	When checked, this server is expired due to inactivity.
Operating System	The name of the operating system running on the host on which the JVM resides.
OS Version	The operating system version.
Architecture	The ISA used by the processor.
Available Processors	The total number of processors available to the JVM.

Runtime

Process Name	Name of the process.
Start Time	The date and time that the application started running.
Up Time	The amount of time the application has been running, in the following format: **0d 00:00** **<days>d <hours>:<minutes>:<seconds>** For example: **10d 08:41:38**
JVM CPU %	The amount of CPU usage by the JVM, in percent.
Live Threads	The total number of live threads.
Daemon Threads	The total number of live daemon threads.
Peak Threads	The total number of peak live threads since the JVM started or the peak was reset.
Max Heap Mb	The maximum amount of memory used for memory management by the application in the time range specified. This value may change or be undefined. NOTE: A memory allocation can fail if the JVM attempts to set the **Used** memory allocation to a value greater than the **Committed** memory allocation, even if the amount for **Used** memory is less than or equal to the *Maximum* memory allocation (for example, when the system is low on virtual memory).
Committed Mb	The amount of memory, in megabytes, guaranteed to be available for use by the JVM. The amount of committed memory can be a fixed or variable size. If set to be a variable size, the amount of committed memory can change over time, as the JVM may release memory to the system. This means that the amount allocated for **Committed** memory could be less than the amount initially allocated. **Committed** memory will always be greater than or equal to the amount allocated for **Used** memory.
Used Mb	The amount of memory currently used by the application. Memory used includes the memory occupied by all objects including both reachable and unreachable objects.

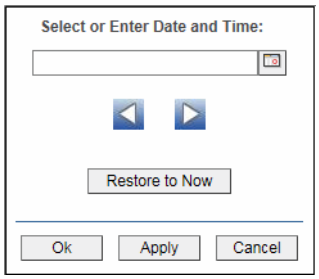
Class Name	Class name used for JVM.
Arguments	The arguments used to start the application.
More Arguments	Additional arguments used to start the application.

JVM CPU, Memory, Thread Trends
Shows JVM metrics for the selected server.

Log Scale Enable to use a logarithmic scale for the Y axis. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

JVM CPU % Traces the amount of memory, in percent, used by the JVM in the time range specified.

Max Heap Mb Traces the maximum amount of memory used for memory management by the application in the time range specified. This value may change or be undefined.

NOTE: A memory allocation can fail if the JVM attempts to set the **Used** memory allocation to a value greater than the **Committed** memory allocation, even if the amount for **Used** memory is less than or equal to the **Maximum** memory allocation (for example, when the system is low on virtual memory).

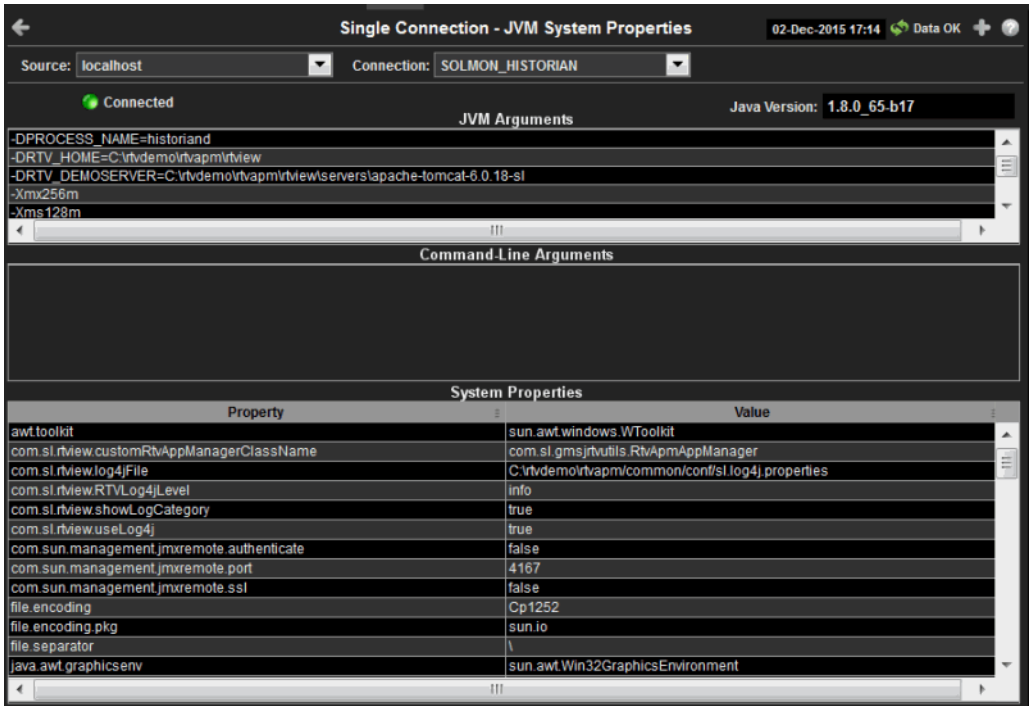
Cur Heap Mb Traces the current amount of memory, in megabytes, used for memory management by the application in the time range specified.

Used Heap Mb Traces the memory currently used by the application.

Live Threads Traces the total number of currently active threads in the time range specified.

JVM System Properties

Track JVM input arguments and system properties for a single connection. Use the available drop-down menus or right-click to filter data shown in the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Connected	The data connection state: Disconnected. Connected.
Java Version	The Java version running on the selected server.
JVM Arguments	The JVM arguments in the **RuntimeMXBean InputArguments** attribute.

Command Line Arguments Arguments used to start the application.

System Properties
This table lists and describes system property settings.

Property Name of the property.

Value Current value of the property.

JVM Memory Pool Trends

Track JVM heap and non-heap memory usage for a single connection. Use the available drop-down menus or right-click to filter data shown in the display.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

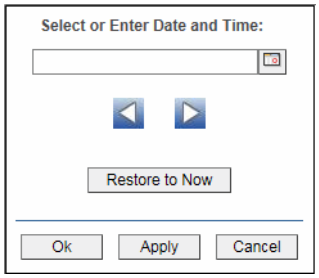
Source Select the type of connection to the RTView Server.

Connection Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.

Connected The data connection state:
Disconnected.
Connected.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Heap Memory

Maximum	The maximum amount of memory used, in megabytes, for memory management by the application in the time range specified. This value may change or be undefined. NOTE: A memory allocation can fail if the JVM attempts to set the **Used** memory allocation to a value greater than the **Committed** memory allocation, even if the amount for **Used** memory is less than or equal to the **Maximum** memory allocation (for example, when the system is low on virtual memory).
Committed	The amount of memory, in megabytes, guaranteed to be available for use by the JVM. The amount of committed memory can be a fixed or variable size. If set to be a variable size, the amount of committed memory can change over time, as the JVM may release memory to the system. This means that the amount allocated for **Committed** memory could be less than the amount initially allocated. **Committed** memory will always be greater than or equal to the amount allocated for **Used** memory.
Used	The amount of memory, in megabytes, currently used by the application. Memory used includes the memory occupied by all objects including both reachable and unreachable objects.
Peak Tenured Used	The amount of memory, in megabytes, used by tenured JVM objects in the time range specified. Tenured refers to JVM objects contained in a pool that holds objects that have avoided garbage collection and reside in the survivor space. Peak tenured refers to the maximum value of the tenured memory over a specified period of time.
Eden Space	Traces the amount of memory used by the JVM eden pool in the time range specified. Eden refers to the JVM eden pool, which is used to initially allocate memory for most objects.
Survivor Space	Traces the amount of memory used by the JVM survivor pool in the time range specified. The JVM survivor pool holds objects that survive the eden space garbage collection.
Tenured Gen	Traces the amount of memory used by tenured JVM objects in the time range specified. Tenured refers to JVM objects contained in a pool that holds objects that have avoided garbage collection and reside in the survivor space. Peak tenured refers to the maximum value of the tenured memory over a specified period of time.

Non-Heap Memory

Maximum	The maximum amount of memory, in megabytes, used for JVM non-heap memory management by the application in the time range specified.
Committed	The amount of memory, in megabytes, guaranteed to be available for use by JVM non-heap memory management. The amount of committed memory can be a fixed or variable size. If set to be a variable size, it can change over time, as the JVM may release memory to the system. This means that the amount allocated for **Committed** memory could **be** less than the amount initially allocated. Committed memory will always be greater than or equal to the amount allocated for **Used** memory.
Used	The amount of memory, in megabytes, currently used by the application. Memory used includes the memory occupied by all objects including both reachable and unreachable objects.
Objects Pending Finalization	The value of the **MemoryMXBean ObjectPendingFinalizationCount** attribute.
Verbose	The value of the **MemoryMXBean Verbose** attribute.
Code Cache	Traces the amount of non-heap memory used in the JVM for compilation and storage of native code.
Perm Gen	Traces the amount of memory used by the pool containing reflective data of the virtual machine, such as class and method objects. With JVMs that use class data sharing, this generation is divided into read-only and read-write areas.

Operations

Run Garbage Collector	Performs garbage collection on the selected server.
Reset Peak Usage	Clears peak usage on the selected server.

JVM GC Trends

Track JVM garbage collection memory usage for a single connection. Use the available drop-down menus or right-click to filter data shown in the display.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

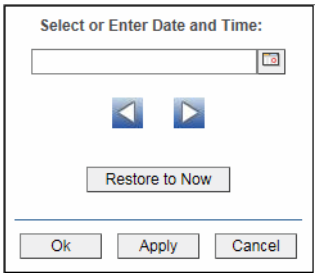
Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Source	Select the type of connection to the RTView Server.
Connection	Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.
Garbage Collector	Select a garbage collection method: **Copy** or **MarkSweepCompact**.
Max	Shows the maximum amount of memory used for JVM garbage collection in the time range specified.
Committed	Shows the amount of memory guaranteed to be available for use by JVM non-heap memory management. The amount of committed memory can be a fixed or variable size. If set to be a variable size, it can change over time, as the JVM may release memory to the system. This means that the amount allocated for **Committed** memory could be less than the amount initially allocated. **Committed** memory will always be greater than or equal to the amount allocated for **Used** memory.

Base at Zero Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Memory Usage (in MB) Before and After Garbage Collection

Maximum Traces the maximum amount of memory used by garbage collection in the time range specified. This value may change or be undefined.

NOTE: A memory allocation can fail if the JVM attempts to set the **Used** memory allocation to a value greater than the **Committed** memory allocation, even if the amount for **Used** memory is less than or equal to the **Maximum** memory allocation (for example, when the system is low on virtual memory).

Committed Traces the amount of memory guaranteed to be available for use by the JVM. The amount of committed memory can be a fixed or variable size. If set to be a variable size, the amount of committed memory can change over time, as the JVM may release memory to the system. This means that the amount allocated for **Committed** memory could be less than the amount initially allocated. **Committed** memory will always be greater than or equal to the amount allocated for **Used** memory.

Used - Before Traces the amount of memory used before the last garbage collection.

Used - After Traces the amount of memory used after the last garbage collection.

Duration The duration, in seconds, of garbage collection.

Duty Cycle The percentage of time that the application spends in garbage collection.

Tomcat Displays

The Tomcat displays provide extensive visibility into the health and performance of Tomcat application servers and installed web modules. The following Tomcat Monitor Views (and their associated displays) can be found under **Components** tab **> Application/Web Servers > Tomcat**. The Tomcat displays come with RTView Enterprise Monitor. However, the displays are empty until you install and configure the Solution Package for Tomcat.

Tomcat has the following Views:

- "Tomcat Servers"
- "Tomcat Applications"

Tomcat Servers

These displays present performance data for monitored Tomcat Servers. Use these displays to examine the state and performance of your Tomcat servers as well as all installed web modules. The server displays include summary overviews and detail pages with historical trends. To see your data in these displays you must install and configure the Solution Package for Tomcat. Displays in this View are:

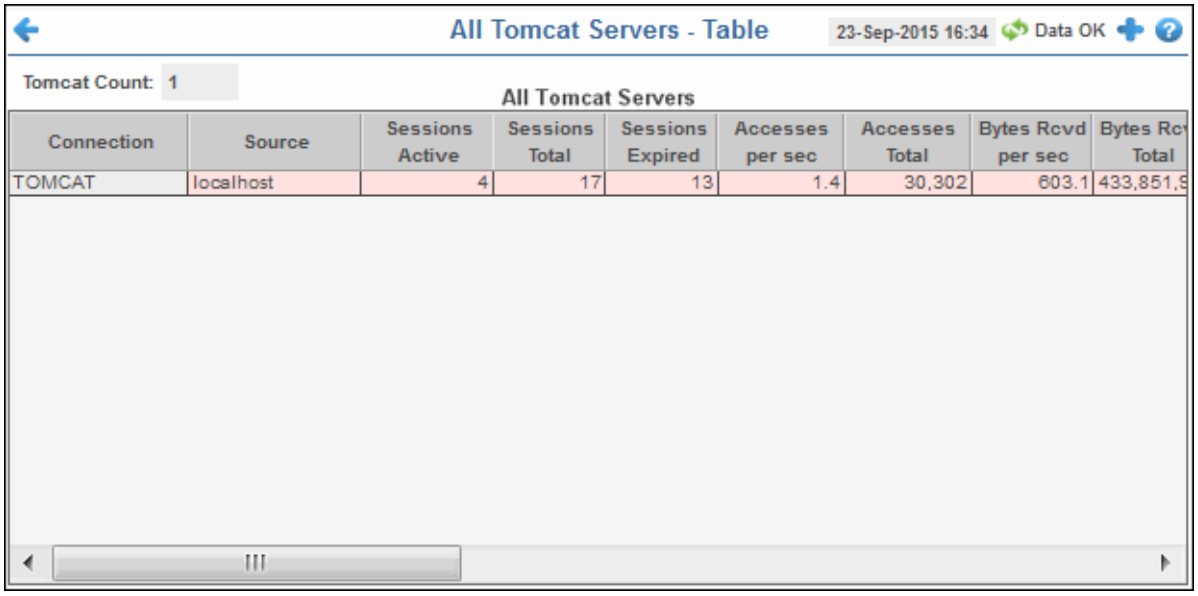
- "All Tomcat Servers": Table of connection details and performance metrics for all Tomcat connections.
- "Tomcat Server Summary": Performance metrics for one Tomcat Server, including current and historic performance metrics.

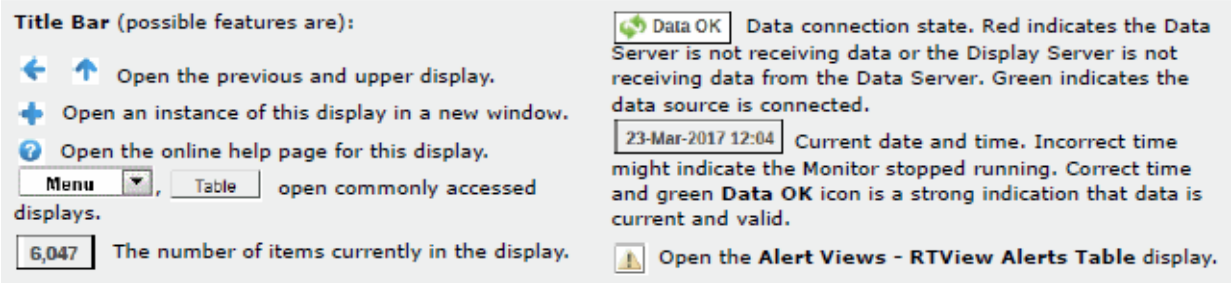
All Tomcat Servers

View Tomcat Server details per connection such as the total number of sessions, bytes sent/received, and processing time. Each row in the table is a different Tomcat Server. The row color for inactive connections is dark red.

Use this display to get Tomcat server session counts, access and request rates, cache hit rates and data transmission metrics.

Drill-down and investigate by clicking a row in the table to view details for the selected connection in the **Service Summary** display.





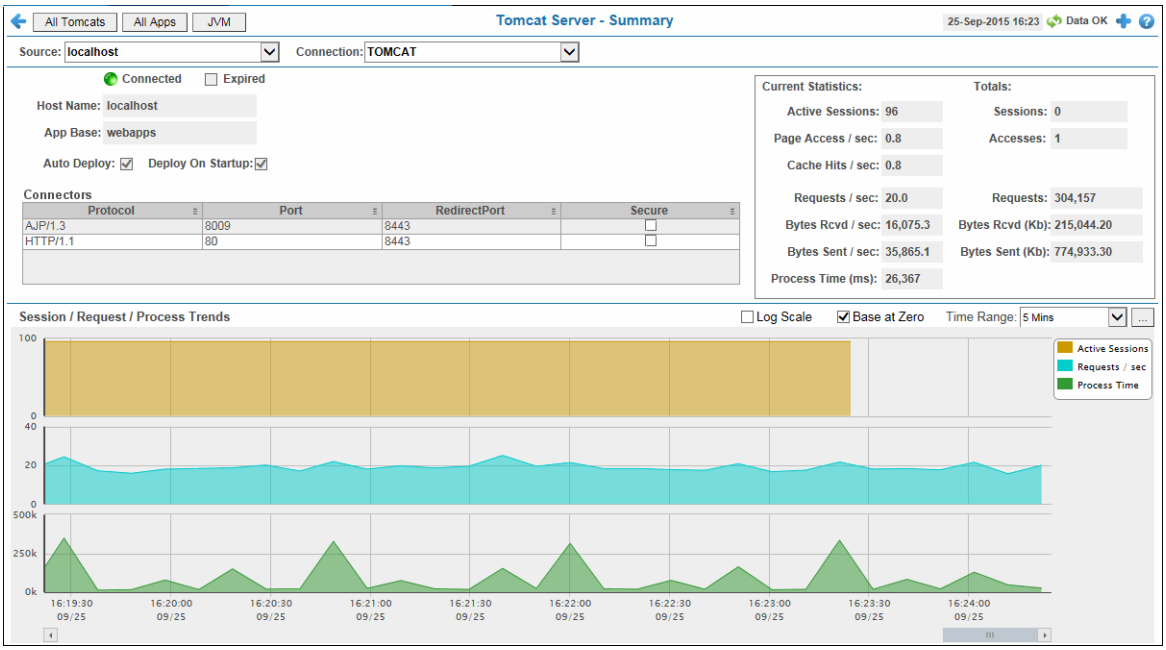
Fields and Data
This display includes:

Tomcat Count	The number of Tomcat connections in the table.
Connection	The name of the Tomcat connection.
Source	The host where the Tomcat Server is running.
Sessions Active	The number of currently active client sessions.
Sessions Total	The total number of client sessions since the server was started.
Sessions Expired	The total number of client sessions that expired since the server was started.
Accesses per sec	The number of times pages are accessed, per second.
Accesses Total	The total number of times pages have been accessed since the server was started.

Bytes Rcvd per sec	The number of bytes received per second.
Bytes Rcvd Total	The total number of bytes received since the server was started.
Bytes Sent per sec	The number of bytes sent per second.
Bytes Sent Total	The total number of bytes sent since the server was started.
Cache Hit Rate	The number of times the cache is accessed, per second.
Requests per sec	The number of requests received, per second.
Requests Total	The total number of requests received since the server was started.
Process Time	The average amount of time, in milliseconds, to process requests.
Error Count	The number of errors that have occurred since the server was started.
appBase	The directory in which Tomcat is installed.
Display Name	The name of the currently open display.
Expired	When checked, this connection is expired due to inactivity.
time_stamp	The date and time this row of data was last updated. Format: **MM/DD/YY HH:MM:SS** **<month>/ <day>/<year> <hours>:<minutes>:<seconds>**

Tomcat Server Summary

Track the performance of one Tomcat Server and get Tomcat hosting and connection details. You can drill down to this display from the Servers table for detailed information and historical trends for a specific server. The trends include Active Sessions, Requests per Sec, and Process Time.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Source	Select the host where the Tomcat Server is running.
Connection	Select a Tomcat Server from the drop-down menu.
Connected	The Tomcat Server connection state: Disconnected. Connected.
Expired	When checked, this server is expired due to inactivity.
Host Name	The name of the host where the application resides.
App Base	The directory in which Tomcat modules are installed.

Auto Deploy When checked, indicates that the Tomcat option, automatic application deployment, is enabled.

Note: This Tomcat option is set using the **autoDeploy** property in the **server.xml** file, located in the Tomcat **conf** directory. **autoDeploy=true** enables the option.

Deploy On Startup When checked, indicates that the option to deploy the application on Tomcat startup is enabled.

Note: This Tomcat option is set using the **deployOnStartup** property in the **server.xml** file, located in the Tomcat **conf** directory. When enabled (**deployOnStartup=true**), applications from the host are automatically deployed.

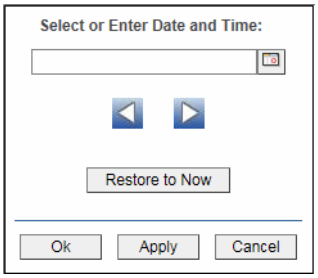
Connectors
This table shows Tomcat application connection information.

Protocol	The protocol used by the Tomcat application on the host.
Port	The port number used by the Tomcat application on the host.
RedirectPort	The redirect port number used by the Tomcat application on the host.
Secure	When checked, specifies that the Tomcat application uses a secure connection on the host.

Current Statistics / Totals

Active Sessions	The number of clients currently in session with the servlet.
Sessions	The total number of client sessions since the server was started.
Page Access / sec	The number of times pages are accessed, per second.
Accesses	The total number of page accesses since the server was started.
Cache Hits / sec	The number of times the cache is accessed, per second.
Requests / sec	The number of requests received, per second.
Requests	The total number of requests since the server was started.
Bytes Rcvd / sec	The number of bytes received, per second.
Bytes Rcvd (Kb)	The number of kilobytes received since the server was started.
Bytes Sent / sec	The number of bytes sent, per second.
Bytes Sent (Kb)	The total number of kilobytes sent since the server was started.
Process Time	The amount of time, in milliseconds, for the servlet to process client requests.

Session / Request / Process Trends
Shows metrics for the selected server.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Use zero as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .  By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**. Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu. Click **Restore to Now** to reset the time range end point to the current time.
Active Sessions	Traces the number of currently active client sessions.
Requests /sec	Traces the number of requests received, per second.
Process Time	Traces the average amount of time, in milliseconds, to process requests.

Tomcat Applications

These displays present performance data for monitored Tomcat Applications. Use these displays to examine the state and performance of your Tomcat applications and all installed web modules. The server displays include summary overviews and detail pages with historical trends.

To see your data in these displays you must install and configure the Solution Package for Tomcat. Displays in this View are:

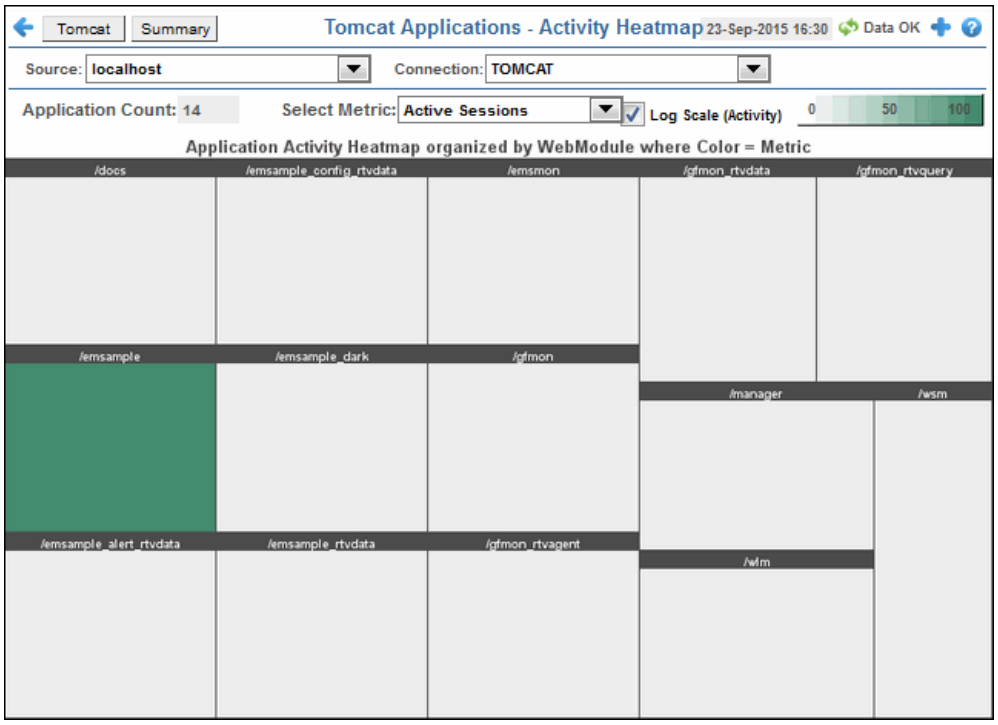
- "Applications Heatmap": Heatmap of performance metrics for all Web modules for one Tomcat Server.
- "Applications Summary": Table and trend graphs of performance metrics for Web modules.

Applications Heatmap

View performance metrics for all monitored Tomcat Web modules for one Tomcat Server. The heatmap organizes Tomcat Web modules by server, and uses color to show the most critical Metric value for each Tomcat connection associated with the selected source. Each rectangle in the heatmap represents a Web module. In this heatmap, the rectangle size is the same for all Web modules. Each Metric (selected from the drop-down menu) has a color gradient bar that maps relative values to colors.

Use this display to see at-a-glance the health of all your web applications. You can select the heatmap color metric from a list including active sessions, access rate, and total access count.

Use the available drop-down menus or right-click to filter data shown in the display. Use the check-boxes ☑ to include or exclude labels in the heatmap. Move your mouse over a rectangle to see additional information. Drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected Web module in the **Application Summary** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

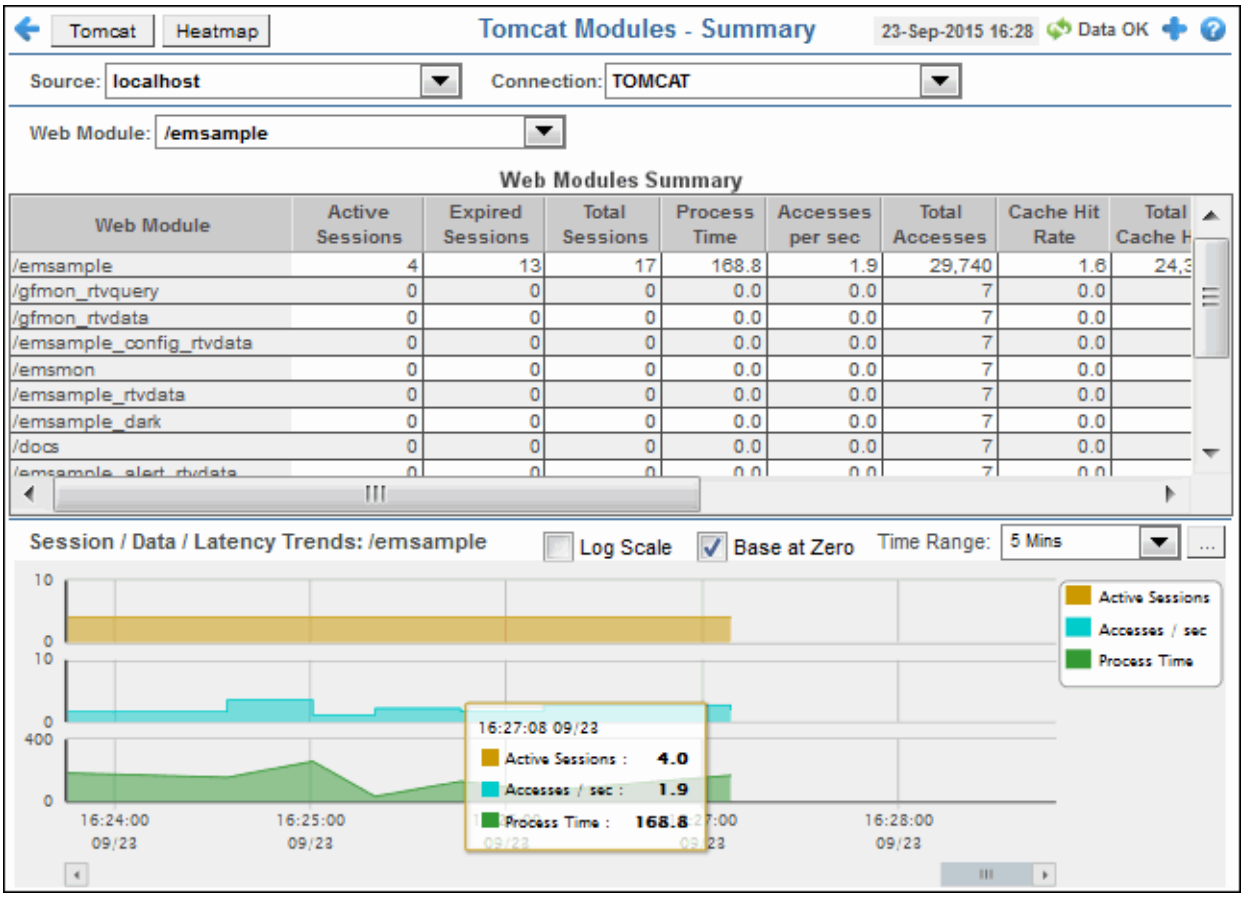
Source	Select the host where the Tomcat Server is running.
Connection	Select a Tomcat Server from the drop-down menu.
Application Count	The number of Tomcat applications in the heatmap.
Log Scale (Activity)	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Select Metric	Select the metric to display in the heatmap. Each Metric has a color gradient bar that maps relative values to colors.

Applications Summary

Track the performance of all web application modules in a server and view utilization details. The table summarizes the sessions, accesses, cache hit and so forth, for all installed web modules. Each row in the table is a different web application module. The row color for inactive modules is dark red. Select a web application module to view metrics in the trend graph.

Use this data to verify response times of your Web application modules.

Use the available drop-down menus or right-click to filter data shown in the display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Source Select the host where the Tomcat Server is running.

Connection Select a Tomcat Server from the drop-down menu. This menu is populated by the selected Source.

Web Module Select a Web module from the drop-down menu. This menu is populated by the selected Connection. The Web Module you select populates the trend graphs.

Web Module Summary

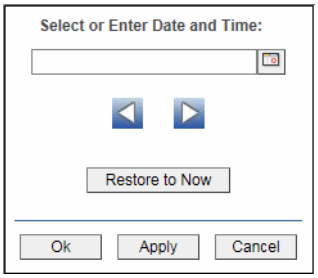
Web Module The name of the Web module.

Sessions Active	The number of currently active client sessions.
Sessions Total	The total number of client sessions since the application was started.
Sessions Expired	The total number of client sessions that expired since the application was started.
Accesses per sec	The number of times pages are accessed, per second.
Accesses Total	The total number of times pages have been accessed since the application was started.
Bytes Rcvd per sec	The number of bytes received per second.
Bytes Rcvd Total	The total number of bytes received since the application was started.
Bytes Sent per sec	The number of bytes sent per second.
Bytes Sent Total	The total number of bytes sent since the application was started.
Cache Hit Rate	The number of times the cache is accessed, per second.
Requests per sec	The number of requests received, per second.
Requests Total	The total number of requests received since the application was started.
Process Time	The average amount of time, in milliseconds, to process requests.
Error Count	The number of errors occurred since the application was started.
appBase	The directory in which Tomcat is installed.
Expired	When checked, this connection is expired due to inactivity.
time_stamp	The date and time this row of data was last updated. Format: **MM/DD/YY HH:MM:SS** **<month>/ <day>/<year> <hours>:<minutes>:<seconds>**

Session/Data/Latency Trends
Shows metrics for the selected Web module. The Web module can be selected from the **Web Module** drop-down menu or the **Web Modules Summary** table.

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Active Sessions Traces the number of currently active client sessions.

Accesses / sec Traces the number of times pages are accessed, per second.

Process Time Traces the average amount of time, in milliseconds, to process requests.

CHAPTER 23 Solution Package for Solace Message Router

The Solution Package for Solace enables Solace users to continually assess and analyze the health and performance of their infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their messaging system. It does so by aggregating and analyzing key performance metrics across all routers, bridges, endpoints and clients, and presents the results, in real time, through meaningful displays as data is collected. Users also benefit from predefined displays and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated. The Solution Package for Solace also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high transaction environments.

This section describes how to configure the Solution Package using the "RTView Configuration Application" and also describes the available displays.

See **README_sysreq.txt** for the full system requirements for RTView®.

This chapter includes:

- "Configuration Parameters You Need": Describes values for configuration.
- "Configure Data Collection": Describes how to collect data.
- "Troubleshoot": Describes resources for troubleshooting.
- "Solace Monitor Views/Displays": Describes the displays that come with RTView® Monitor for Solace®.

Configuration Parameters You Need

- **PackageName=solmon**
- **ServerDirectory=solmon**
- **AlertPrefix=Sol**

Configure Data Collection

This section describes how to collect data from the Solace message routers you want to monitor. Use the "RTView Configuration Application" to do the following in the order provided:

- "Obtain SEMP Version," next
- "Configure CONNECTIONS": Provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Modify the poll rate interval for collecting data and enable/disable autodiscover (this option is enabled by default). This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

Note: For changes made in the "RTView Configuration Application" to take place, you must restart your data server after making and saving your changes.

Obtain SEMP Version

In order to properly request monitored data, the Monitor requires the exact SEMP version on your message routers. These instructions describe how to use SolAdmin to determine the SEMP version for each of your Solace Message Routers or VMRs. You will need this information when you connect your message routers and edit connection properties.

Note: These instructions are for SolAdmin on Windows. For Linux, only the path to the log file changes.

1. Navigate to the SolAdmin installation folder. For example, **C:\Program Files (x86)\SolAdmin**.
2. Change directory (**cd**) to the **bin** directory and open the **log4j.properties** file in a text editor.
3. Change the logging level to **DEBUG** and provide the full path to the logging file (for example, **C:\Logs**) while retaining all other settings. The edited properties are as follows:

full path to the location where you want the log file to be stored. In this example C:\Logs

log4j.appender.A1.File=**C:\Logs\soladmin.log**
# Set the logging category to DEBUG
log4j.category.com.solacesystems=**DEBUG**, A1

4. Save the **log4j.properties** file.
5. Start SolAdmin and add your message routers or VMRs as managed instances.
6. Open the **soladmin.log** file and locate the semp-version tag in SEMP requests. The SEMP version that will be used by the Monitor replaces underscores (**_**) with dots (**.**). For example, if the SEMP request in the SolAdmin log file is **7_2VMR**, you use **7.2VMR** for the **$solSempVersion** substitution of the Monitor connection property.

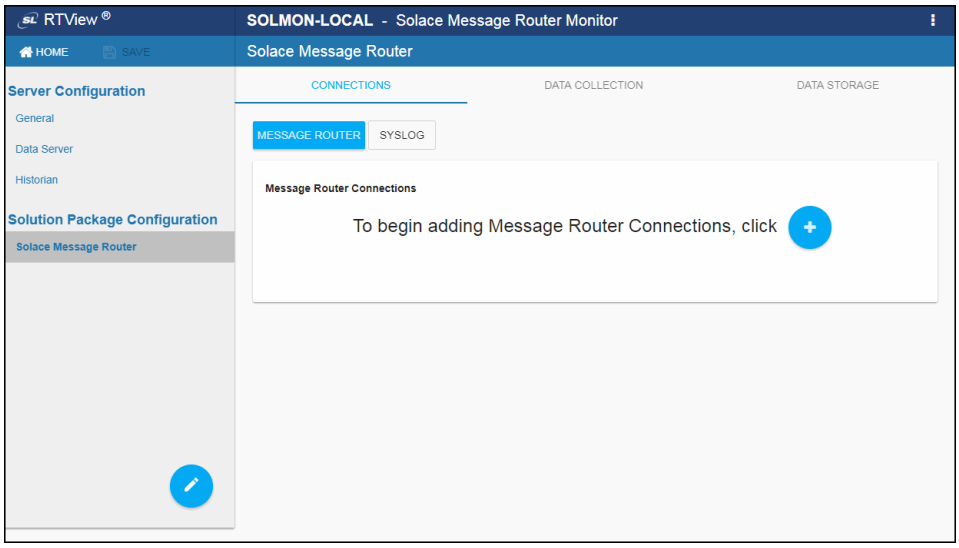
Proceed to "Configure CONNECTIONS," next.

Configure CONNECTIONS

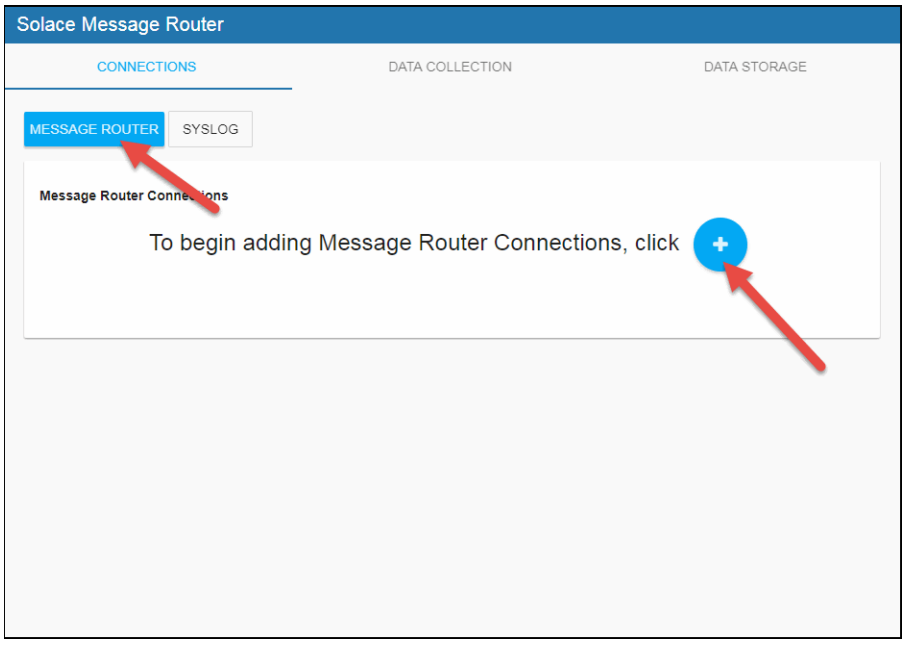
This section describes how to establish the data connection for Solution Package for Solace. This part of the configuration is required.

To configure data connections for the Solution Package for Solace:

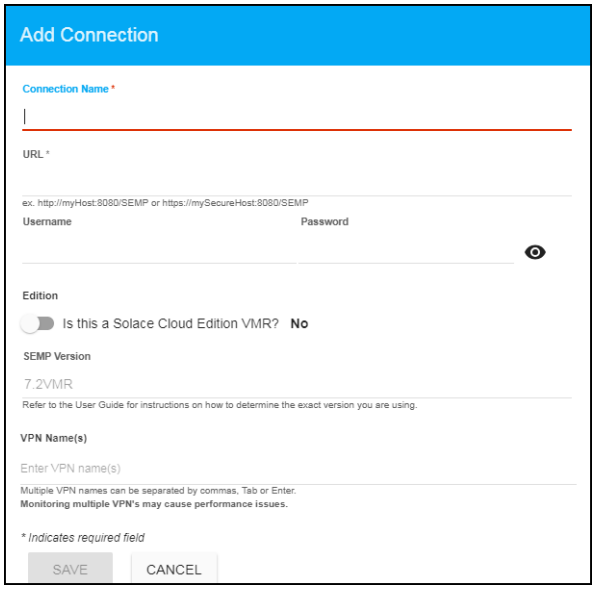
1. "Open the Solution Package Project" (the project name is **SOLMON-LOCAL**), then select **Solace Message Router** in the navigation tree (left panel).



2. In the **CONNECTIONS** tab, click the **Message Router** button, and then click to open the **Add Connection** dialog.



3. In the **Add Connection** dialog, enter the following:



Connection Name: Enter a unique string to identify the connection of the monitored message router.

- **URL**: Enter the URL to be used for the connection, which contains an IP address or the host name that can be resolved by your network name resolution method and the SEMP port number configured for your message router.

  Username: The username is used when creating the connection to the message router. This field is optional.

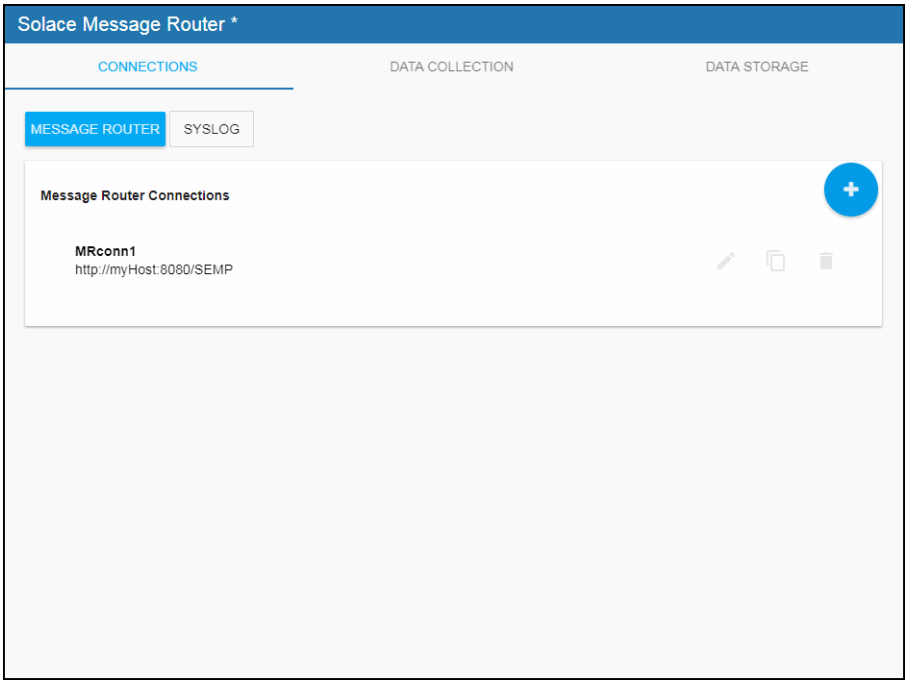
  Password: This password is used when creating the connection to the message router. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

  Edition: Enable the toggle if the message router is a Solace Cloud Edition VMR.

  SEMP Version: Specify the SEMP Version used by the message router.

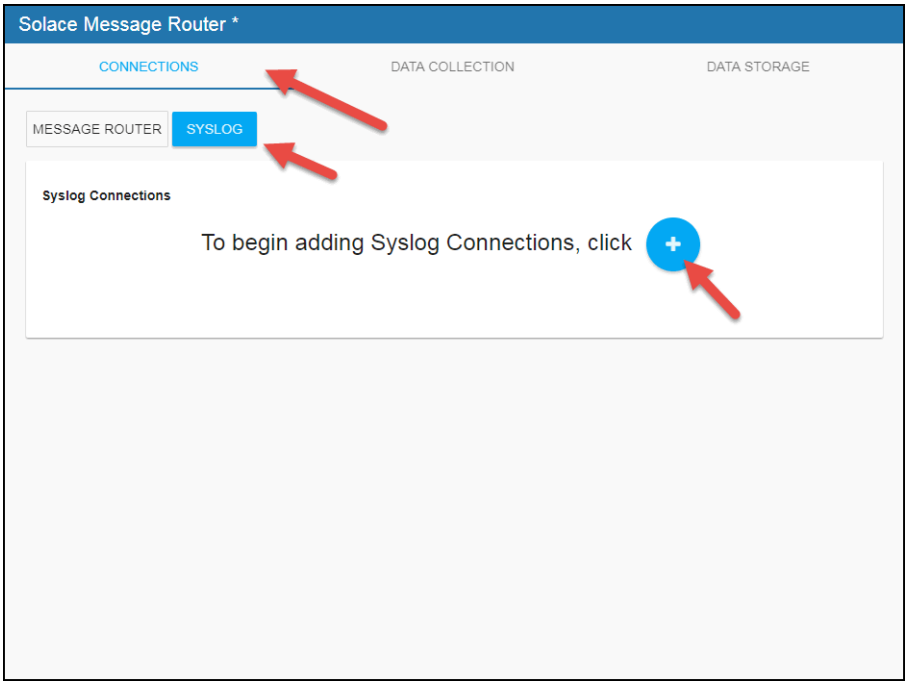
  VPN Name(s): Optionally enter the names of the VPNs that you want to monitor. Monitoring multiple VPNs could impact performance.

4. **SAVE** your settings. The newly created Message Router connection displays in the **Message Router Connections** list.

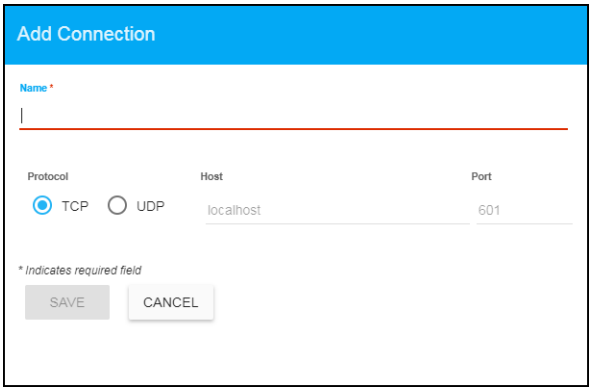


5. Repeat Steps 2-4 for each Message Router to be monitored.

6. To add SYSLOG connections, click the **SYSLOG** button on the **CONNECTIONS** tab, and then click + to open the **Add Connection** dialog.



7. In the **Add Connection** dialog, enter the following:



Name: Enter the unique name for the connection.

Protocol: Select either the **TCP** or **UDP** protocol.

Host: Enter the host name. The default for both TCP and UDP is **localhost**.

Port: Enter the port number. The default for TCP is **601**. The default for UDP is **514**. Only root can use ports 0 thru 1024 on UNIX/Linux systems.

Note: The syslog listener configuration requires the IP address assigned to the physical network interface. **host** refers to the physical network interface that will be used to receive Syslog messages (there might be more than one network interface available on the receiving system). Typically, this will be the IP address assigned to the selected network interface. If the system where the Monitor Data Server is running is also the Syslog server/sender, then **localhost** can be used.

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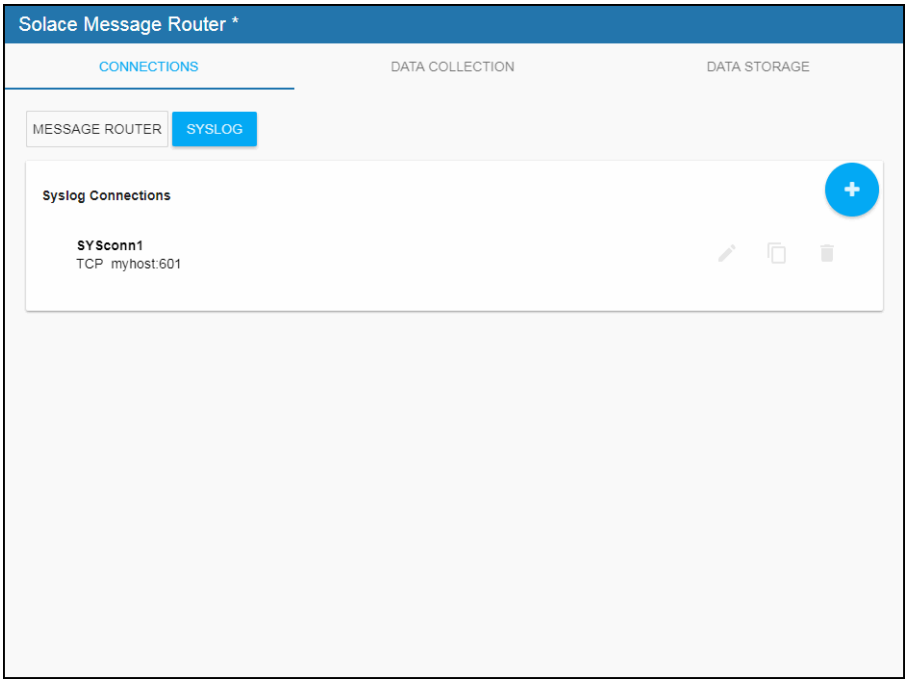
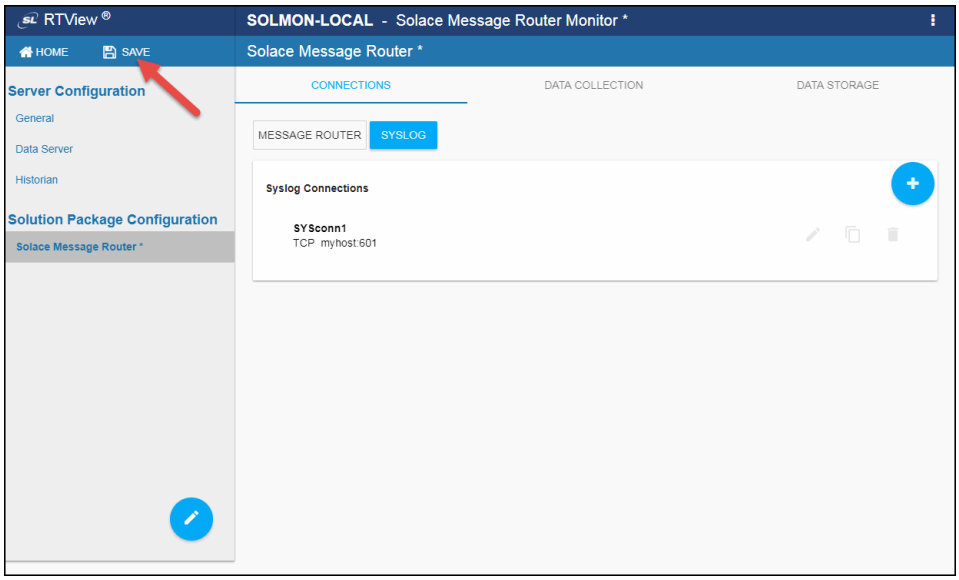
8. **SAVE** your settings. The newly created SYSLOG connection displays in the **SYSLOG Connections** list.



9. Repeat Steps 6-8 for each SYSLOG connection to be monitored.

10. Click **SAVE** to save all of your newly added connections.



11. Click HOME to return to the **HOME** page then click RESTART DATASERVER button to restart your data server so that your changes take effect.

Optionally, proceed to "Setup DATA COLLECTION," next.

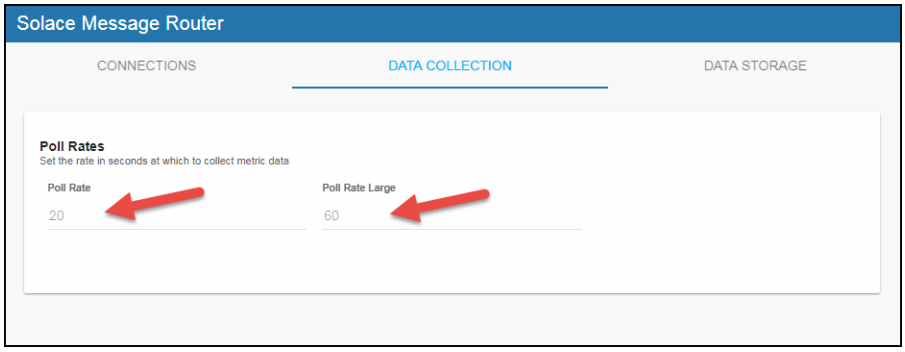
Setup DATA COLLECTION

This step is optional.

This section describes how to modify the default values for data update frequency for various server-related caches, and also to specify **Connection Discovery** for automatic discovery and connection to local JMX MBean Servers.

To configure data collection poll rates and connection discovery for the Solution Package for Solace:

1. "Open the Solution Package Project" (the project name is **SOLMON-LOCAL**), then select **Solace Message Router** in the navigation tree (left panel).



2. In the **DATA COLLECTION** tab, make the following entries as appropriate:

   Poll Rate: Enter the query interval, in seconds, to collect data updates. Caches impacted by this field are SolEndpointStats, SolEndpoints, SolClients, SolClientStats, SolBridges, SolAppliances, SolBridgeStats, SolApplianceInterfaces and SolApplianceMessageSpool.

   Poll Rate Large: Enter the time interval, in seconds, to check for data updates. Caches impacted by this field are SolCspfNeighbors, SolApplicances and SolEnvironmentSensors.

   Note: When modifying your update rates, you should take your system architecture and number of elements per cache into account and ensure that you are not changing your update rates to values that might negatively impact system performance.

Optionally, proceed to "Configure DATA STORAGE," next.

Configure DATA STORAGE

This step is optional.

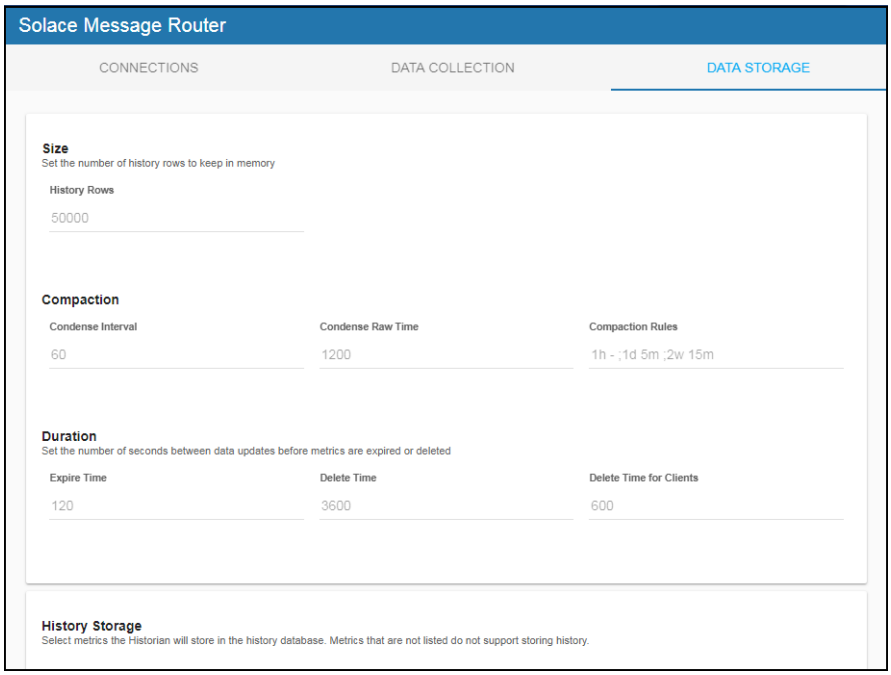
This section describes options for managing and reducing the amount of history data you store in your cache tables. The data for each metric is stored in a specific cache and, when the data is not updated in a given period of time, that data is either marked as *expired* or, if it has been an extended period of time, it is deleted from the cache altogether. By default, metric data is set to expired when the data in the cache has not been updated within **45** seconds. Also, by default, if the data is not updated in the cache within **3600** seconds, it is removed from the cache.

There are three main approaches to reducing the amount of storage in your cache tables. You can:

- **Set size limits**: So that when the number of rows in the cache table exceeds the limit specified here, the oldest row of data in the cache table is deleted. Set these values in the **History Rows** and **History Rows Large** fields.
- **Set time limits**: So that when the amount of time to wait for a row in the cache table to receive a data update exceeds the limit specified here, the data is marked expired or deleted. Set these values in the **Expire Time** and **Delete Time** fields.
- **Compact data**: Data compaction allows you to create rules that reduce the amount of stored history data to a reasonably sized sample of your data to prevent overloading your database. The rules include a schedule for automatically reducing the amount of data. Set these values in the **Condense Interval**, **Condense Interval** and **Compaction Rules** fields.

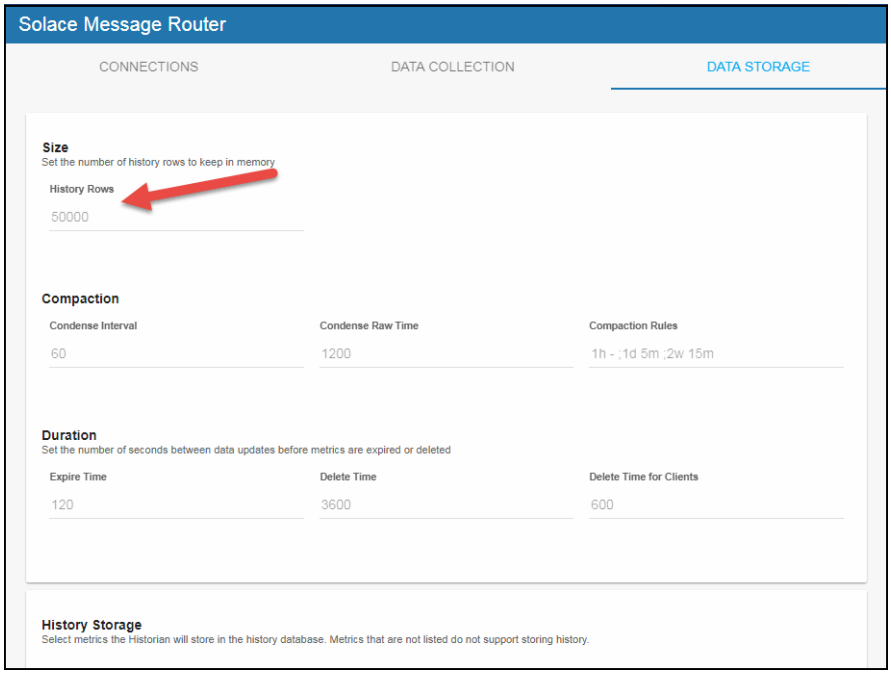
To modify data storage default settings:

1. "Open the Solution Package Project" (the project name is **SOLMON-LOCAL**), then select **Solace Message Router** in the navigation tree (left panel).



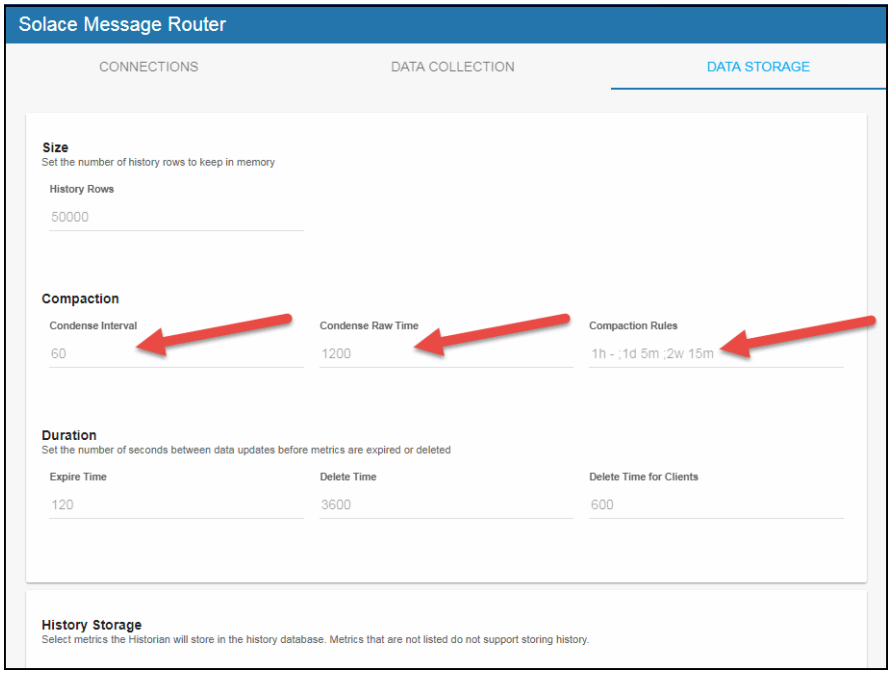
2. On the **DATA STORAGE** tab, make the following entries:

   Size - Enter the maximum number of table rows to keep in memory:



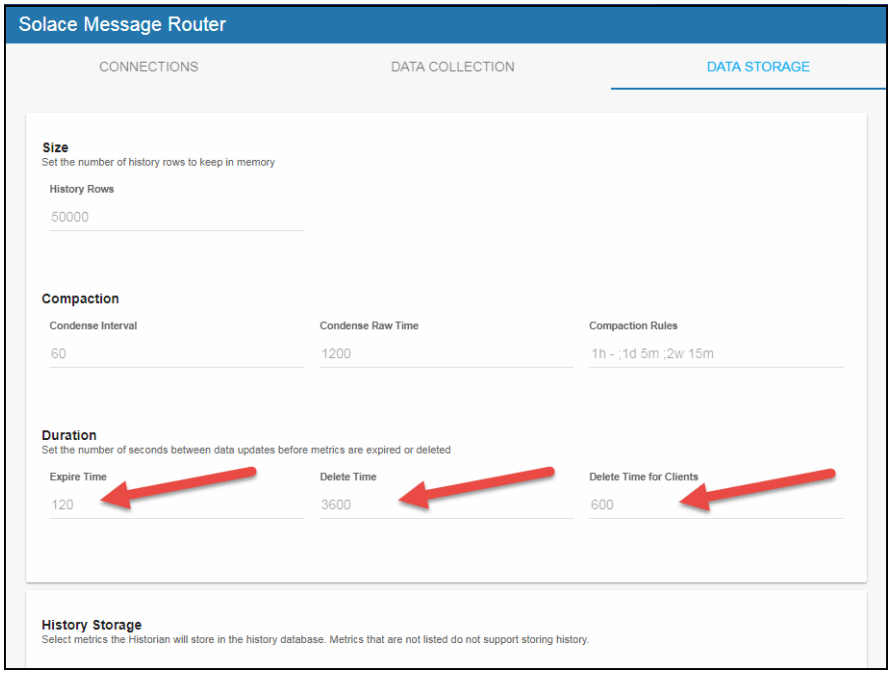
- **History Rows** - The maximum number of rows to store in the History table. If set to **0**, no History table is created. The default setting is **50,000**. Caches impacted by this field are SolVpns, SolClientStats, SolAppliances, SolEndpoints, SolCspfNeighbors, SolBridgeStats, SolApplianceInterfaces, SolApplianceMessageSpool, SolEndpointStats and SolAppliancesQuality.
- **History Rows Large**- The maximum number of rows to store in the History table. If set to **0**, no History table is created. The default setting is **200,000**.

Compaction - Define scheduled rules that reduce the amount of stored history data to a reasonably sized sample of your data to prevent overloading your database.



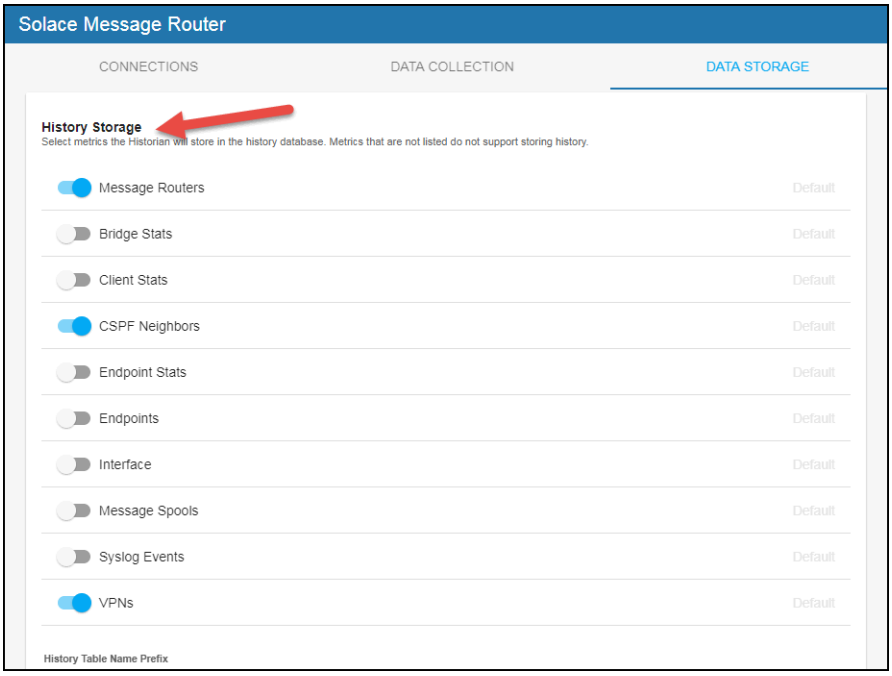
- **Condense Interval -** The time interval at which the cache history is condensed. The default is **60** seconds. Caches impacted by this field are SolVpns, SolClientStats, SolAppliances, SolEndpoints, SolCspfNeighbors, SolBridgeStats, SolApplianceInterfaces, SolApplianceMessageSpool and SolEndpointStatscaches.
- **Condense Raw Time -** The time span of raw data kept in the cache history table. The default is **1200** seconds. Caches impacted by this field are SolVpns, SolClientStats, SolAppliances, SolEndpoints, SolCspfNeighbors, SolBridgeStats, SolApplianceInterfaces, SolApplianceMessageSpool and SolEndpointStats.
- **Compaction Rules** - This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). Caches impacted by this field are SolVpns, SolClientStats, SolAppliances, SolEndpoints, SolCspfNeighbors, SolBridgeStats, SolApplianceInterfaces, SolApplianceMessageSpool and SolEndpointStats.

Duration - Enter the amount of time between data updates before data is expired or deleted:



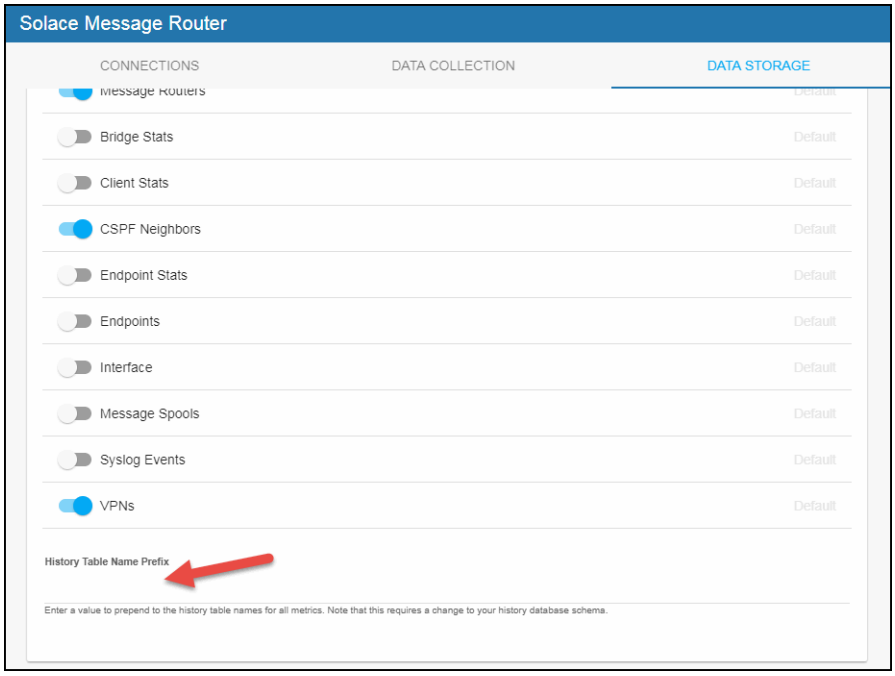
- **Expire Time** - The number of seconds to wait for a data update before cached history data is shown as **Expired** in displays. The caches impacted by this field are SolVpns, SolBridges, SolClients, SolClientStats, SolAppliances, SolEndpoints, SolCspfNeighbors, SolBridgeStats, SolApplianceInterfaces, SolApplianceMessageSpool, SolEndpointStats, SolEnvironmentSensors and SolAppliancesQuality.
- **Delete Time** - The number of seconds to wait for a data update before cached history data is removed from displays. The caches impacted by this field are SolVpns, SolBridges, SolEndpoints, SolBridgeStats, SolEndpointStats and SolEnvironmentSensors.
- **Delete Time for Clients** - The number of seconds to wait for a response from clients before removing client from displays. The caches impacted by this field are SolClients and SolClientStats.

History Storage - Toggle to Enable/Disable the types of data you want the Historian to store in the history database for the Solution Package. Each has a corresponding cache:



- Message Routers: Cache is SolAppliances.
- Bridge Stats: Cache is SolBridgeStats.
- Client Stats: Cache is SolClientStats.
- CSPF Neighbors: Cache is SolCspfNeighbors.
- Endpoint Stats: Cache is SolEndpointStats.
- Endpoints: Cache is SolEndpoints.
- Interface: Cache is SolApplianceInterfaces.
- Message Spools: Cache is SolApplianceMessageSpool.
- Syslog Events: Cache is SyslogEvents
- VPNs: Cache is SolVpns.

History Table Name Prefix - Enter a prefix to prepend to the history data table names for these metrics.



The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME/solmon/dbconfig** and make a copy of it.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

3. **SAVE** your project settings (choose  if **SAVE** is not visible, or expand your browser width).

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/solmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor and go to Administration>RTView Cache Tables in the navigation tree. You should see all caches being populated with monitoring data (the number of rows in the table is greater than 0). If not, there is a problem with the connection to the Data Server.

Verify Port Assignments

If the Display Server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Solace Monitor Views/Displays

The following Solution Package for Solace Views (and their associated displays) can be found under **Components** tab **> Middleware > Solace Message Router** after installation:

This section contains the following:

- "Message Routers": The displays in this View present message router-level performance metrics, which reflect configuration settings, total throughput, current status, errors, and value-added calculations that summarize metrics across all of the VPNs.
- "Neighbors": The displays in this View present configuration details and performance metrics for your CSPF neighbor message routers.
- "VPNs": The displays in this View present views of the VPN-level metrics.
- "VPNs": The displays in this View present views of all clients for the message router. These views can be filtered to limit the displays to clients for a single VPN.
- "Bridges": The displays in this View present views of all bridges for the message router. These views can be filtered to limit the displays to bridges for a single VPN.
- "Endpoints": The displays in this View present views of all topics and queues for the message router, which can be filtered to limit the displays to topics and queues for a single VPN.
- "Capacity Analysis": The displays in this View present current metrics, alert count and severity at the message router level.
- "Syslog": View all Syslog events for your Solace message routers.

Message Routers

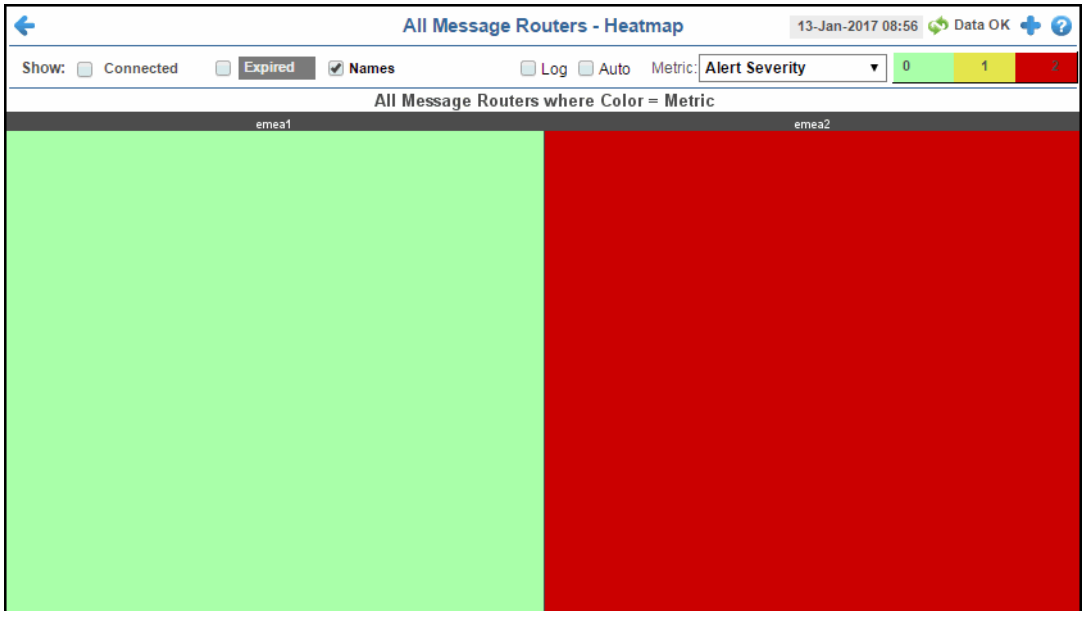
These displays provide detailed data and statuses for message routers and their connected message routers. Displays in this View are:

- "All Message Routers Heatmap" on page 969: A color-coded heatmap view of the current status of each of your message routers.
- "All Message Routers Table" on page 971: A tabular view of all available message router performance data.
- "Message Router Summary" on page 979: Current and historical metrics for a single message router.
- "Environmental Sensors" on page 983: Provides value and status information for all sensors on a single message router or for all sensors for all message routers.
- "Message Router Provisioning" on page 985: Provides message router host, chassis, redundancy, memory, and fabric data for a particular message router.
- "Interface Summary" on page 987: Provides detailed data and status information for the interfaces associated with one or all message router(s). You can also view current and historical amounts of incoming and outgoing packets and bytes for a selected interface in a trend graph.
- "Message Spool Table" on page 990: Provides status and usage data for message spools associated with one or all message router(s).
- "Message Router VPN Activity" on page 992: Provides the number of connections for each client connected to a specific message router and lists the average incoming and outgoing bytes per minute for each of the connected clients.

All Message Routers Heatmap

This heatmap shows the current status of all message routers for the selected metric. Use this to quickly identify the current status of each of your message routers for each available metric: the current alert severity, alert count, number of spooled messages, total messages received, total messages sent, total number of messages received per second, total number of messages sent per second, total bytes received per second, and the total bytes sent per second. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the check-boxes ☑ to include or exclude labels in the heatmap, show only connected or expired message routers, and you can mouse over a rectangle to see additional metrics for an message router. Clicking one of the rectangles in the heatmap opens the "Message Router Summary" display, which allows you to see additional details for the selected message router.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data:

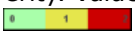
Connected	Select this check box to only show connected message routers in the heatmap.
Expired	Select this check box to only show expired message routers in the heatmap.
Names	Select this check box to include labels in the heatmap.

Log Select to this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics are preconfigured to auto-scale automatically, even when **Auto** is not selected.

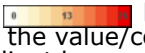
Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

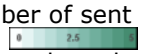
Alert Count The total number of critical and warning unacknowledged alerts in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

 # Msgs Spooled The total number of spooled messages in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolAppliancePendingMsgsHigh**. The middle value in the gradient bar indicates the middle value of the range.

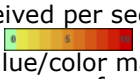
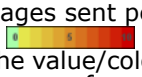
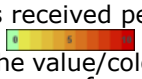
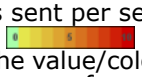
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Total Msgs Rcvd The total number of received messages in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of total messages received in the heatmap. The middle value in the gradient bar indicates the average count.

The **Auto** flag does not have any impact on this metric.

Total Msgs Sent The total number of sent messages in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of total messages sent in the heatmap. The middle value in the gradient bar indicates the average count.

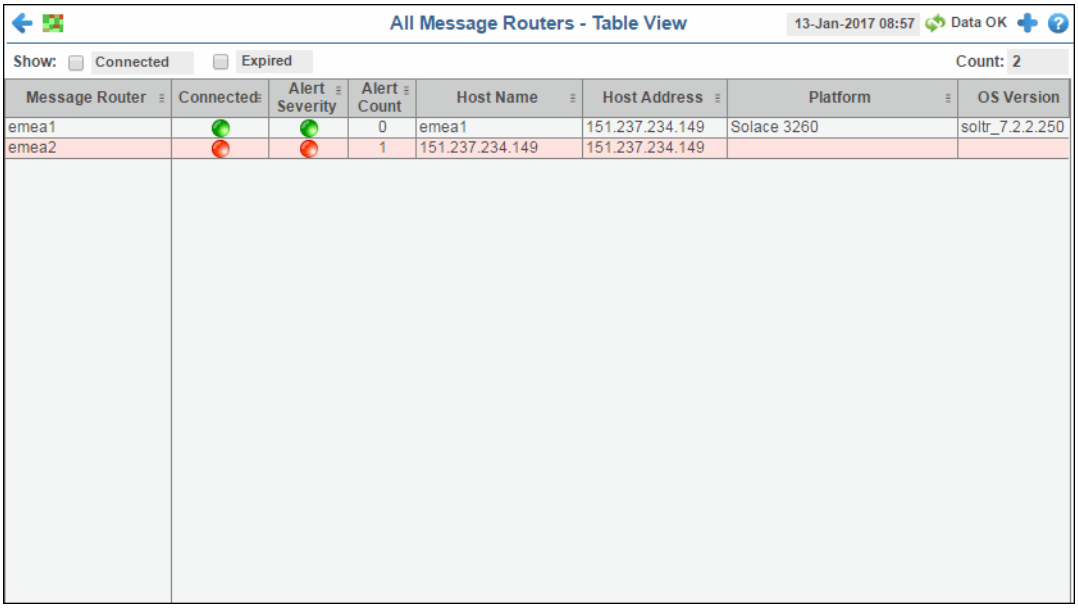
The **Auto** flag does not have any impact on this metric.

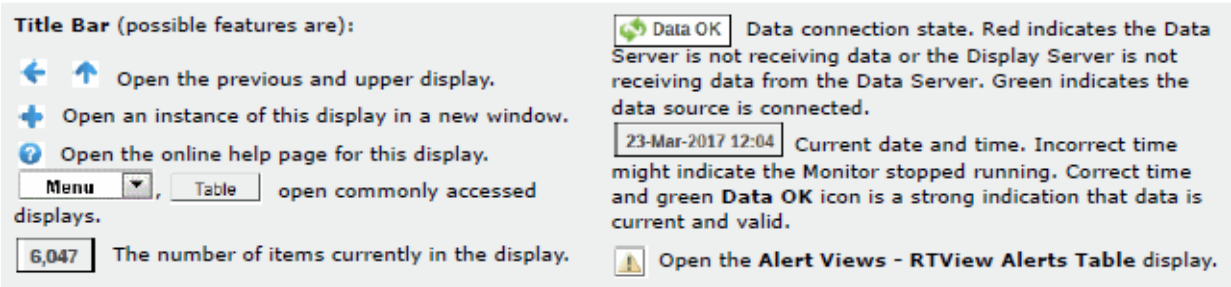
Total Msgs/ sec Rcvd	The total number of messages received per second in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolMsgRouterInboundMsgRateHigh**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.
Total Msgs/ sec Sent	The total number of messages sent per second in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolMsgRouterOutboundMsgRateHigh**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.
Total Bytes/ sec Rcvd	The total number of bytes received per second in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolMsgRouterInboundByteRateHigh**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.
Total Bytes/ sec Sent	The total number of bytes sent per second in the message router. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolMsgRouterOutboundByteRateHigh**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Message Routers Table

View current status data for all message routers in a tabular format. Data shown in the "All Message Routers Heatmap" is included here with additional details. Each row in the table is a different message router. You can click a column header to sort column data in numerical or alphabetical order.

Double-click a row to drill-down and investigate in the "Message Router Summary" display





Fields and Data:

Count Total number of message routers found.

Table:
Each row in the table is a different message router.

Message Router The name of the message router.

Connected The message router state:
- Red indicates that the message router is NOT connected.
- Green indicates that the message router is connected.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity:
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of alerts.

Host Name	The name of the host.
Platform	The name of the platform.
OS Version	The version of the operating system.
Up Time	The amount of time that the message router has been up and running.
Total Clients	The total number of clients associated with the message router.
Total Clients Connected	The total number of clients that are currently connected to the message router.
Clients Using Compression	The number of clients who send/receive compressed messages.
Clients Using SSL	The number of clients using SSL for encrypted communications.
Max Client Connections	The maximum number of available client connections.
# VPNs	The total number of VPNs configured on the message router.
# Endpoints	The total number of Endpoints configured on the message router.
# Bridges	The total number of bridges configured on the message router.
# Local Bridges	The total number of local bridges configured on the message router.
# Remote Bridges	The total number of remote bridges configured on the message router.
# Remote Bridge Subscriptions	The total number of remote bridge subscriptions configured on the message router.
Routing Enabled	This check box is checked when the message router is configured to route messages to other message routers.
Routing Interface	The name of the interface configured to support message routing.
Total # Conflicting Destinations	The total number conflicting destinations.
Pending Messages	The number of pending messages on the message router.
Total Client Msgs Rcvd	The total number of client messages received on the message router.
Total Client Msgs Sent	The total number of client messages sent by the message router.
Total Client Msgs Rcvd/ sec	The total number of client messages received per second by the message router.
Total Client Msgs Sent/ sec	The total number of client messages sent by the message router.
Total Client Bytes Rcvd	The total number of client bytes received by the message router.

Total Client Bytes Sent	The total number of client bytes sent by the message router.
Total Client Bytes Rcvd/ sec	The total number of client bytes received per second by the message router.
Total Client Bytes Sent/ sec	The total number of client bytes sent per second by the message router.
Total Client Direct Msgs Rcvd	The total number of direct client messages received by the message router.
Total Client Direct Msgs Sent	The total number of direct client messages sent from the message router.
Total Client Direct Msgs Rcvd/sec	The total number of direct client messages received per second by the message router.
Total Client Direct Msgs Sent/sec	The total number of direct client messages sent per second by the message router.
Total Client Direct Bytes Rcvd	The total number of direct client bytes received by the message router.
Total Client Direct Bytes Sent	The total number of direct client bytes sent by the message router.
Total Client Direct Bytes Rcvd/sec	The total number of direct client bytes received per second by the message router.
Total Client Direct Bytes Sent/sec	The total number of direct client bytes sent per second by the message router.
Total Client Non-Persistent Msgs Rcvd	The total number of non-persistent client messages received by the message router.
Total Client Non-Persistent Msgs Sent	The total number of non-persistent client messages sent by the message router.
Total Client Non-Persistent Msgs Rcvd/ sec	The total number of non-persistent client messages received per second by the message router.
Total Client Non-Persistent Msgs Sent/ sec	The total number of non-persistent client messages sent per second by the message router.
Total Client Non-Persistent Bytes Rcvd	The total number of non-persistent client bytes received by the message router.

Total Client Non-Persistent Bytes Sent	The total number of non-persistent client bytes sent by the message router.
Total Client Non-Persistent Bytes Rcvd/sec	The total number of non-persistent client bytes received per second by the message router.
Total Client Non-Persistent Bytes Sent/sec	The total number of non-persistent client bytes sent per second by the message router.
Total Client Persistent Msgs Rcvd	The total number of persistent client messages received by the message router.
Total Client Persistent Msgs Sent	The total number of persistent client messages sent by the message router.
Total Client Persistent Msgs Rcvd/sec	The total number of persistent client messages received per second by the message router.
Total Client Persistent Msgs Sent/sec	The total number of persistent client messages sent per second by the message router.
Total Client Persistent Bytes Rcvd	The total number of persistent client bytes received by the message router.
Total Client Persistent Bytes Sent	The total number of persistent client bytes sent by the message router.
Total Client Persistent Bytes Rcvd/sec	The total number of persistent client bytes received per second by the message router.
Total Client Persistent Bytes Sent/sec	The total number of persistent client bytes sent per second by the message router.
Avg Egress Bytes/min	The average number of outgoing bytes per minute.
Avg Egress Compressed Msgs/min	The average number of outgoing compressed messages per minute.
Avg Egress Msgs/min	The average number of outgoing messages per minute.
Avg Egress SSL Msgs/min	The average number of outgoing messages per minute being sent via SSL-encrypted connections.
Avg Egress Uncompressed Msgs/min	The average number of uncompressed outgoing messages per minute.

Avg Ingress Bytes/min	The average number of incoming bytes per minute.
Avg Ingress Compressed Msgs/min	The average number of compressed incoming message per minute.
Avg Ingress Msgs/min	The average number of incoming messages per minute.
Average Ingress SSL Msgs/min	The average number of incoming messages per minute being received via SSL-encrypted connections.
Avg Ingress Uncompressed Msgs/min	The average number of uncompressed messages per minute.
Current Egress Bytes/sec	The current number of outgoing bytes per second.
Current Egress Compressed Msgs/sec	The current number of outgoing compressed messages per second.
Current Egress Msgs/sec	The current number of outgoing messages per second.
Current Egress SSL Msgs/sec	The current number of outgoing messages per second sent via SSL-encrypted connections.
Current Egress Uncompressed Msgs/sec	The current number of outgoing uncompressed messages per second.
Current Ingress Bytes/sec	The current number of incoming bytes per second.
Current Ingress Compressed Msgs/sec	The current number of incoming compressed messages per second.
Current Ingress Msgs/sec	The current number of incoming messages per second.
Current Ingress SSL Msgs/sec	The current number of incoming messages per second received via SSL-encrypted connections.
Current Ingress Uncompressed Msgs/sec	The current number of incoming uncompressed messages per second.
Ingress Comp Ratio	The percentage of incoming messages that are compressed.
Egress Comp Ratio	The percentage of outgoing messages that are compressed.
Egress Compressed Bytes	The number of outgoing compressed bytes.

Egress SSL Bytes	The number of outgoing compressed bytes being sent via SSL-encrypted connections.
Egress Uncompressed Bytes	The number of outgoing uncompressed bytes.
Ingress Compressed Bytes	The number of incoming compressed bytes.
Ingress SSL Bytes	The number of incoming bytes via SSL-encrypted connections.
Ingress Uncompressed Bytes	The number of incoming uncompressed bytes.
Total Egress Discards	The total number of outgoing messages that have been discarded by the message router.
Total Egress Discards/sec	The total number of outgoing messages per second that have been discarded by the message router.
Total Ingress Discards	The total number of incoming messages that have been discarded by the message router.
Total Ingress Discards/sec	The total number of incoming messages per second that have been discarded by the message router.
Client Authorization Failures	The number of failed authorization attempts
Client Connect Failures (ACL)	The number of client connection failures caused because the client was not included in the defined access list.
Subscribe Topic Failures	The number of failed attempts at subscribing to topics.
TCP Fast Retrans Sent	The total number of messages that were retransmitted as a result of TCP Fast Retransmission (one or more messages in a sequence of messages that were not received by their intended party that were sent again).
Memory (KB)	The total available memory (in kilobytes) on the message router.
Memory Free (KB)	The total amount of available memory (in kilobytes) on the message router.
Memory Used (KB)	The total amount of memory used (in kilobytes) on the message router.
Memory Used %	The percentage of total available memory that is currently being used.
Swap (KB)	The total available swap (in kilobytes) on the message router.
Swap Free (KB)	The total amount of available swap (in kilobytes) on the message router.
Swap Used (KB)	The total amount of swap used (in kilobytes) on the message router.
Swap Used %	The percentage of total available swap that is currently being used.
Subscription Mem Total (KB)	The total amount of available memory (in kilobytes) that can be used by queue/topic subscriptions.

Subscription Mem Free (KB)	The current amount of available memory (in kilobytes) that can be used by queue/topic subscriptions.
Subscription Mem Used (KB)	The current amount of memory (in kilobytes) being used by queue/topic subscriptions.
Subscription Mem Used %	The percentage of available memory being used by queue/topic subscriptions.
Chassis Product Number	The product number of the chassis in which the router is contained.
Chassis Revision	The revision number of the chassis.
Chassis Serial	The serial number of the chassis.
BIOS Version	The basic input/output system used by the chassis.
CPU-1	The name of the central processing unit (CPU 1) used by the message router.
CPU-2	The name of the central processing unit (CPU 2) used by the message router.
Operational Power Supplies	The number of available power supplies that are operational on the chassis.
Power Redundancy Config	The configuration used by the backup message router.
Max # Bridges	The maximum number of bridges allowed on the message router.
Max # Local Bridges	The maximum number of local bridges allowed on the message router.
Max # Remote Bridges	The maximum number of remote bridges allowed on the message router.
Max # Remote Bridge Subscriptions	The maximum number of remote bridge subscriptions allowed on the message router.
Redundancy Config Status	The status of the redundancy configuration.
Redundancy Status	The status of the redundant message router.
Redundancy Mode	Refer to Solace documentation for more information.
Auto-revert	Refer to Solace documentation for more information.
Mate Router Name	If redundancy is configured, this field lists the redundant router name (mate router name).
ADB Link Up	This check box is checked if a message router is set up to use guaranteed messaging and an Assured Delivery Blade (ADB) is set up and working correctly.
ADB Hello Up	Refer to Solace documentation for more information.
Pair Primary Status	The primary status of the message router and its redundant (failover) mate.

Pair Backup Status	Refer to Solace documentation for more information.

Expired	When checked, performance data about the message router has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$solRowExpirationTime:45`
	`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Time Stamp	The date and time the row data was last updated.

Message Router Summary

This display shows current and historical performance metrics for a single message router. You can view the total number of clients that are connected, number of incoming flows, current **Up Time**, and additional information specific to a message router. You can also view alert statuses for the message router and any associated **VPNs**/**Endpoints**/**Bridges**/**Clients**, total number of **Connections/Destinations**, **Incoming**/**Outgoing**/**Pending** messages data, and **Spool Status** data for the message router.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

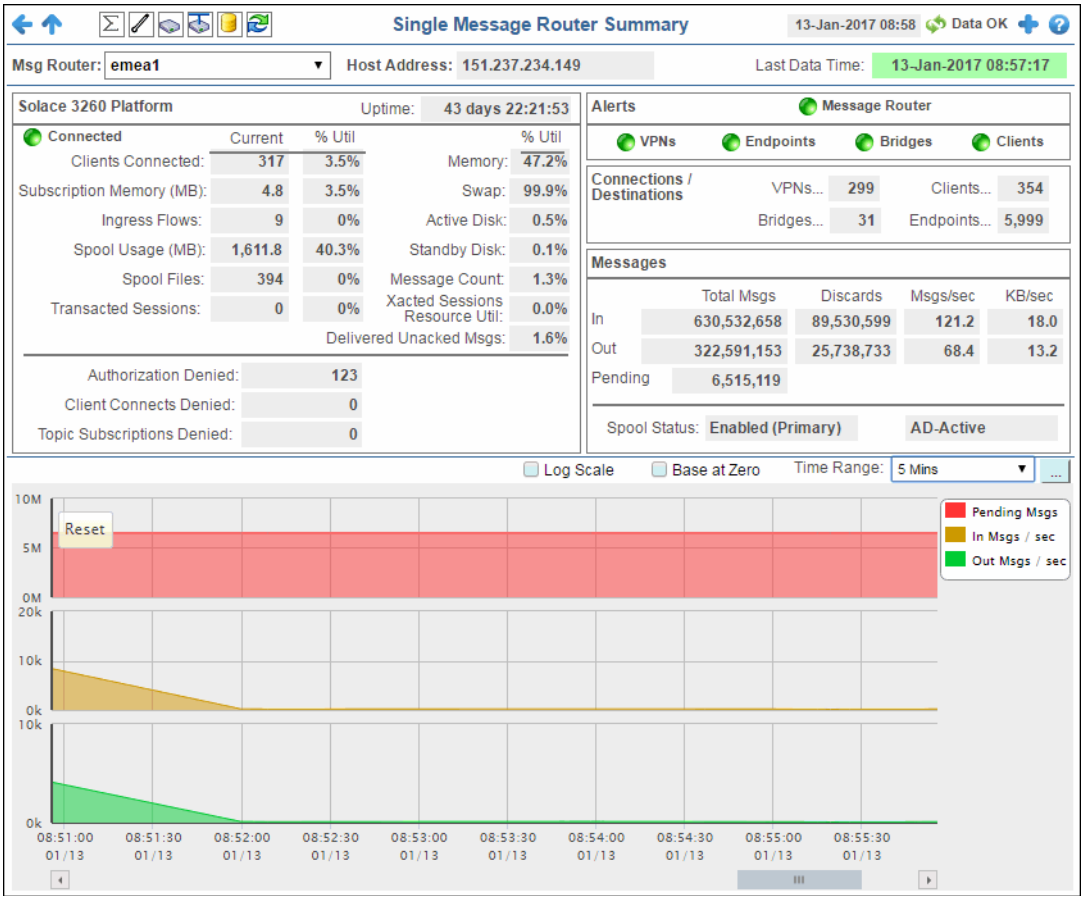
- When the display background color is light red the data is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.

This display also includes a trend graph containing the current and historical incoming, outgoing, and pending message data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Msg Router: Choose the message router for which you want to show data in the display.

Fields and Data:

Host Address The host address.

Last Data Time	 The date and time the selected message router was last updated. Red indicates the selected message router is offline or expired. Green indicates the selected message router is connected and receiving data.

Platform

Platform Name	The Solace platform name.
Uptime	The amount of time the message router has been up and running.
Connected	The message router state: Red indicates that the message router is NOT connected. Green indicates that the message router is connected.
Clients Connected	The current number of clients connected and the percent utilization of the total number of available clients (current number of clients connected divided by the total number of available clients).
Subscription Memory (MB)	The current subscription memory used (in megabytes) and the percent utilization of the total amount of subscription memory available (current amount of subscription memory used divided by the total amount of available subscription memory).
Ingress Flows	The current number of incoming flows and the percent utilization of the total number of flows allowed (current number of incoming flows divided by the total number of flows allowed).
Spool Usage (MB)	The current spool usage (in megabytes) and the percent utilization of the total amount of available spool usage (current spool usage divided total available spool usage).
Spool Files	The current number of spool files and the percent utilization total number of spool files allowed (current number of spool files divided by the total number of spool files allowed).
Transacted Sessions	The current number of transacted sessions and the percent utilization total number of transacted sessions allowed (current number of transacted sessions divided by the total number of transacted sessions allowed).
Memory Used	The total percentage of memory used on the message router.
Swap Used	The total percentage of swap used on the message router.
Active Disk Used	The amount of active disk space used.
Stndby Disk Used	The amount of standby disk space used.
Msg Cnt Util	The number of messages.
Xacted Sessions Resource Util	The percent resource utilization for transacted sessions, in percent.
Delivered Unacked Msgs	The percentage of delivered messages that have not been acknowledged.
Authorization Denied	The number of failed authorization attempts.

Client Connects Denied	The number of attempted client connections that have been denied.
Topic Subscriptions Denied	The number of denied topic subscriptions.

Alerts
Indicates the severity level for the message router and its associated **VPNs**, **Endpoints**, **Bridges**, and **Clients**. Click on the alert indicator to drill down to the "All Message Routers Table" display, "All VPNs Table"display,"All Bridges"display, and "All Clients" display, respectively, to view current alerts for the selected application.

Values are:

- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Message Router	The current alert status for the message router.
VPNs	The current alert status for the VPNs associated with the message router.
Endpoints	The current alert status for the endpoints associated with the message router.
Bridges	The current alert status for the bridges associated with the message router.
Clients	The current alert status for the clients associated with the message router.

Connections/ Destinations

VPNs	The total number of VPNs connected to the message router.
Clients	The total number of client connections on the message router.
Bridges	The total number of defined VPN bridges on the message router.
Endpoints	The total number of endpoints defined on the message router.

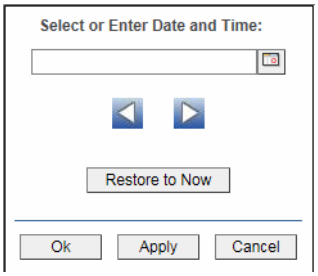
Messages

Total Msgs In	The total number of incoming messages on the message router.
Total Msgs Out	The total number of outgoing messages on the message router.
Total Msgs Pending	The total number of pending messages on the message router.
Discards In	The total number of incoming messages that were discarded.
Discards Out	The total number of outgoing messages that were discarded.
Msgs/sec In	The number of incoming messages per second.
Msgs/sec Out	The number of outgoing messages per second.
KB/sec In	The number of incoming kilobytes per second.
KB/sec out	The number of outgoing kilobytes per second.
Spool Status	The status of the message spool on the message router.
% Utilization	The percentage of the message spool that is currently being used.

Active Disk Usage (MB)	The current message spool usage in megabytes.

Trend Graphs
Traces the sum of process metrics across all processes in all slices of the selected message router.

Pending Msgs	Traces the number of currently pending messages.
In Msgs/ sec	Traces the number of incoming messages per second.
Out Msgs/ sec	Traces the number of outgoing messages per second.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

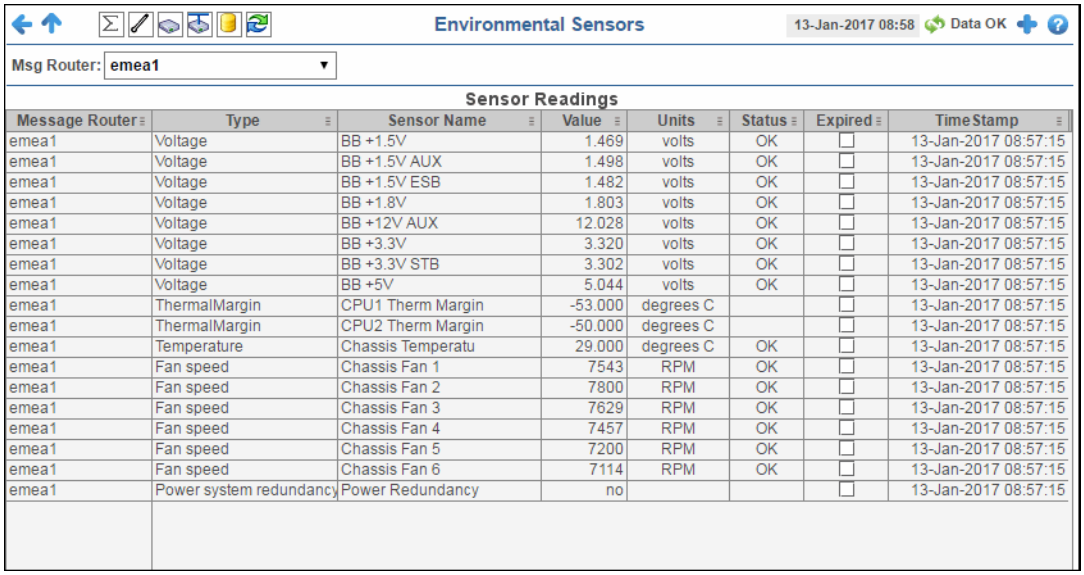
Environmental Sensors

This tabular display contains sensor metrics for one message router. You can see the current sensor readings for all sensors on a particular message router. Use this display to find out the type, name, value, and status of the sensors. This display does not show data for VMRs as it only applies to message routers.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.



Message Router	Type	Sensor Name	Value	Units	Status	Expired	TimeStamp
emea1	Voltage	BB +1.5V	1.469	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +1.5V AUX	1.498	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +1.5V ESB	1.482	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +1.8V	1.803	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +12V AUX	12.028	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +3.3V	3.320	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +3.3V STB	3.302	volts	OK	☐	13-Jan-2017 08:57:15
emea1	Voltage	BB +5V	5.044	volts	OK	☐	13-Jan-2017 08:57:15
emea1	ThermalMargin	CPU1 Therm Margin	-53.000	degrees C		☐	13-Jan-2017 08:57:15
emea1	ThermalMargin	CPU2 Therm Margin	-50.000	degrees C		☐	13-Jan-2017 08:57:15
emea1	Temperature	Chassis Temperatu	29.000	degrees C	OK	☐	13-Jan-2017 08:57:15
emea1	Fan speed	Chassis Fan 1	7543	RPM	OK	☐	13-Jan-2017 08:57:15
emea1	Fan speed	Chassis Fan 2	7800	RPM	OK	☐	13-Jan-2017 08:57:15
emea1	Fan speed	Chassis Fan 3	7629	RPM	OK	☐	13-Jan-2017 08:57:15
emea1	Fan speed	Chassis Fan 4	7457	RPM	OK	☐	13-Jan-2017 08:57:15
emea1	Fan speed	Chassis Fan 5	7200	RPM	OK	☐	13-Jan-2017 08:57:15
emea1	Fan speed	Chassis Fan 6	7114	RPM	OK	☐	13-Jan-2017 08:57:15
emea1	Power system redundancy	Power Redundancy	no			☐	13-Jan-2017 08:57:15

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to show data in the display.

Fields and Data:

Message Router Lists the selected message router.

Type Lists the type of sensor.

Sensor Name Lists the name of the sensor.

Value Lists the value of the sensor.

Units Lists the unit of measure for the sensor.

Status The current status of the sensor.

Expired When checked, performance data about the sensor has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the sensor. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Time Stamp The date and time the row data was last updated.

Message Router Provisioning

This display shows provisioning metrics for a single message router. Use this to see the host, platform, chassis, memory, redundancy and fabric data for a specific message router.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

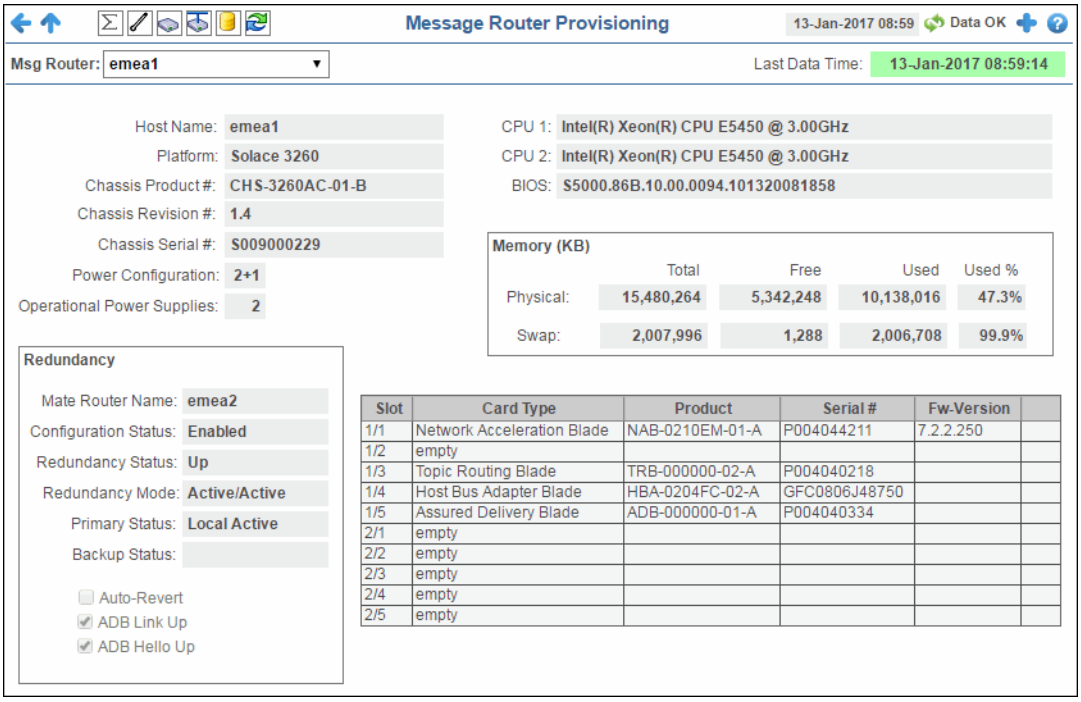
[X] A message router is expired when the drop-down menu name is appended with **[X]**.

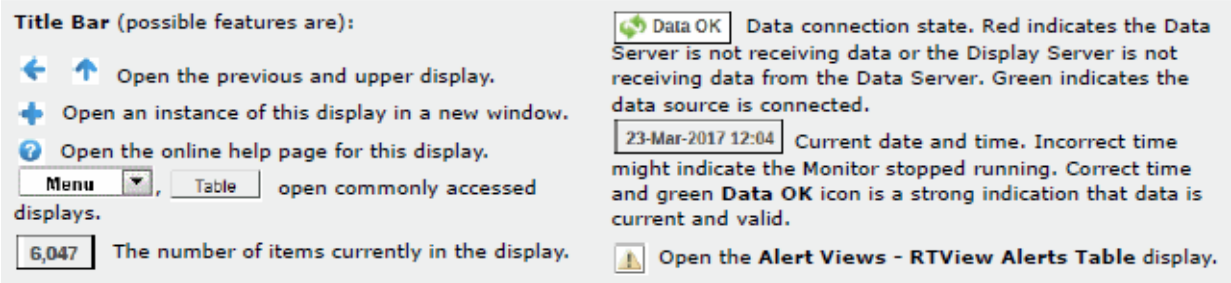
- When the display background color is light red the data is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.





Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to show data in the display.

Fields and Data:

Last Data Time

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

Host Name The name of the host.

Platform The platform on which the message router is running.

Chassis Product # The product number of the chassis in which the router is contained.

Chassis Revision # The revision number of the chassis.

Chassis Serial # The serial number of the chassis.

Power Configuration The power configuration used by the chassis.

Operational Power Supplies The number of available power supplies that are operational on the chassis.

CPU 1 The name of the central processing unit (CPU 1) used by the message router.

CPU 2 The name of the central processing unit (CPU 2) used by the message router.

BIOS The basic input/output system used by the chassis.

Memory (KB)

Physical	Lists the **Total** amount, the **Free** amount, the **Used** amount, and the **Used %** of physical memory.
Swap	Lists the **Total** amount, the **Free** amount, the **Used** amount, and the **Used %** of swap memory.

Redundancy
These fields describe a fault tolerant pair of message routers.

	Mate Router Name	If redundancy is configured, this field lists the redundant router name (mate router name).
	Configuration Status	The status of the configuration for the backup message router.
	Redundancy Status	The status of the redundant message router.
	Redundancy Mode	Refer to Solace documentation for more information.
	Primary Status	The status of the primary message router.
	Backup Status	Refer to Solace documentation for more information.
	Auto-Revert	Refer to Solace documentation for more information.
	ADB Link Up	This check box is checked if a message router is set up to use guaranteed messaging and an Assured Delivery Blade (ADB) is set up and working correctly.
	ADB Hello Up	Refer to Solace documentation for more information.
Fabric		
	Slot	Displays the slot number on the network switch.
	Card Type	The type of card connected to the particular slot.
	Product	The product associated with the particular slot.
	Serial #	The serial number of the product.
	Fw-Version	The firmware version of the product.

Interface Summary

This display lists all network interfaces on a selected message router, the status of each network interface, as well as their throughput per second (bytes in/out and packets in/out).

Each row in the table is a different network interface. Click one to trace its current and historical performance data in the trend graph (bytes in/out and packets in/out per second).

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

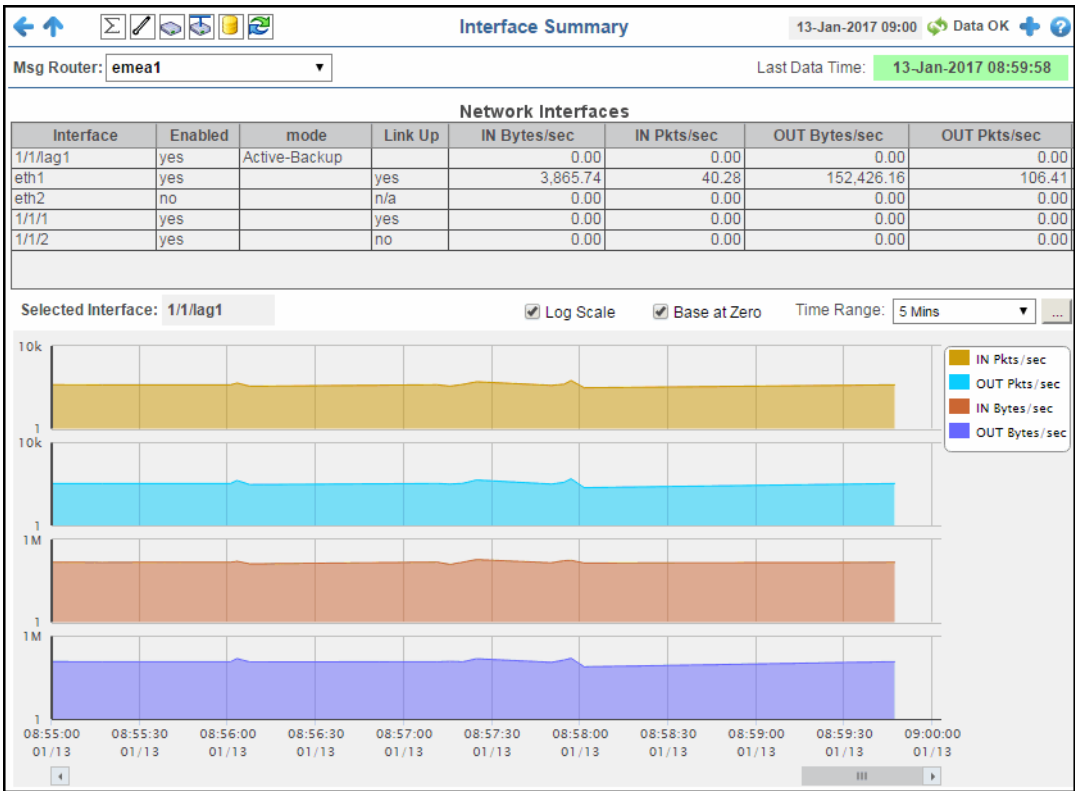
[X] A message router is expired when the drop-down menu name is appended with **[X]**.

- When the display background color is light red the data for the selected network interface is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected network interface was last updated.

If the **Last Data Time** background is:

(Red) the selected network interface is offline or expired.

● (Green) the selected network interface is connected and receiving data



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Message Router: Select the message router for which you want to show data in the display.

Fields and Data:

Last Data Time

Last Data Time: 15-Aug-2016 14:34:00

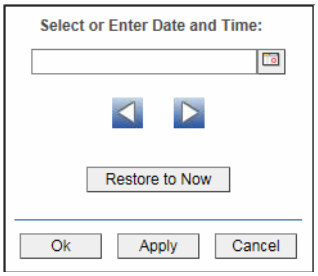
The date and time the selected network interface was last updated.
● Red indicates the selected network interface is offline or expired.
● Green indicates the selected network interface is connected and receiving data.

Interface The name of the network interface.

Enabled	Displays whether or not the network interface is enabled.
mode	Describes how the interface is configured to support networking operations.
Link Up	Indicates whether the interface is electrically signaling on the transmission medium.
IN Bytes/ sec	The number of bytes per second contained in incoming messages.
IN Pkts/sec	The number of incoming packets per second.
OUT Bytes/ sec	The number of bytes per second contained in the outgoing messages.
OUT Pkts/ sec	The number of outgoing packets per second.

Trend Graphs
Traces the sum of process metrics across all processes in all slices of the selected message router.

IN Pkts/ sec	Traces the number of incoming packets per second.
OUT Pkts/ sec	Traces the number of outgoing packets per second.
IN Bytes/ sec	Traces the number of bytes per second contained in the incoming messages.
OUT Bytes/ sec	Traces the number of bytes per second in the outgoing messages.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

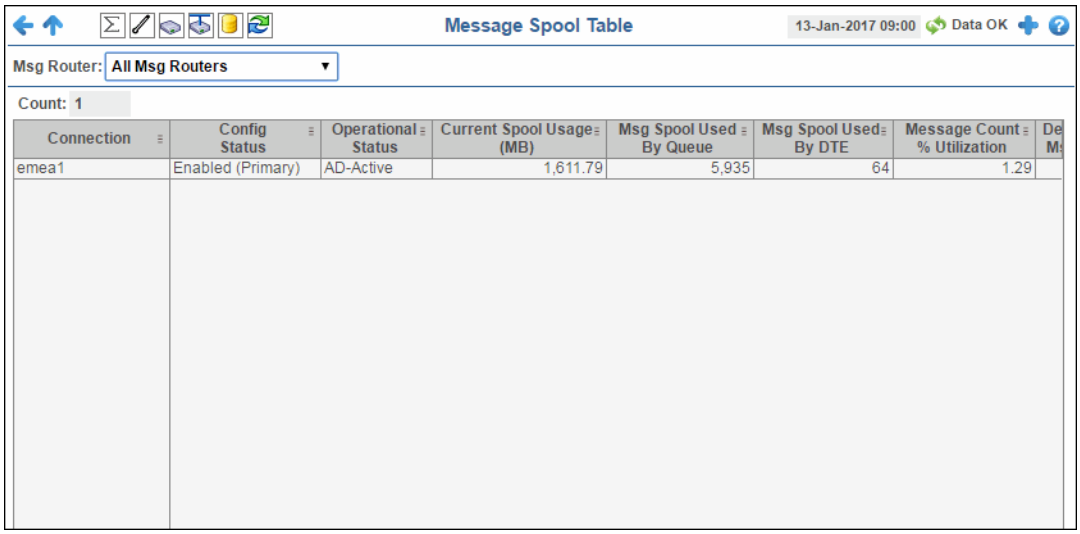
Message Spool Table

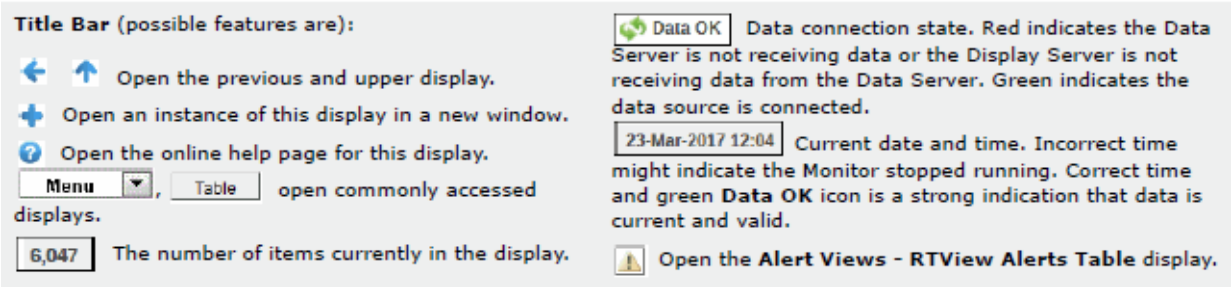
This display shows operational status and message spool metrics (if spooling is enabled on the message router) for a selected message router. Refer to Solace documentation for details about data in this display.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.





Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to show data in the display.

Fields and Data:

Count Lists the total number of message routers that are using spooling in the table.

Connection The name of the message router.

Config Status The status of the connection's configuration.

Operational Status The operational status of the spool on the message router.

Current Spool Usage (MB)	The current amount of spool used in megabytes on the message router (calculated by summing spool used for each endpoint).
Msg Spool Used By Queue	The amount of spool used by the queue.
Msg Spool Used By DTE	The amount of spool used by DTE.
Message Count % Utilization	The percentage of total messages that use the message spool.
Delivered UnAcked Msgs % Utilization	The percentage of messages delivered via the spool that have not been acknowledged.
Ingress Flow Count	The current incoming flow count.
Ingress Flows Allowed	The total number of incoming flows allowed.
Queue/Topic Subscriptions Used	The number of queue/topic subscriptions used.
Max Queue/ Topic Subscriptions	The maximum number of queue/topic subscriptions available.
Sequenced Topics Used	The number of sequenced topics used.
Max Sequenced Topics	The maximum number of sequenced topics available.
Spool Files Used	The number of spool files used.
Spool Files Available	The maximum number of spool files available.
Spool Files % Utilization	The percentage of available spool files that have been used.
Active Disk Partition % Usage	The percentage of available active disk partition that has been used.
Standby Disk Partition % Usage	The percentage of available standby disk partition that has been used.
Disk Usage Current (MB)	The current amount of spool disk usage in megabytes.
Disk Usage Max (MB)	The maximum amount of available spool disk usage in megabytes.
Transacted Sessions Used	The current number of transacted sessions.
Transacted Sessions Max	The maximum number of transacted sessions allowed.

Transacted Session Count % Utilization	The percentage of allowable transacted sessions that have been used.
Transacted Session Resource % Utilization	The percentage of allowable transacted session resources that have been used.

Expired	When checked, performance data about the message router has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$solRowExpirationTime:45`
	`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Message Router VPN Activity

This display shows VPN activity metrics for a single message router. Choose a message router to see the number of client connections and the average in/out bytes per minute for each connected client. Use this display to compare metrics across VPNs.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

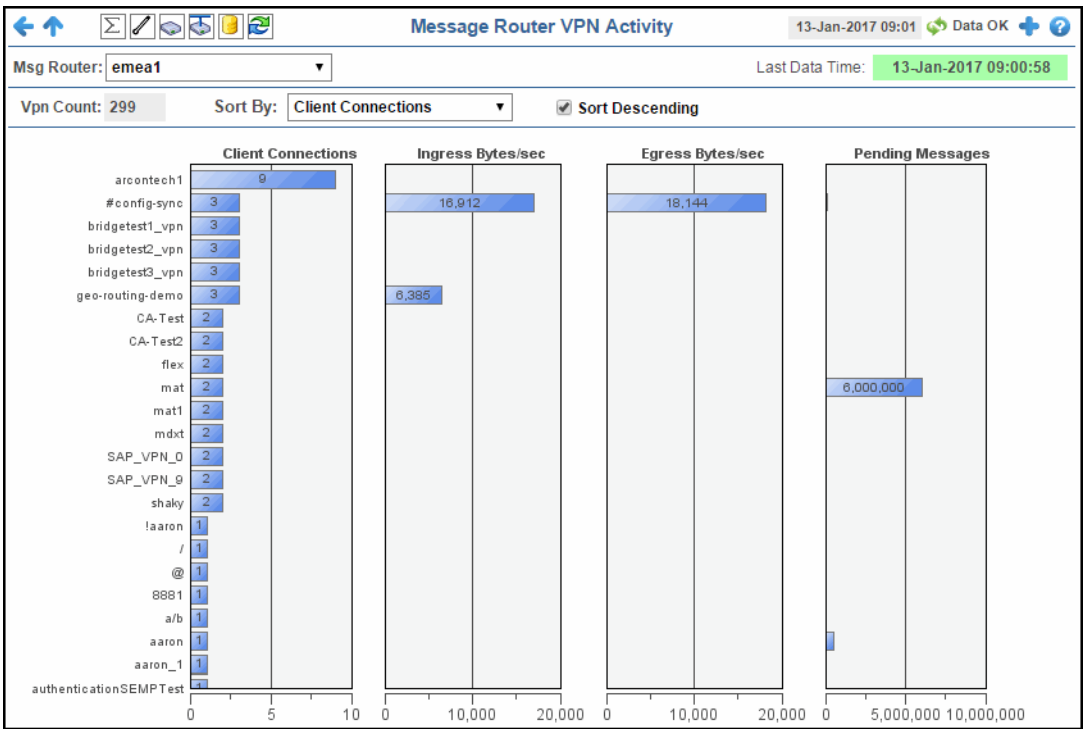
- When the display background color is light red the data is stale.
- The **Last Data Time** Last Data Time: 15-Aug-2016 14:34:00 shows the date and time the selected message router was last updated.

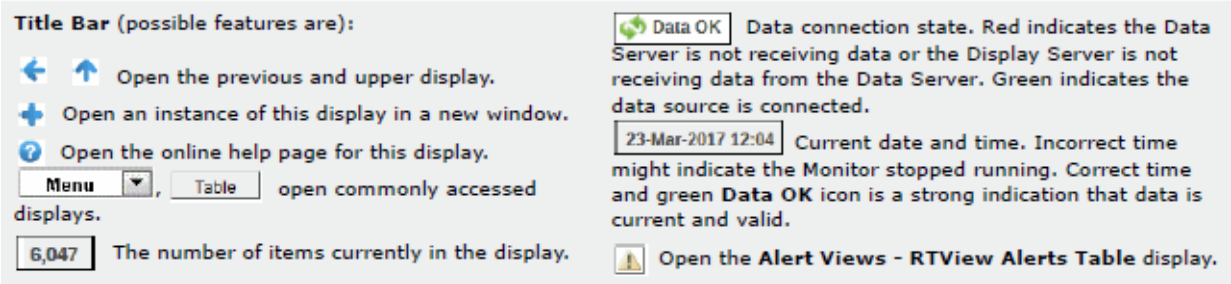
If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.

Each column in the **Average Ingress Bytes per Minute** and **Average Egress Bytes per Minute** graphs refers to the same column in the **Client** graph. For example, the first column in the **Average Ingress Bytes per Minute** and **Average Egress Bytes per Minute** graphs refers to the first column in the **Clients** graph. You can hover over each of the graphs to view the exact number of connections and the average number of incoming and outgoing bytes for each client.





Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to show data in the display.

Last Data Time

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

Fields and Data:

Clients	Lists the clients and the number of connections for each client for the selected message router. Hovering over each client in the graph displays the exact number of connections for the clients.
Average Ingress Bytes per Minute	Displays the average number of incoming bytes per minute for each of the clients in the message router. Hovering over each column in this graph provides the exact number of incoming bytes per minute for the associated client.
Average Egress Bytes per Minute	Displays the average number of outgoing bytes per minute for each of the clients in the message router. Hovering over each column in this graph provides the exact number of outgoing bytes per minute for the associated client.

Neighbors

These displays provide detailed data and statuses for CSPF neighbor message routers. Check trends on network traffic among CSPF neighbors. Displays in this View are:

- "CSPF Neighbors" on page 994: View metrics for Solace neighbor message routers that use the Content Shortest Path First (CSPF) routing protocol to determine the shortest path in which to send messages from one message router to another message router in the Solace network.
- "Neighbor Summary" on page 996: View detailed performance metrics for a single Solace neighbor message router that uses the CSPF routing protocol.

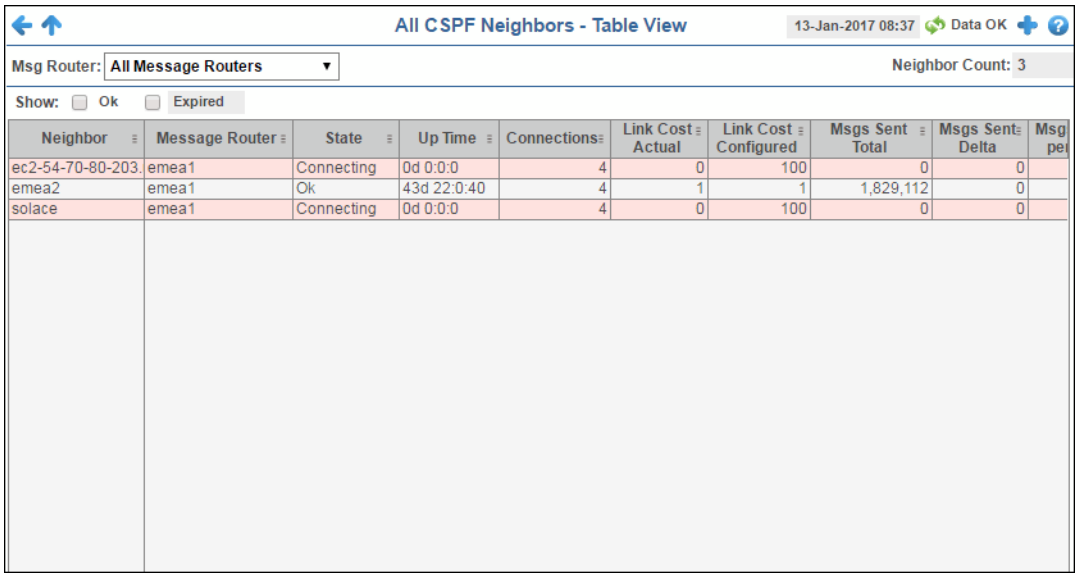
CSPF Neighbors

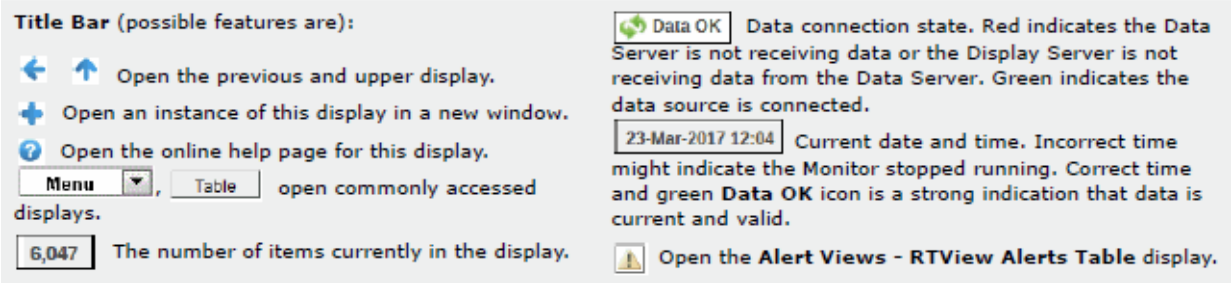
This tabular display shows Content Shortest Path First (CSPF) "neighbor" metrics for a selected message router. View metrics for a Solace neighbor message router that uses the CSPF routing protocol to determine the least cost path in which to send messages from one message router to another message router in the Solace network.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.





Filter By:
The display might include these filtering options:

Msg Router: Choose a message router or **All Message Routers** to show data for in the display.

Fields and Data:

Neighbor Count: The number of neighbor message routers connected to the selected **Msg Router**.

Show:

OK Select to *only* show neighbor message routers that are connected (**State** is **OK**). By default, this option is not selected (all neighbor message routers are shown.

Expired Select to show *both* expired and non-expired neighbor message routers. By default, this option is not selected (only non-expired neighbor message routers are shown).

Table:
Each table role is a different neighbor message router.

Neighbor The name of the neighbor message router.

Message Router The name of the message router.

State	The current state of the message router.
Up Time	The amount of time the message router has been up and running.
Connections	The number of connections.
Link Cost Actual	Refer to Solace documentation for more information.
Link Cost Configured	Refer to Solace documentation for more information.
Data Port	Refer to Solace documentation for more information.

Expired	When checked, performance data about the message router has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$solRowExpirationTime:45`
	`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Timestamp	The date and time the row data was last updated.

Neighbor Summary

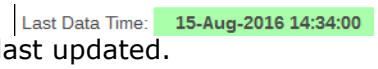
View neighbor message router current configuration details and message throughput rates.

Select a message router and a neighbor message router from the drop down menus. Check message throughput rates to the neighbor message router, as well as neighbor **Up Time**, **State**, **Data Port**, number of connections and link costs.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

- When the display background color is light red the data is stale.
- The **Last Data Time** 

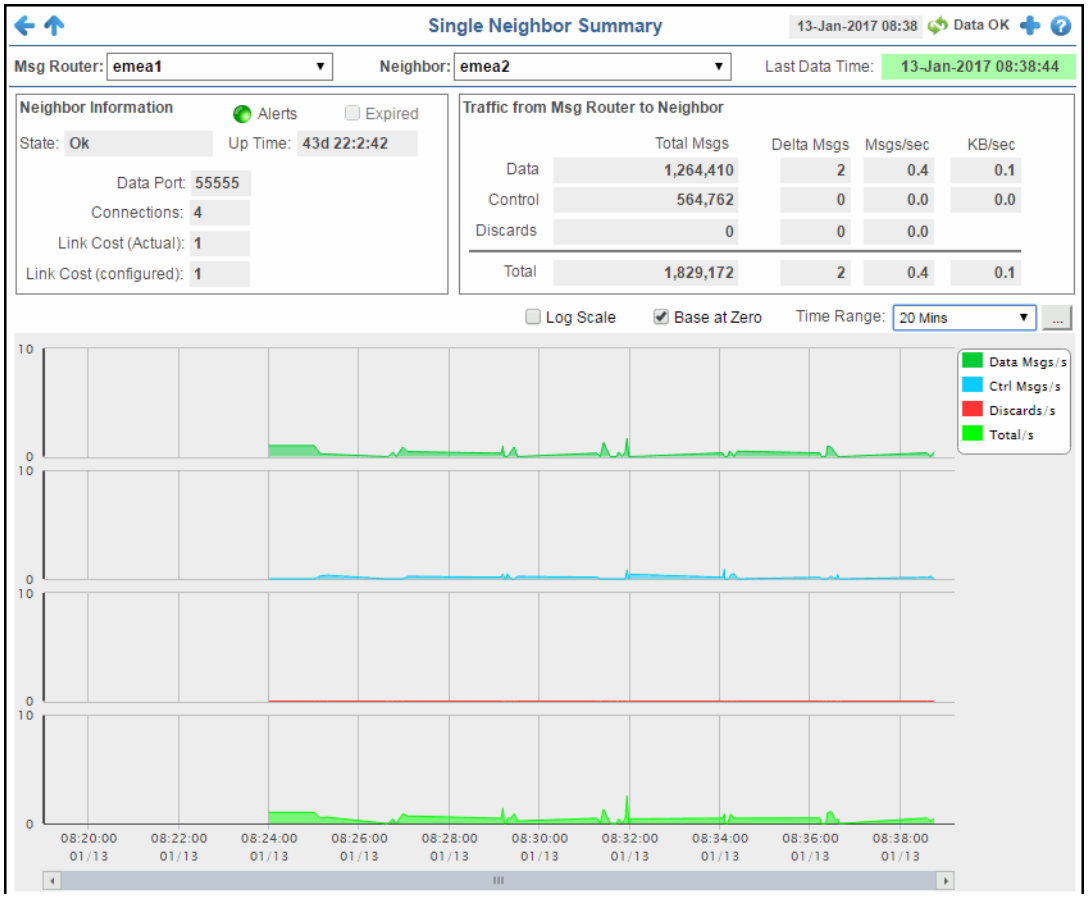
shows the date and time the neighbor message router was last updated.

If the **Last Data Time** background is:

(Red) the neighbor message router is offline or expired.

(Green) the neighbor message router is connected and receiving data.

The trend graph traces the current and historical message throughput (**Data**, **Control**, **Discards** and **Total**).



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: The upper icons ( ) also open displays within the **Message Routers** View.

Filter By:
The display might include these filtering options:

Msg Router: Choose the message router for which you want to show data in the display.

Neighbor: Choose the neighbor message router for which you want to show data in the display.

Last Data Time

The date and time the selected message router was last updated.
- Red indicates the selected message router is offline or expired.
- Green indicates the selected message router is connected and receiving data.

Neighbor Information

Alerts
Indicates the severity level for the neighbor message router and its associated **VPNs**, **Endpoints**, **Bridges**, and **Clients**. Click on the alert indicator to drill down to the "All Message Routers Table" display, "All VPNs Table"display,"All Bridges"display, and "All Clients" display, respectively, to view current alerts for the selected application.

Values are:
- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Expired When checked, performance data about the message router has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the message router. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

State The current state of the neighbor message router.

Up Time The amount of time the neighbor message router has been up and running.

Data Port Refer to Solace documentation for more information.

Connections The number of connections on the neighbor message router.

Link Cost (Actual) Refer to Solace documentation for more information.

Link Cost (configured) Refer to Solace documentation for more information.

Traffic from Message Router to Neighbor

Data

Total Msgs The total number of messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the message router was last started.

Delta Msgs The total number of messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the last data update.

Msgs/sec The number of messages sent, per second, from the selected **Msg Router** to the selected **Neighbor** message router.

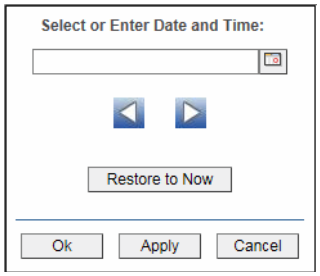
	KB/sec	The amount of messages sent, in kilobytes, from the selected **Msg Router** to the selected **Neighbor** message router.
Control	**Total Msgs**	Refer to Solace documentation for more information.
	Delta Msgs	Refer to Solace documentation for more information.
	Msgs/sec	Refer to Solace documentation for more information.
	KB/sec	Refer to Solace documentation for more information.
Discards	**Total Msgs**	The total number of discarded messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the message router was last started.
	Delta Msgs	The total number of discarded messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the last data update.
	Msgs/sec	The number of discarded messages sent, per second, from the selected **Msg Router** to the selected **Neighbor** message router.
	KB/sec	The amount of discarded messages sent, in kilobytes, from the selected **Msg Router** to the selected **Neighbor** message router.
Total	**Total Msgs**	The sum total of messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the message router was last started.
	Delta Msgs	The sum total of messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the last data update.
	Msgs/sec	The sum total of messages sent, per second, from the selected **Msg Router** to the selected **Neighbor** message router.
	KB/sec	The sum total of messages sent, in kilobytes, from the selected **Msg Router** to the selected **Neighbor** message router.

Trend Graphs
Traces the rates of messages sent from the selected **Msg Router** to the selected **Neighbor** message router.

Data Msgs	Refer to Solace documentation for more information.
Ctrl Msgs/ sec	Refer to Solace documentation for more information.
Discards/ sec	Traces the number of discarded messages sent, per second, from the selected **Msg Router** to the selected **Neighbor** message router.
Total	Traces the sum total of messages sent from the selected **Msg Router** to the selected **Neighbor** message router since the message router was last started.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

VPNs

You can view data for all VPNs configured on a specific message router in heatmap, table, or grid formats, or you can view data for a single VPN. Displays in this View are:

- "All VPNs Heatmap" on page 1000: A color-coded heatmap view of the current status of all VPNs configured on a specific message router.
- "All VPNs Table" on page 1004: A tabular view of all available data for all VPNs configured on a specific router.
- "Top VPNs Grid" on page 1009: Lists VPNs configured on a specific message router, in ascending or descending order, based on a selected metric.
- "Single VPN Summary" on page 1010: Current and historical metrics for a single VPN.

All VPNs Heatmap

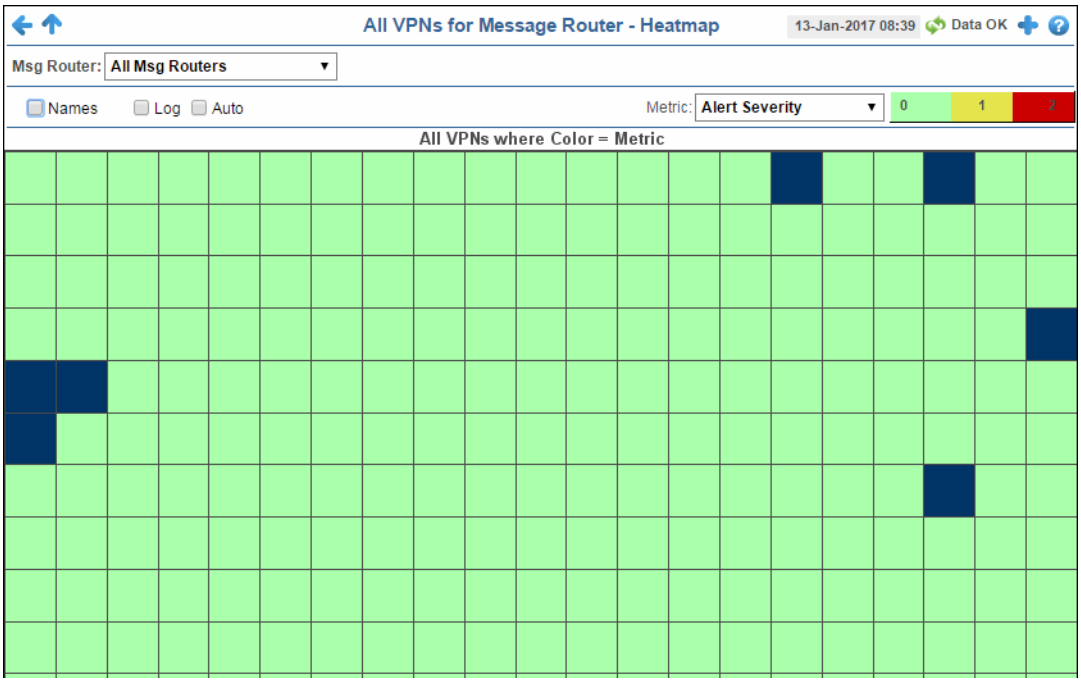
View the status of all VPNs configured on a specific message router in a heatmap format, which allows you to quickly identify VPNs with critical alerts. Each rectangle in the heatmap represents a VPN. The rectangle color indicates the alert state for each VPN.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

Select a message router from the **Msg Router** drop-down menu and select a metric from the **Metric** drop-down menu. Use the **Names** check-box ☑ to include or exclude labels in the heatmap. By default, this display shows **Alert Severity**, but you can mouse over a rectangle to see additional metrics. Drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected application in the "Single VPN Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router Choose the message router for which you want to view data in the display.

Fields and Data:

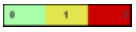
Names Check the **Names** check box to include labels for each heatmap rectangle.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

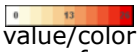
Metric Choose a metric to view in the display.

Alert Severity Visually displays the level at which the VPN has or has not exceeded its alarm level threshold. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning alerts. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Connections The total number of connections. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnConnectionCountHigh**. The middle value in the gradient bar indicates the middle value of the range.

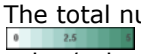
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Subscriptions The total number of subscriptions. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnSubscriptionCountHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

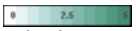
 # Msgs Spooled The total number of spooled messages. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolAppliancePendingMsgsHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Total Msgs Rcvd The total number of received messages. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of messages received in the heatmap. The middle value in the gradient bar indicates the average count.

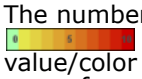
The **Auto** flag does not impact this metric.

Total Msgs Sent

The total number of sent messages. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of messages sent in the heatmap. The middle value in the gradient bar indicates the average count.

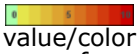
The **Auto** flag does not impact this metric.

Total Msgs/ sec Rcvd

The number of messages received per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnInboundMsgRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Total Msgs/ sec Sent

The number of messages sent per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnOutboundMsgRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

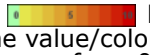
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Total Bytes/ sec Rcvd

The number of bytes contained in messages received per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnInboundByteRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

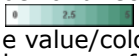
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Total Bytes/ sec Sent

The number of bytes contained in direct messages sent per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolMsgRouterOutboundByteRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

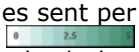
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Direct Msgs/ sec Rcvd

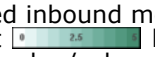
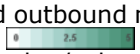
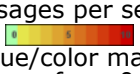
The number of direct messages received per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the average number of direct messages received per second in the heatmap. The middle value in the gradient bar indicates the average count.

The **Auto** flag does not impact this metric.

Direct Msgs/ sec Sent

The number of direct messages sent per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the average number of direct messages sent per second in the heatmap. The middle value in the gradient bar indicates the average count.

The **Auto** flag does not impact this metric.

Total Inbound Discards	The total number of discarded inbound messages in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of discarded inbound messages in the heatmap. The middle value in the gradient bar indicates the average count. The **Auto** flag does not impact this metric.
Total Outbound Discards	The total number of discarded outbound messages in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of discarded outbound messages in the heatmap. The middle value in the gradient bar indicates the average count. The **Auto** flag does not impact this metric.
Inbound Discard Rate	The number of discarded inbound messages per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnInboundDiscardRateHigh**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.
Outbound Discard Rate	The number of discarded outbound messages per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **SolVpnOutboundDiscardRateHigh**. The middle value in the gradient bar indicates the middle value of the range. When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All VPNs Table

View data shown in the "All VPNs Heatmap" display, as well as additional details, in a tabular format. Use this display to view all available data for each VPN associated with a specific message router.

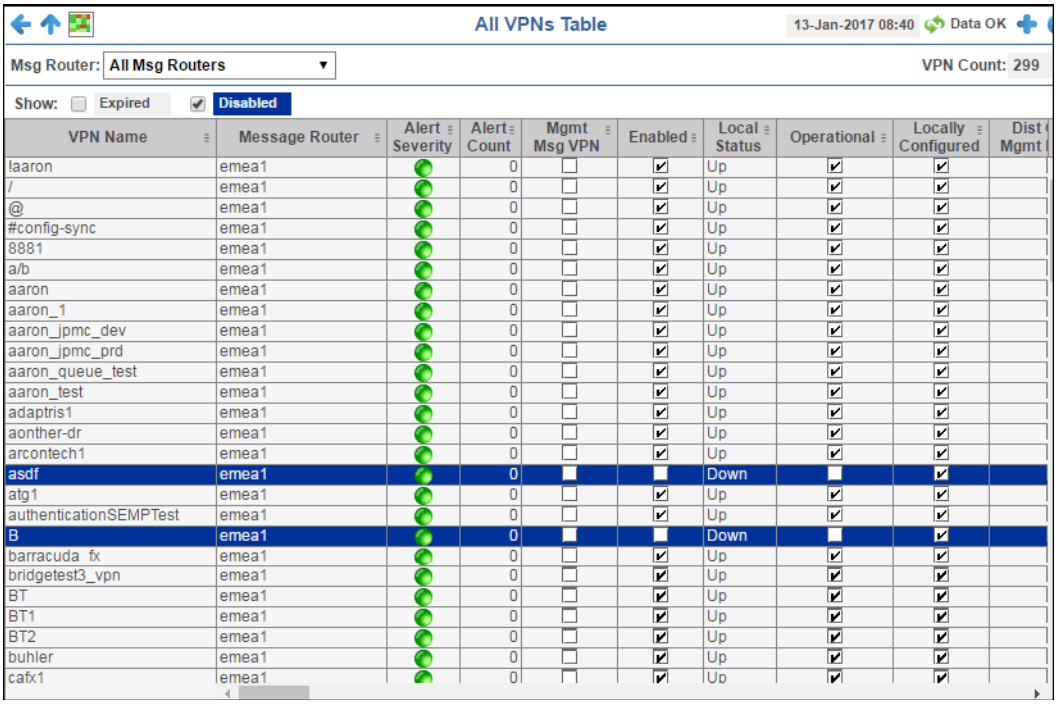
Each table row is a different VPN. Choose a message router from the **Msg Router** drop-down menu to view a list of all associated VPNs. Click a column header to sort column data in numerical or alphabetical order.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

Double-click a row to drill-down and investigate in the "Single VPN Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router: Choose the message router for which you want view data in the display.

Fields and Data:

VPN Count: The total number of VPNs (rows) in the table.

Show:

Expired Select to include expired VPNs in the display and in the total **VPN Count**. An endpoint is expired when data has not been received for the time specified.

Disabled Select to include down VPNs in the display and in the total **VPN Count**. An endpoint is down when data has not been received for the time specified.

Blue indicates that the VPN is **Disabled**.

Table:
Column values describe the message router and its associated VPN.

Gray indicates that the VPN is **Expired**.

Blue indicates that the VPN is **Disabled**.

VPN Name	The name of the VPN.
Message Router	The name of the message router.
Alert Severity	The maximum level of alerts in the row. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the AppNode.
Is Mgmt Msg VPN	When checked, the VPN is used by the message router for management purposes.
Enabled	When checked, the VPN was enabled via the command line interface or via SolAdmin.
Local Status	Displays the status of the VPN.
Operational	When checked, this status indicates that the VPN is enabled and is operating normally.
Locally Configured	When checked, this status indicates that the VPN was configured locally using SolAdmin or the command line interface.
Dist Cache Mgmt Enabled	Indicates whether the distributed cache management has been enabled.
Export Subscriptions	When checked, the export subscriptions policy allows subscriptions added locally to Message VPN to be advertised to the other message routers in the network.
Pending Messages	The current number of pending messages in the VPN.
# Connections	The total number of message routers connected to the VPN.
Total Unique Subscriptions	The total number of unique subscriptions to the VPN.
Total Client Messages Rcvd	The total number of messages received from clients connected to the VPN.
Total Client Messages Sent	The total number of messages sent to clients connected to the VPN.
Total Client Bytes Rcvd	The total number of bytes contained in messages received from clients connected to the VPN.
Total Client Bytes Sent	The total number of bytes contained in messages sent to clients connected to the VPN.
Total Client Msgs/sec Rcvd	The total number of messages received per second from clients connected to the VPN.
Total Client Msgs /sec Sent	The total number of messages sent per second to clients connected to the VPN.

Total Client Bytes/sec Rcvd	The total number of bytes contained in messages received per second from clients connected to the VPN.
Total Client Bytes/sec Sent	The total number of bytes contained in messages sent per second to clients connected to the VPN.
Client Direct Msgs Rcvd	The total number of direct messages received from clients connected to the VPN.
Client Direct Msgs Sent	The total number of direct messages sent to clients connected to the VPN.
Client Direct Bytes Rcvd	The total number of bytes contained in direct messages received from clients connected to the VPN.
Client Direct Bytes Sent	The total number of bytes contained in direct messages sent to clients connected to the VPN.
Client Direct Msgs/sec Rcvd	The total number of direct messages received per second from clients connected to the VPN.
Client Direct Msgs/sec Sent	The total number of direct messages sent per second to clients connected to the VPN.
Client Direct Bytes/sec Rcvd	The total number of bytes contained in the direct messages received per second from clients connected to the VPN.
Client Direct Bytes/sec Sent	The total number of bytes contained in the direct messages sent per second to clients connected to the VPN.
Client NonPersistent Msgs Rcvd	The total number of non-persistent messages received from clients connected to the VPN.
Client NonPersistent Msgs Sent	The total number of non-persistent messages sent to clients connected to the VPN.
Client NonPersistent Bytes Rcvd	The total number of bytes contained in the non-persistent messages received from clients connected to the VPN.
Client NonPersistent Bytes Sent	The total number of bytes contained in the non-persistent messages sent per second to clients connected to the VPN.
Client NonPersistant Msgs/sec Rcvd	The total number of non-persistent messages received per second from clients connected to the VPN.
Client NonPersistent Msgs/sec Sent	The total number of non-persistent messages sent per second to clients connected to the VPN.
Client NonPersistant Bytes/sec Rcvd	The total number of bytes contained in the non-persistent messages received per second from clients connected to the VPN.
Client NonPersistent Bytes/sec Sent	The total number of bytes contained in the non-persistent messages sent per second to clients connected to the VPN.
Client Persistent Msgs Rcvd	The total number of persistent messages received from clients connected to the VPN.

Client Persistent Msgs Sent	The total number of persistent messages sent to clients connected to the VPN.
Client Persistent Bytes Rcvd	The total number of bytes contained in persistent messages received from clients connected to the VPN.
Client Persistent Bytes Sent	The total number of bytes contained in persistent messages sent to clients connected to the VPN.
Client Persistent Msgs/sec Rcvd	The total number of persistent messages received per second from clients connected to the VPN.
Client Persistent Msgs/sec Sent	The total number of persistent messages sent per second to clients connected to the VPN.
Client Persistent Bytes/sec Rcvd	The total number of bytes contained in the persistent messages received per second from clients connected to the VPN.
Client Persistent Bytes/sec Sent	The total number of bytes contained in the persistent messages sent per second to clients connected to the VPN.
Total In Discards	The total number of discarded incoming messages.
Total In Discards/sec	The number of discarded incoming messages per second.
Total Out Discards	The total number of discarded outgoing messages.
Total Out Discards/sec	The number of discarded outgoing messages per second.
Max Spool Usage (MB)	The maximum amount of disk storage (in megabytes) that can be consumed by all spooled message on the VPN.
Authentication Type	The defined authentication type on the VPN.

Expired	When checked, performance data about the VPN has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the VPN. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$solRowExpirationTime:45`
	`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Time Stamp	The date and time the row data was last updated.

Top VPNs Grid

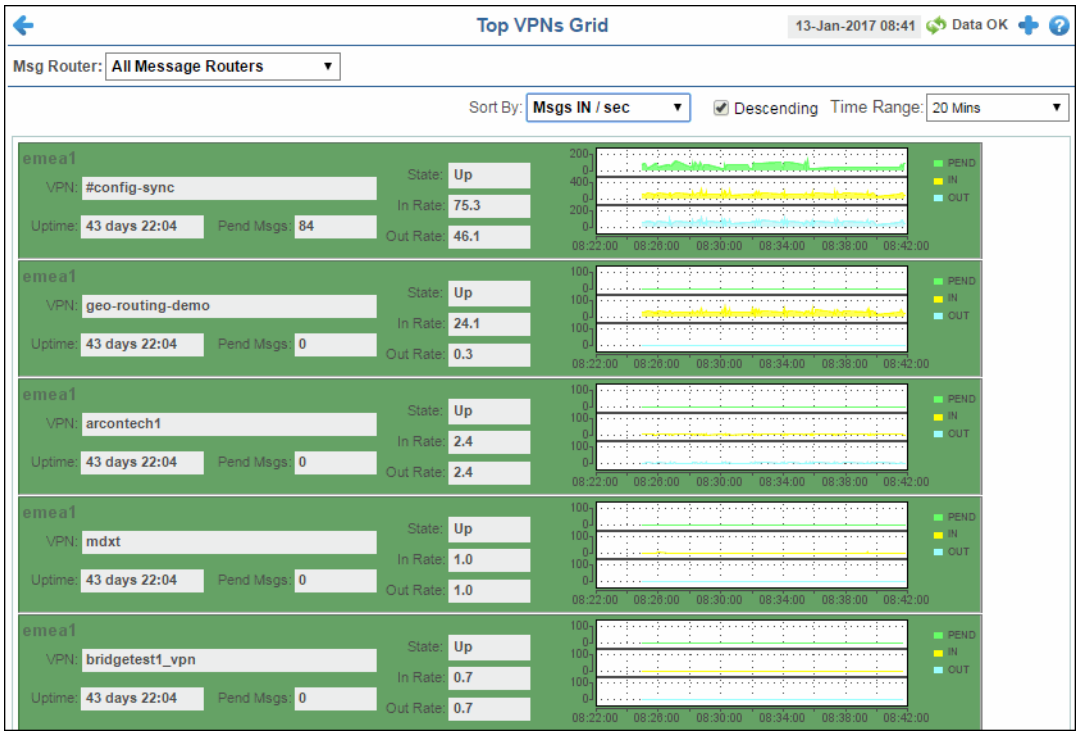
View the VPNs in ascending or descending order based on the number of pending messages, the number of incoming messages per second, or the number of outgoing messages per second.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

Drill-down and investigate by clicking a row to view details for the selected VPN in the "Single VPN Summary" display.



Title Bar (possible features are):

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Open an instance of this display in a new window.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By/Sort By:
The display includes these filtering/sorting options:

Msg Router:	Choose the message router for which you want view data in the display.
Sort By:	Select how you want to sort the data. You can select from **Pending Msgs**, **Msgs IN/sec**, and **Msgs OUT/sec**.

Descending: Select this check box to view the data in descending order based on the option selected in the **Sort By** drop down list. For example, select **Pending Msgs** in the **Sort By** drop down and select this toggle to view the VPNs (for the selected message router) with the most pending messages at the top of the display. Deselect this toggle to view the data in ascending order (for example, VPNs with the least pending messages at the top of the display).

Time Range: Select the length of time for which you want to view past data in the trend graphs. You can select from the last **2 Mins** up to the last **7 Days**, or you can view **All Data**.

Fields and Data:

VPN Displays the name of the VPN.

Uptime Displays the length of time the VPN has been up and running.

Pend Msgs Displays the number of pending messages for the VPN.

State Displays the current status of the VPN.

In Rate Displays the current Incoming Message Rate (per second) for the VPN.

Out Rate Displays the current Outgoing Message Rate (per second) for the VPN.

Trend Graph Displays, in graph form, the Pending Messages, In Message Rate/sec, and Out Message Rate/sec based on the selected **Time Range**. For example, if **20 Mins** was selected in the **Time Range** drop down, the graph displays the total pending messages (**Pend**), the incoming message rates (**IN**), and the outgoing message rates (**OUT**) over the last 20 minutes.

Single VPN Summary

View alert, connection/destination, incoming message, outgoing message, and pending message information for a VPN.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

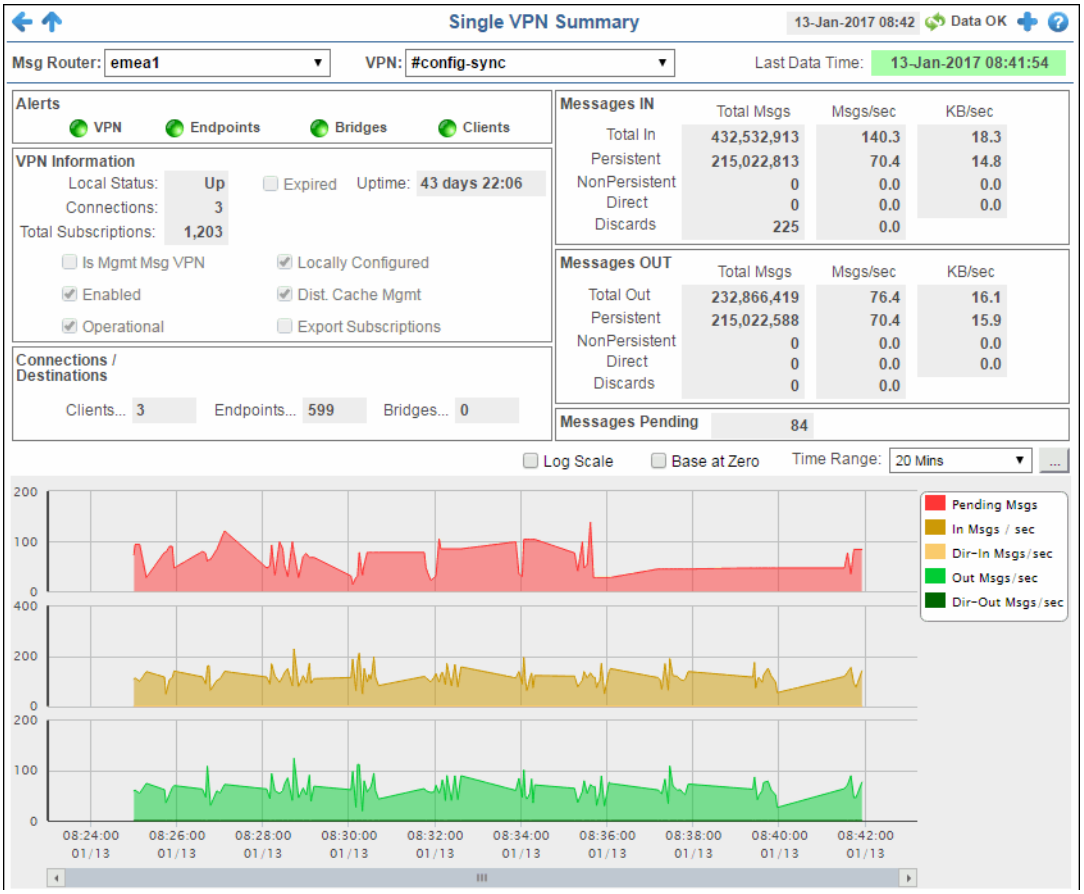
[X] A message router is expired when the drop-down menu name is appended with **[X]**.

- When the display background color is light red the data is stale.
- The **Last Data Time** Last Data Time: 15-Aug-2016 14:34:00 shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

● (Green) the selected message router is connected and receiving data.



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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router: Choose the message router for which you want to view data.

VPN Choose the VPN associated with the selected message router for which you want to view data.

Last Data Time

Last Data Time: 15-Aug-2016 14:34:00

The date and time the selected message router was last updated.
- ● Red indicates the selected message router is offline or expired.
- ● Green indicates the selected message router is connected and receiving data.

Fields and Data:

Alerts

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

VPN	The current alert status for the VPN.
Endpoints	The current alert status for the endpoints associated with the VPN.
Bridges	The current alert status for the bridges associated with the VPN.
Clients	The current alert status for the clients associated with the VPN.

VPN Information

Local Status	The current status of the VPN.
Connections	The total number of connections for the VPN.
Total Subscriptions	The total number of subscriptions to the VPN.

Expired	When checked, performance data about the VPN has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the VPN. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$solRowExpirationTime:45`
	`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Uptime	If the VPN's **Local Status** is **Up**, this field displays the length of time that the VPN has been up and running.
Is Mgmt Msg VPN	Displays whether or not the VPN is used by the message router for management purposes.
Enabled	When checked, the VPN was enabled via the command line interface or SolAdmin.
Operational	When checked, this status indicates that the VPN has been enabled and is operating normally.
Locally Configured	When checked, the VPN was configured locally using the command line interface or SolAdmin. If unchecked, the VPN received configuration instructions from another message router.
Dist. Cache Mgmt	Indicates whether the distributed cache management has been enabled.
Export Subscriptions	When checked, the export subscriptions policy allows subscriptions added locally to the Message VPN to be advertised to the other message routers in the network.

Connections/ Destinations

Clients	The total number of connected clients.
Endpoints	The total number of endpoints.
Bridges	The total number of bridges connected to the VPN.

Messages IN

Total In	Displays the total incoming messages (**Total Msgs**), the total incoming message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**).
Persistent	Displays the total number of incoming persistent messages (**Total Msgs**), the incoming persistent message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the persistent messages.
NonPersistent	Displays the total number of incoming non-persistent messages (**Total Msgs**), the incoming non-persistent message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the non-persistent messages.
Direct	Displays the total number of incoming direct messages (**Total Msgs**), the incoming direct message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the direct messages.
Discards	Displays the total number of incoming messages (**Total Msgs**) that were discarded, the incoming message rate (**Msgs/sec**) for the discarded messages, and the total kilobytes per second (**KB/sec**) of discarded incoming messages.

Messages OUT

Total In	Displays the total outgoing messages (**Total Msgs**), the total outgoing message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**).
Persistent	Displays the total number of outgoing persistent messages (**Total Msgs**), the outgoing persistent message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the persistent messages.
NonPersistent	Displays the total number of outgoing non-persistent messages (**Total Msgs**), the outgoing non-persistent message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the non-persistent messages.
Direct	Displays the total number of outgoing direct messages (**Total Msgs**), the outgoing direct message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the direct messages.
Discards	Displays the total number of outgoing messages (**Total Msgs**) that were discarded, the outgoing message rate (**Msgs/sec**) for the discarded messages, and the total kilobytes per second (**KB/sec**) of discarded outgoing messages.

Messages Pending	The total number of pending messages for the VPN.

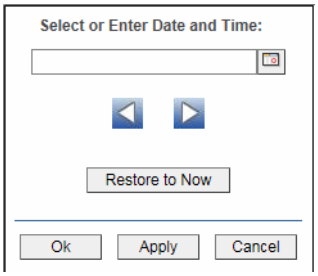
Trend Graphs
Traces the sum of process metrics for the VPN associated with the selected message router.

- **Pending Msgs**: The number of pending messages for the VPN.
- **In Msgs/sec**: The rate of incoming messages (per second) into the VPN.
- **Dir-In Msgs/sec**: The rate of direct incoming messages (per second) into the VPN.
- **Out Msgs/sec**: The rate of outgoing messages (per second) from the VPN.
- **Dir-Our Msgs/sec**: The rate of direct outgoing messages (per second) from the VPN.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Clients

These displays allow you to view the current and historical metrics for clients configured on a VPN. Displays in this View are:

- "All Clients" on page 1014: A tabular view of data for all clients configured on a VPN.
- "Single Client Summary" on page 1021: Current and historical metrics for a single client configured on a VPN.

All Clients

This display allows you to view data for all clients configured on a VPN. Each table row is a different VPN client connection.

This display is populated by two caches, SolClientsStats and SolClients. SolClientsStats provides most of the data. SolClients provides the static data. If the SolClients cache encounters an issue the static fields in this display are blank.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

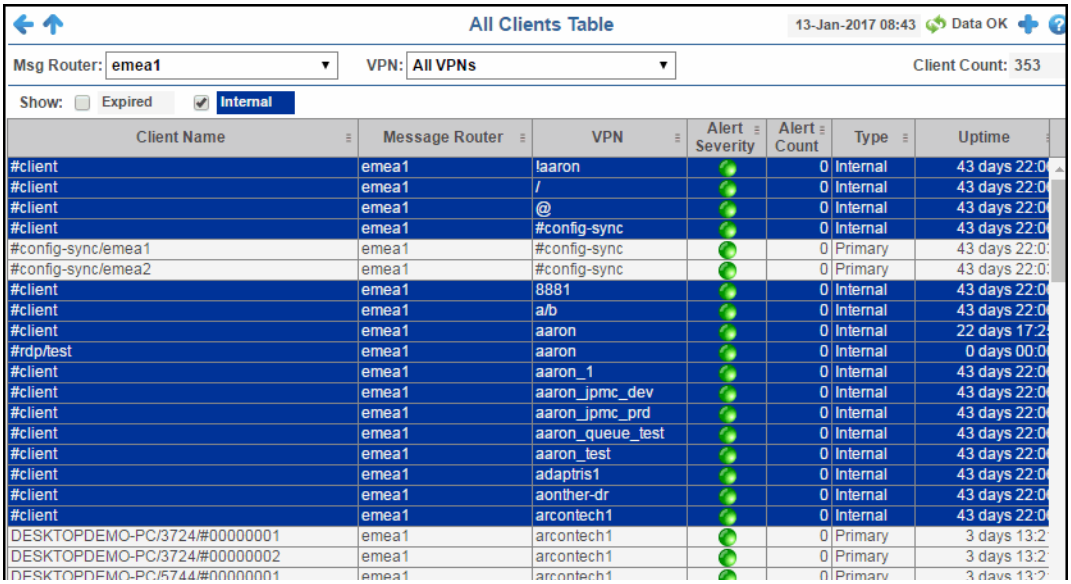
[X] A message router is expired when the drop-down menu name is appended with **[X]**.

Gray indicates that the client connection is Expired.

Blue indicates that it is a processes that runs on the message router under the Solace OS.

Select the **Show: Expired** check-box ☑ to include clients in the table that are marked as expired due to lack of response to message router polls for the client status. Select the **Internal** check-box ☑ to include processes that run on the message router under the Solace OS.

Double-click a row to drill-down and investigate in the "Single Client Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display includes these filtering options:

Msg Router: Choose the message router for which you want to view data.

VPN: Select the VPN associated with the message router for which you want to view data.

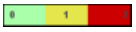
Fields and Data:

Client Count The number of VPN client connections listed in the display.

Show:	**Expired**	Select to include VPN client connections that are not currently active in the display and in the total **Client Count**. A client connection is expired when data has not been received for the time specified.
	Internal	Select to include processes that run on the message router under the Solace OS. Gray indicates that the client connection is Expired. Blue indicates that it is a processes that runs on the message router under the Solace OS.

Table:
Column values describe the message router and its associated VPN.
Gray indicates that the client connection is **Expired**.

Blue indicates that client connection is a processes that runs on the message router under the Solace OS.

Client Name	The name of the client.
Message Router	Lists the name of the selected message router.
VPN	Lists the name of the selected VPN.
Alert Severity	The maximum level of alerts in the row. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Total number of alerts for the client.
Type	Lists the type of alert.
Uptime	Lists the amount of time the client has been up and running.
Client ID	Lists the client ID.
Client UserName	Lists the user name for the client.
Client Address	The IP Address of the client.
Profile	The client profile that is assigned to the client.
ACL Profile	The access control list profile to which the client is assigned.
Description	Lists a description of the client.
Platform	Lists the platform of the client.
Software Version	The version of the platform.
Slow Subscriber	This check box will be checked if the client consistently fails to consume their messages at the offered rate (which causes their egress queues to fill up).
Total Flows Out	The total number of outbound message flows for the client.
Total Flows In	The total number of inbound message flows for the client.
Bind Requests	The number of bind requests made by the client.

# Subscriptions	The number of subscribers connected to the client.
Add Sub Msgs Rcvd	The number of Add Subscription messages received.
Add Sub Msgs Sent	The number of Add Subscription Messages sent.
Already Exists Msgs Sent	Refer to Solace documentation for more information.
Assured Ctrl Msgs Rcvd	Refer to Solace documentation for more information.
Assured Ctrl Msgs Sent	Refer to Solace documentation for more information.
Total Client Msgs Rcvd	The total number of messages received by the client.
Total Client Msgs Sent	The total number of messages sent by the client.
Total Client Bytes Rcvd	The total number of bytes contained within the messages received by the client.
Total Client Bytes Sent	The total number of bytes contained within the messages sent by the client.
Total Client Msgs Rcvd/ sec	The total number of messages received per second by the client.
Total Client Msgs Sent/ sec	The total number of messages sent per second by the client.
Total Client Bytes Rcvd/ sec	The total number of bytes contained within the messages received per second by the client.
Total Client Bytes Sent/ sec	The total number of bytes contained within the messages sent per second by the client.
Ctl Bytes Rcvd	The number of control data bytes received by the client.
CTL Bytes Sent	The number of control data bytes sent by the client.
Ctl Msgs Rcvd	The number of control data messages received by the client.
Ctl Msgs Sent	The number of control data messages sent by the client.
Client Data Bytes Rcvd	The number of bytes contained within the data messages received by the client.
Client Data Bytes Sent	The number of bytes contained within the data messages sent by the client.
Client Data Msgs Rcvd	The number of data messages received by the client.
Client Data Msgs Sent	The number of data messages sent by the client.

Client Direct Msgs Rcvd	The number of direct messages received by the client.
Client Direct Msgs Sent	The number of direct messages sent by the client.
Client Direct Bytes Rcvd	The number of bytes contained within direct messages received by the client.
Client Direct Bytes Sent	The number of bytes contained within direct messages sent by the client.
Client Direct Msgs Rcvd/ sec	The number of direct messages received per second by the client.
Client Direct Msgs Sent/ sec	The number of direct messages sent per second by the client.
Client Direct Bytes Rcvd/ sec	The number of bytes contained within the messages received per second by the client.
Client Direct Bytes Sent/ sec	The number of bytes contained within the messages sent per second by the client.
Client NonPersistent Msgs Rcvd	The number of non-persistent messages received by the client.
Client NonPersistent Msgs Sent	The number of non-persistent messages sent by the client.
Client NonPersistent Bytes Rcvd	The number of bytes contained within the non-persistent messages received by the client.
Client NonPersistent Bytes Sent	The number of bytes contained within the non-persistent messages sent by the client.
Client NonPersistent Msgs Rcvd/ sec	The number of non-persistent messages received per second by the client.
Client NonPersistent Msgs Sent/ sec	The number of non-persistent messages sent per second by the client.
Client NonPersistent Bytes Rcvd/ sec	The number of bytes contained within the non-persistent messages received per second by the client
Client NonPersistent Bytes Sent/ sec	The number of bytes contained within the non-persistent messages sent per second by the client
Client Persistent Msgs Rcvd	The number of persistent messages received by the client.

Client Persistent Msgs Sent	The number of persistent messages sent by the client.
Client Persistent Bytes Rcvd	The number of bytes contained within the persistent messages received by the client.
Client Persistent Bytes Sent	The number of bytes contained within the persistent messages sent by the client.
Client Persistent Msgs Rcvd/ sec	The number of persistent messages received per second by the client.
Client Persistent Msgs Sent/ sec	The number of persistent messages sent per second by the client.
Client Persistent Bytes Rcvd/ sec	The number of bytes contained within the persistent messages received per second by the client.
Client Persistent Bytes Sent/ sec	The number of bytes contained within the persistent messages sent per second by the client.
Denied Dup Clients	Refer to Solace documentation for more information.
Denied Subscribe Permission	The number of denied subscription requests due to improper permissions.
Denied Subscribe Topic-ACL	The number of denied subscriptions to topics due to the fact that the client requesting was not on the Access Control List.
Denied Unsubscribe Permission	The number of denied unsubscribe requests due to improper permissions.
Denied Unsubscribe Topic-ACL	The number of denied unsubscribe requests to topics due to the fact that the client requesting was not on the Access Control List.
DTO Msgs Rcvd	The number of Deliver-To-One messages received by the client.
Egress Compressed Bytes	The number of compressed bytes contained within outgoing messages.
Ingress Compressed Bytes	The number of compressed bytes contained within incoming messages.
Total Ingress Discards	The total number of discarded incoming messages.
Total Egress Discards	The total number of discarded outgoing messages.

Total Ingress Discards/sec	The total number of discarded incoming messages per second.
Total Egress Discards/sec	The total number of discarded outgoing messages per second.
Keepalive Msgs Rcvd	The number of Keepalive messages received by the client.
Keepalive Msgs Sent	The number of Keepalive messages sent by the client.
Large Msgs Rcvd	The number of large messages received by the client.
Login Msgs Rcvd	The number of login message received by the client.
Max Exceeded Msgs Sent	The number of responses sent by the client informing the connected message router(s) that the number of the message(s) sent exceeded the maximum allowed.
Not Enough Space Msgs Sent	The number of responses sent by the client informing the connected message router(s) that the size of the message(s) sent exceeded the maximum allowable size, or that the message caused the client's Local Spool Quota to exceed the maximum amount of space.
Not Found Msgs Sent	Refer to Solace documentation for more information.
Parse Error on Add Msgs Sent	Refer to Solace documentation for more information.
Parse Error on Remove Msgs Sent	Refer to Solace documentation for more information.
Remove Subscription Msgs Rcvd	The number of remove subscription requests received by the client.
Remove Subscription Msgs Sent	The number of remove subscription requests sent by the client.
Subscribe Client Not Found	The number of subscription requests for clients that were not found.
Unsubscribe Client Not Found	The number of unsubscribe requests for clients that were not found.
Update Msgs Rcvd	Refer to Solace documentation for more information.
Update Msgs Sent	Refer to Solace documentation for more information.

Expired When checked, performance data about the client has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the client. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Timestamp The date and time the row data was last updated.

Single Client Summary

This display allows you to view the current and historical metrics for a single VPN client.

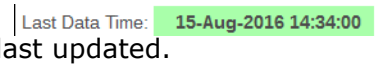
This display is populated by two caches, SolClientsStats and SolClients. SolClientsStats provides most of the data. SolClients provides the static data. If the SolClients cache encounters an issue the graphic elements that have no data are replaced with **N/A**.

You can view the **Client Type**, the **User Name**, the **Client ID**, the associated **Platform**, the current **Up Time**, and additional information specific to the client. You can also view the total number of incoming and outgoing messages, as well as the number of incoming and outgoing persistent, non-persistent, direct, and discarded messages.

Data Quality Indicators for Message Routers:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

- The **Last Data Time** 

shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.

(Gray) the selected message router is expired.

[?] Message routers are disconnected and clients are expired when the drop-down menu name is appended with **[?]**.

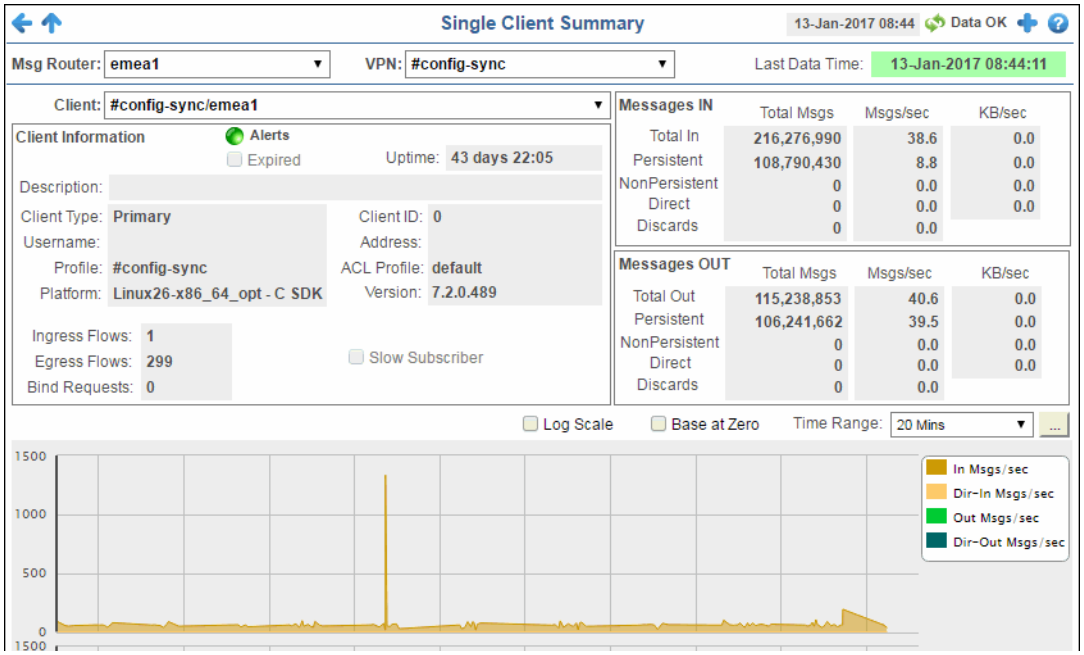
Data Quality Indicators for Clients

If the display background color is:

(Light Red) the selected client is offline and the **Alert State** is gray.

(Gray) the selected client data is expired and the drop-down menu name is appended with **[X]**.

This display also includes a trend graph containing the current and historical incoming messages per second, outgoing messages per second, incoming direct messages per second, and outgoing direct messages per second.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router containing the VPN and client for which you want to view data.

VPN Select the VPN associated with the selected message router and containing the client for which you want to view data.

Client Select the client associated with the message router and VPN for which you want to view data.

Fields and Data:

Last Data Time

Last Data Time: 15-Aug-2016 14:34:00

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

Client Information	**Alerts**	The current status of the Alerts. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.

	Expired	When checked, performance data about the client has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the client. To view/edit the current values, modify the following lines in the **.properties** file:
		`# Metrics data are considered expired after this number of seconds`
		`#`
		`collector.sl.rtview.sub=$solRowExpirationTime:45`
		`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
		
		In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

	Uptime	If the VPN's **Local Status** is **Up**, this field displays the length of time that the VPN has been up and running.
	Description	The description of the client.
	Client Type	The client type.
	Username	The client's user name.
	Profile	The client's profile.
	Platform	The client's platform
	Client ID	The client ID.
	Address	The client's IP address.
	ACL Profile	The access control list profile to which the client is assigned.
	Version	The client's version number.
	Ingress Flows	The number of message flows coming into the client.
	Egress Flows	The number of message flows going out of the client.
	Bind Requests	The number of bind requests received by the client.
	Slow Subscriber	This check box will be checked if the client consistently fails to consume their messages at the offered rate (which causes their egress queues to fill up).
Messages IN	**Total In**	Displays the total incoming messages (**Total Msgs**), the total incoming message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**).
	Persistent	Displays the total number of incoming persistent messages (**Total Msgs**), the incoming persistent message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the persistent messages.

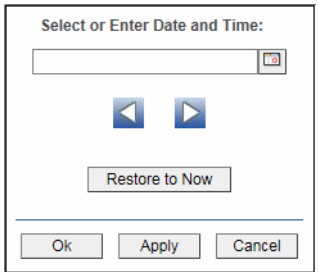
	NonPersistent	Displays the total number of incoming non-persistent messages (**Total Msgs**), the incoming non-persistent message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the non-persistent messages.
	Direct	Displays the total number of incoming direct messages (**Total Msgs**), the incoming direct message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the direct messages.
	Discards	Displays the total number of incoming messages (**Total Msgs**) that were discarded, the incoming message rate (**Msgs/sec**) for the discarded messages, and the total kilobytes per second (**KB/sec**) of discarded incoming messages.
Messages OUT	**Total Out**	Displays the total outgoing messages (**Total Msgs**), the total outgoing message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**).
	Persistent	Displays the total number of outgoing persistent messages (**Total Msgs**), the outgoing persistent message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the persistent messages.
	NonPersistent	Displays the total number of outgoing non-persistent messages (**Total Msgs**), the outgoing non-persistent message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the non-persistent messages.
	Direct	Displays the total number of outgoing direct messages (**Total Msgs**), the outgoing direct message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the direct messages.
	Discards	Displays the total number of outgoing messages (**Total Msgs**) that were discarded, the outgoing message rate (**Msgs/sec**) for the discarded messages, and the total kilobytes per second (**KB/sec**) of discarded outgoing messages.
Messages Pending	The total number of pending messages for the VPN.	

Trend Graphs
Traces the sum of process metrics for the client associated with the selected message router and VPN.
- **In Msgs/sec**: The rate of incoming messages (per second) into the client.
- **Dir-In Msgs/sec**: The rate of direct incoming messages (per second) into the client.
- **Out Msgs/sec**: The rate of outgoing messages (per second) from the client.
- **Dir-Out Msgs/sec**: The rate of direct outgoing messages (per second) from the client.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Bridges

These displays provide process data for bridges configured on a VPN. Displays in this View are:

- "All Bridges" on page 1025: A tabular view of all available process performance data for all bridges configured on a VPN.
- "Single Bridge Summary" on page 1030: Current and historical metrics for a single bridge.

All Bridges

This display allows you to view data for all bridges configured for a VPN. Each table row is a different VPN bridge, where:

Gray indicates that the VPN bridge is Expired.

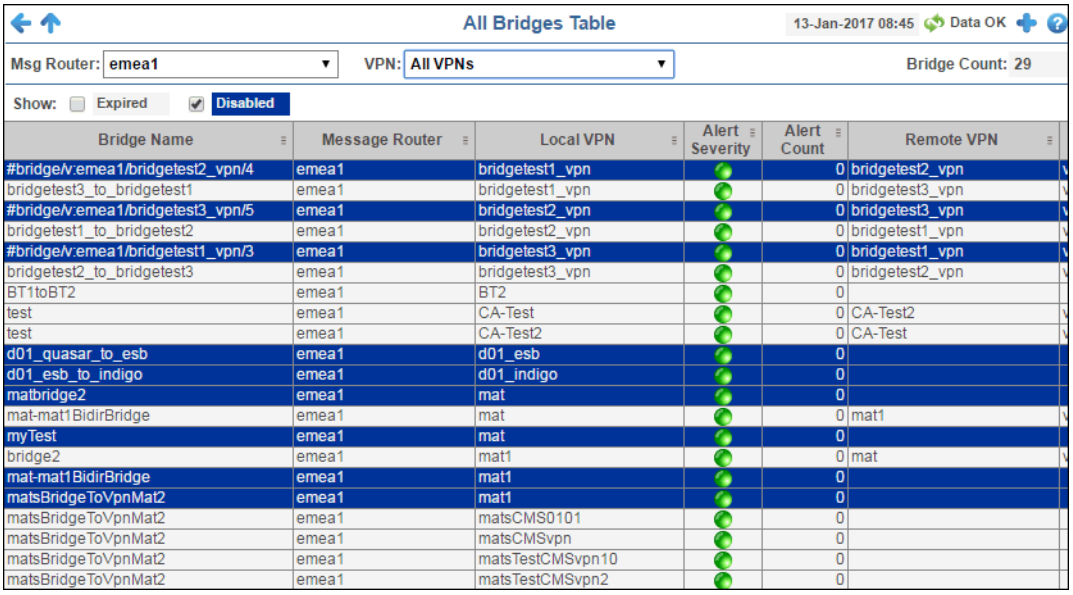
Blue indicates that the VPN bridge is disabled.

Data Quality Indicators:

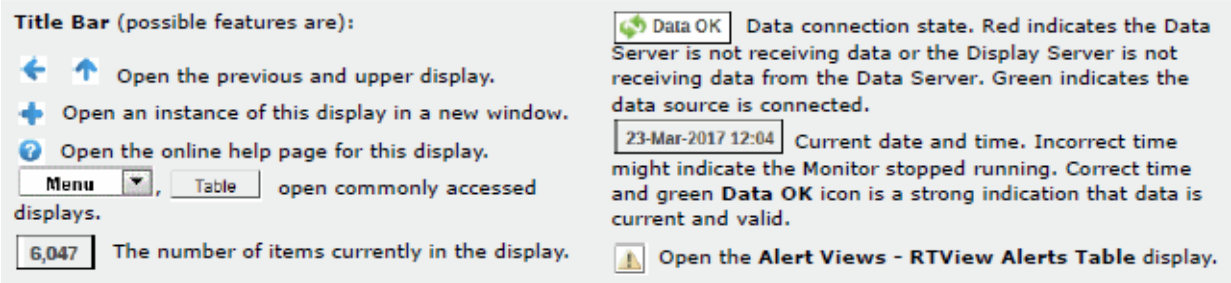
[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

Rows listing bridges that are disabled or expired display with a shaded background. Double-click a row to drill-down and investigate in the "Single Bridge Summary" display.



Bridge Name	Message Router	Local VPN	Alert Severity	Alert Count	Remote VPN
#bridge/v:emea1/bridgetest2_vpn/4	emea1	bridgetest1_vpn		0	bridgetest2_vpn
bridgetest3_to_bridgetest1	emea1	bridgetest1_vpn		0	bridgetest3_vpn
#bridge/v:emea1/bridgetest3_vpn/5	emea1	bridgetest2_vpn		0	bridgetest3_vpn
bridgetest1_to_bridgetest2	emea1	bridgetest2_vpn		0	bridgetest1_vpn
#bridge/v:emea1/bridgetest1_vpn/3	emea1	bridgetest3_vpn		0	bridgetest1_vpn
bridgetest2_to_bridgetest3	emea1	bridgetest3_vpn		0	bridgetest2_vpn
BT1toBT2	emea1	BT2		0	
test	emea1	CA-Test		0	CA-Test2
test	emea1	CA-Test2		0	CA-Test
d01_quasar_to_esb	emea1	d01_esb		0	
d01_esb_to_indigo	emea1	d01_indigo		0	
matbridge2	emea1	mat		0	
mat-mat1BidirBridge	emea1	mat		0	mat1
myTest	emea1	mat		0	
bridge2	emea1	mat1		0	mat
mat-mat1BidirBridge	emea1	mat1		0	
matsBridgeToVpnMat2	emea1	mat1		0	
matsBridgeToVpnMat2	emea1	matsCMS0101		0	
matsBridgeToVpnMat2	emea1	matsCMSvpn		0	
matsBridgeToVpnMat2	emea1	matsTestCMSvpn10		0	
matsBridgeToVpnMat2	emea1	matsTestCMSvpn2		0	



Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to view data.

VPN Select the VPN associated with the selected message router for which you want to view data.

Fields and Data:

Bridge Count: The total number of bridges found that were configured on the VPN and are displayed in the table.

Show:

Expired Select to include expired VPN bridges in the display and in the total **Bridge Count**. A VPN bridge is expired when data has not been received for the time specified.

Disabled Select to include down VPN bridge in the display and in the total **Bridge Count**. A VPN bridge is down when data has not been received for the time specified.

- Blue border indicates that the VPN bridge is disabled.

Table:
Each table row is a different VPN bridge, where:

- Gray indicates that the VPN bridge is expired.
- Blue indicates that the VPN bridge is disabled.

Message Router	Displays the name of the message router
Local VPN	The name of the local VPN.
Bridge Name	The name of the bridge.
Alert Severity	The current level of alerts in the row. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the process.
Remote VPN	The name of the remote VPN that is connected to the local VPN via the bridge.
Remote Router	The name of the remote router.
Admin State	Indicates whether the bridge has been administratively enabled (via SolAdmin or the command line interface).
Inbound Operational State	The current inbound operational status of the bridge. (The administrator can turn off a bridge's input or output for maintenance or other reasons.)
Outbound Operational State	The current outbound operational status of the bridge. (The administrator can turn off a bridge's input or output for maintenance or other reasons.)
Queue Operational State	The current operational status of the queue.
Connection Establisher	Indicates whether the administrator created and configured the bridge directly on the message router using SolAdmin or the command line interface, or indirectly from another message router.
Redundancy	Displays whether the bridge is the **primary** bridge, the **backup** bridge, the **static** bridge (default bridge used when no other bridge is available), or whether it is the only bridge available (**none**).
Uptime	The current amount of time in which the bridge has been up and running.
Client Name	The name of the client.
Connected Via Addr	The local IP address and port used for the bridge.
Connected Via Interface	The name of the network interface used for the bridge.
Client Direct Bytes Rcvd	The number of bytes contained within direct messages received by the client via the bridge.
Client Direct Bytes/sec Rcvd	The number of bytes contained within direct messages received per second by the client via the bridge.

Client Direct Bytes Sent	The number of bytes contained within direct messages sent by the client via the bridge.
Client Direct Bytes/sec Sent	The number of bytes contained within direct messages sent per second by the client via the bridge.
Client Direct Msgs/sec Rcvd	The number of bytes contained within direct messages received per second by the client via the bridge.
Client Direct Msgs Sent	The number of direct messages sent by the client via the bridge.
Client Direct Msgs/sec Sent	The number of direct messages sent per second by the client via the bridge.
Client NonPersistent Bytes Rcvd	The number of bytes contained within non-persistent messages received by the client via the bridge.
Client NonPersistent Bytes/sec Rcvd	The number of bytes contained within non-persistent messages received per second by the client via the bridge.
Client NonPersistent Bytes Sent	The number of bytes contained within non-persistent messages sent by the client via the bridge.
Client NonPersistent Bytes/sec Sent	The number of bytes contained within non-persistent messages sent per second by the client via the bridge.
Client NonPersistent Msgs Rcvd	The number of non-persistent messages received by the client via the bridge.
Client NonPersistent Msgs/sec Rcvd	The number of non-persistent messages received per second by the client via the bridge.
Client NonPersistent Msgs Sent	The number of non-persistent messages sent by the client via the bridge.
Client NonPersistent Msgs/sec Sent	The number of non-persistent messages sent per second by the client via the bridge.
Client Persistent Bytes Rcvd	The number of bytes contained within persistent messages received by the client via the bridge.
Client Persistent Bytes/sec Rcvd	The number of bytes contained within persistent messages received per second by the client via the bridge.
Client Persistent Bytes Sent	The number of bytes contained within persistent messages sent by the client via the bridge.
Client Persistent Bytes/sec Sent	The number of bytes contained within persistent messages sent per second by the client via the bridge.

Client Persistent Msgs Rcvd	The number of persistent messages received by the client via the bridge.
Client Persistent Msgs /sec Rcvd	The number of persistent messages received per second by the client via the bridge.
Client Persistent Msgs Sent	The number of persistent messages sent by the client via the bridge.
Client Persistent Msgs/sec Sent	The number of persistent messages sent per second by the client via the bridge.
Total Client Bytes Rcvd	The number of bytes contained within all messages received by the client via the bridge.
Total Client Bytes/sec Rcvd	The number of bytes contained within all messages received per second by the client via the bridge.
Total Client Bytes Sent	The number of bytes contained within all messages sent by the client via the bridge.
Total Client Bytes/sec Sent	The number of bytes contained within all messages sent per second by the client via the bridge.
Total Client Msgs Rcvd	The total number of all messages received by the client via the bridge.
Total Client Msgs/sec Rcvd	The total number of all messages received per second by the client via the bridge.
Total Client Msgs Sent	The total number of all messages sent by the client via the bridge.
Total Client Msgs/sec Sent	The total number of all messages sent per second by the client via the bridge.
Total Out Discards	The total number of discarded outgoing messages sent by the client via the bridge.
Total Out Discards/sec	The total number of discarded outgoing messages sent per second by the client via the bridge.
Total In Discards	The total number of discarded incoming messages received by the client via the bridge.
Total In Discards/sec	The total number of discarded incoming messages received per second by the client via the bridge.

Expired When checked, performance data about the bridge has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the bridge. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Timestamp The date and time the row data was last updated.

Single Bridge Summary

This display allows you to view data for a specific bridge configured on a VPN.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

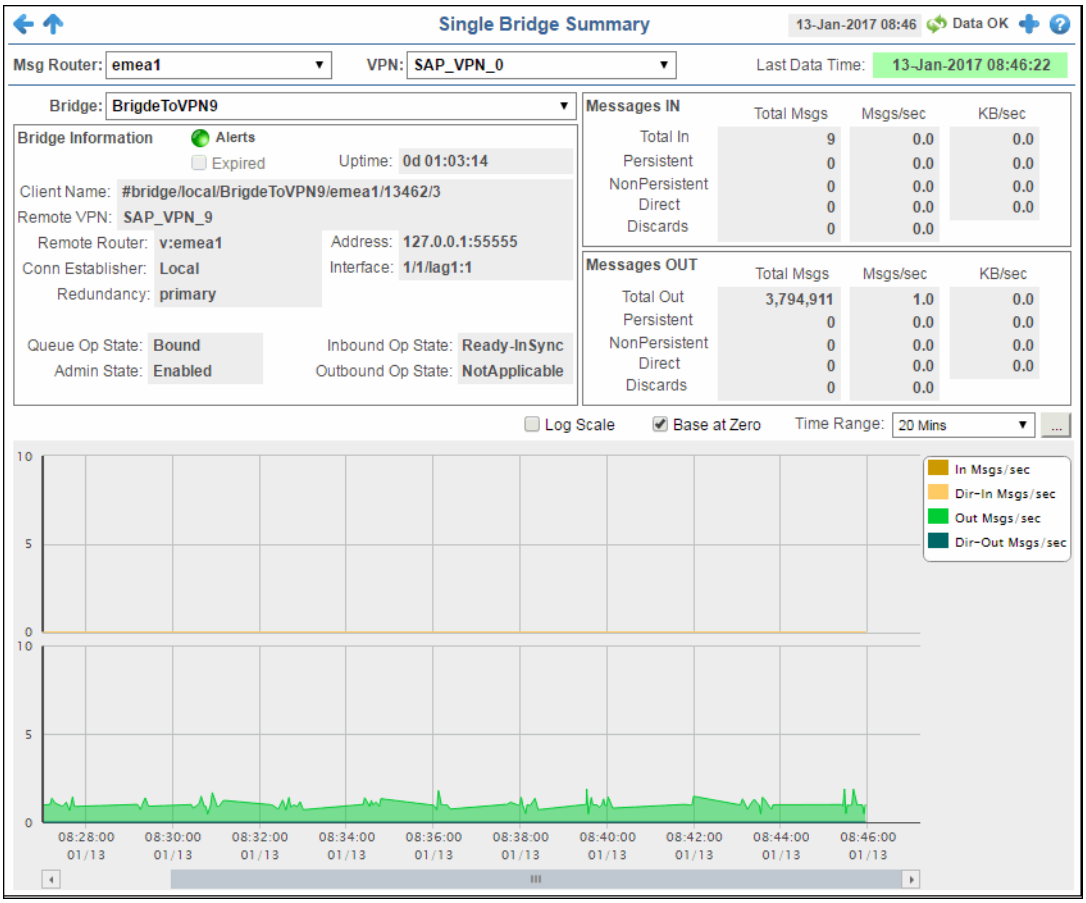
- When the display background color is light red the data is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.

Choose a message router, VPN, and a bridge from the drop-down menus, and use the **Time-Range** to "zoom-in" or "zoom-out" on a specific time frame in the trend graph.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router:	Select the message router containing the VPN and client for which you want to view data.
VPN	Select the VPN associated with the selected message router and containing the client for which you want to view data.
Bridge	Select the bridge associated with the message router and VPN for which you want to view data.

Fields and Data:

Last Data Time

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

Bridge Information

Alerts The current status of the Alerts.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Expired When checked, performance data about the bridge has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the bridge. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number
of seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelet
e:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Uptime Displays the length of time that the bridge has been up and running.

Client Name The name of the client.

Remote VPN The name of the remote VPN that is connected to the local VPN via the bridge.

Remote Router The name of the remote router.

Conn Establisher Refer to Solace documentation for more information.

Redundancy Indicates whether the bridge is the **primary** bridge, the **backup** bridge, the **static** bridge (default bridge used when no other bridge is available), or whether it is the only bridge available (**none**).

Address The IP address.

Interface The interface ID.

Queue Op State Refer to Solace documentation for more information.

Admin State Indicates whether the bridge has been administratively enabled (via SolAdmin or the command line interface).

Inbound Op State The current inbound operational status of the bridge. (The administrator can turn off a bridge's input or output for maintenance or other reasons.)

	Outbound Op State	The current outbound operational status of the bridge. (The administrator can turn off a bridge's input or output for maintenance or other reasons.)
Messages IN	**Total In**	Displays the total incoming messages (**Total Msgs**), the total incoming message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**).
	Persistent	Displays the total number of incoming persistent messages (**Total Msgs**), the incoming persistent message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the persistent messages.
	NonPersistent	Displays the total number of incoming non-persistent messages (**Total Msgs**), the incoming non-persistent message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the non-persistent messages.
	Direct	Displays the total number of incoming direct messages (**Total Msgs**), the incoming direct message rate (**Msgs/sec**), and the total incoming kilobytes per second (**KB/sec**) for the direct messages.
	Discards	Displays the total number of incoming messages (**Total Msgs**) that were discarded, the incoming message rate (**Msgs/sec**) for the discarded messages, and the total kilobytes per second (**KB/sec**) of discarded incoming messages.
Messages OUT	**Total Out**	Displays the total outgoing messages (**Total Msgs**), the total outgoing message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**).
	Persistent	Displays the total number of outgoing persistent messages (**Total Msgs**), the outgoing persistent message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the persistent messages.
	NonPersistent	Displays the total number of outgoing non-persistent messages (**Total Msgs**), the outgoing non-persistent message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the non-persistent messages.
	Direct	Displays the total number of outgoing direct messages (**Total Msgs**), the outgoing direct message rate (**Msgs/sec**), and the total outgoing kilobytes per second (**KB/sec**) for the direct messages.
	Discards	Displays the total number of outgoing messages (**Total Msgs**) that were discarded, the outgoing message rate (**Msgs/sec**) for the discarded messages, and the total kilobytes per second (**KB/sec**) of discarded outgoing messages.

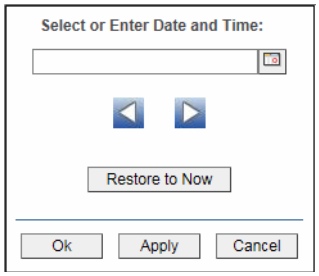
Trend Graphs
Traces the sum of process metrics for the client associated with the selected message router and VPN.

- **In Msgs/sec**: The rate of incoming messages (per second) into the client.
- **Dir-In Msgs/sec**: The rate of direct incoming messages (per second) into the client.
- **Out Msgs/sec**: The rate of outgoing messages (per second) from the client.
- **Dir-Out Msgs/sec**: The rate of direct outgoing messages (per second) from the client.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Endpoints

These displays list data for one or more endpoints configured on a VPN. Displays in this View are:

- "All Endpoints" on page 1034
- "Single Endpoint Summary" on page 1037
- "Single Endpoint Summary Rates" on page 1040

All Endpoints

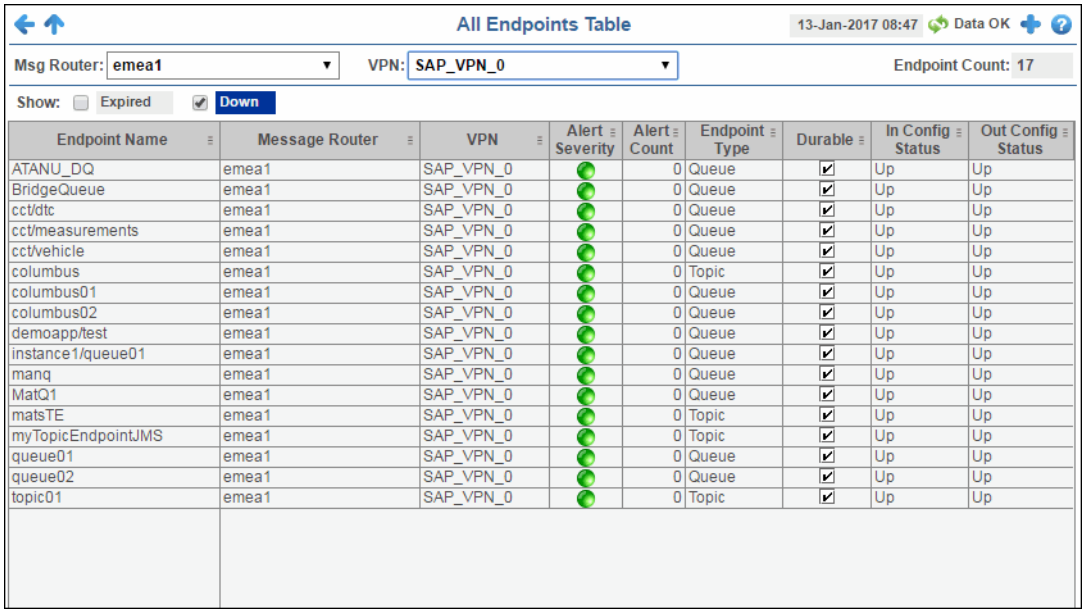
This display lists data in a table for all endpoints configured on a VPN. Each row in the table lists the details for a specific endpoint.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

You can click a column header to sort column data in numerical or alphabetical order, or double-click a row to drill-down and investigate in the "Single Endpoint Summary" display.



Endpoint Name	Message Router	VPN	Alert Severity	Alert Count	Endpoint Type	Durable	In Config Status	Out Config Status
ATANU_DQ	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
BridgeQueue	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
cct/dtc	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
cct/measurements	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
cct/vehicle	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
columbus	emea1	SAP_VPN_0		0	Topic	☑	Up	Up
columbus01	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
columbus02	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
demoapp/test	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
instance1/queue01	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
manq	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
MatQ1	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
matsTE	emea1	SAP_VPN_0		0	Topic	☑	Up	Up
myTopicEndpointJMS	emea1	SAP_VPN_0		0	Topic	☑	Up	Up
queue01	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
queue02	emea1	SAP_VPN_0		0	Queue	☑	Up	Up
topic01	emea1	SAP_VPN_0		0	Topic	☑	Up	Up

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to view data.

VPN Select the VPN associated with the selected message router for which you want to view data.

Fields and Data:

Endpoint Count: The total number of endpoints configured on the VPN and displayed in the table. When the **Expired** and **Down** options are selected they are included in the count.

Show:

Expired Select to include expired endpoints in the display and in the total **Endpoint Count**. An endpoint is expired when data has not been received for the time specified.

Down Select to include down endpoints in the display and in the total **Endpoint Count**. An endpoint is down when data has not been received for the time specified.

Table:
Each row in the table lists the details for a specific endpoint.
Gray indicates that the endpoint is **Expired**.

Blue indicates that the endpoint is **Down**.

Endpoint Name	The name of the endpoint.
Message Router	Displays the name of the message router
VPN	The name of the VPN.
Alert Severity	The current alert severity in the row. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the endpoint.
Endpoint Type	The type of endpoint (either queue or topic).
Durable	Displays whether or not the endpoint is durable (checked) or non-durable (unchecked). Durable endpoints remain after an message router restart and are automatically restored as part of an message router's backup and restoration process.
In Config Status	Refer to Solace documentation for more information.
Out Config Status	Refer to Solace documentation for more information.
Type	Refer to Solace documentation for more information.
Access Type	Refer to Solace documentation for more information.
Bind Count	The total number of binds connected to the endpoint.
Pending Messages	The total number of pending messages on the endpoint.
Spool Usage (MB)	The total spool usage consumed on the endpoint (in megabytes).
High Water Mark (MB)	The highest level of spool usage on the endpoint (in megabytes).
In Selector	Refer to Solace documentation for more information.
Out Selector	Refer to Solace documentation for more information.

Expired	When checked, performance data about the endpoint has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the endpoint. To view/edit the current values, modify the following lines in the **.properties** file:
	`# Metrics data are considered expired after this number of seconds`
	`#`
	`collector.sl.rtview.sub=$solRowExpirationTime:45`
	`collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600`
	
	In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Time Stamp	The date and time the data was last updated.

Single Endpoint Summary

This display allows you to view endpoint information, message data, and a trend graph for pending and spool messages for a specific endpoint configured on a VPN. Choose a message router, VPN, and an endpoint from the drop-down menus, and use the **Time Range** to "zoom-in" or "zoom-out" on a specific time frame in the trend graph.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

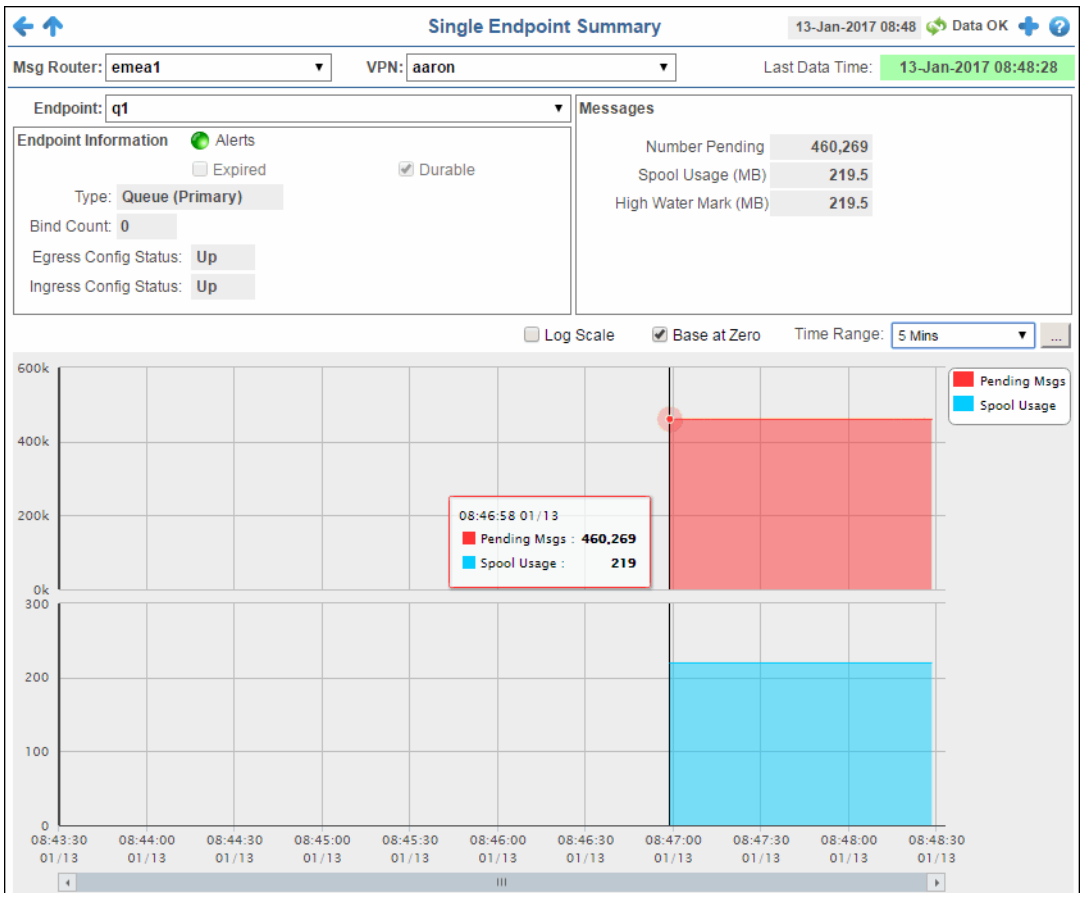
- When the display background color is light red the data is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.

This display is provided by default and should be used if you do not want to collect message spool data for specific VPNs. However, if you do want to configure message spool monitoring for specific VPNs, then you should use the **Single Endpoint Summary Rates** display instead, which is not included in the navigation tree by default. See "Single Endpoint Summary Rates" for more information on disabling the **Single Endpoint Summary** display and enabling the **Single Endpoint Summary Rates** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router:	Select the message router containing the VPN and client for which you want to view data.
VPN	Select the VPN associated with the selected message router and containing the client for which you want to view data.

Endpoint Select the endpoint associated with the message router and VPN for which you want to view data.

Fields and Data:

Last Data Time

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

Endpoint Information

Alerts The current status of the Alerts.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Expired When checked, performance data about the endpoint has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the endpoint. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of
seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelete:360
0
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

Durable Displays whether or not the endpoint is durable (checked) or non-durable (unchecked). Durable endpoints remain after an message router restart and are automatically restored as part of an message router's backup and restoration process.

Type The type of endpoint (either queue or topic).

Bind Count The total number of binds connected to the endpoint.

Egress Config Status The status of the egress configuration.

Ingress Config Status The status of the ingress configuration.

Messages

Number Pending The total number of pending messages on the endpoint.

Spool Usage (MB) The current spool usage consumed on the endpoint (in megabytes).

High Water Mark (MB) The highest level of spool usage on the endpoint (in megabytes).

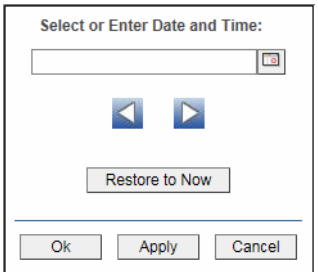
Trend Graphs
Traces the sum of process metrics for the endpoint associated with the selected message router and VPN.

- **Pending Msgs**: The number of pending messages.
- **Spool Usage**: The total spool usage consumed on the endpoint (in megabytes).

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single Endpoint Summary Rates

This display allows you to view endpoint information, message data, and a trend graph for pending messages, spool messages, incoming message rates, and outgoing message rates for a specific endpoint configured on a VPN. Choose a message router, VPN, and an endpoint from the drop-down menus, and use the **Time Range** to "zoom-in" or "zoom-out" on a specific time frame in the trend graph.

Data Quality Indicators:

- When the display background color is light red the data is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.

The "Single Endpoint Summary" display is provided by default and should be used if you do not want to collect message spool data for specific VPNs. However, if you do want to configure message spool monitoring for specific VPNs, then you should use this display instead, which is not included in the navigation tree by default.To collect message spool data for specific VPNs, disable the **Single Endpoint Summary** display, and enable the **Single Endpoint Summary Rates** display in the navigation tree, perform the following steps:

1. Uncomment and copy the following line in your **sample.properties** file to configure message spool monitoring for each VPN:

   ```
   #collector.sl.rtview.cache.config=sol_cache_source_msg_spool.rtv
   $solConn:UNIQUE_APPLIANCE_NAME $solVpnName:VPN_NAME
   ```

2. To edit the navigation tree, extract **solmon.navtree.xml** from the **rtvapm\solmon\lib\rtvapm_solmon.jar** file and save it in the **emsample\servers\central** directory.

3. In the **solmon.navtree.xml** file, comment out the following line (enclose with **<!--** and **-->**):

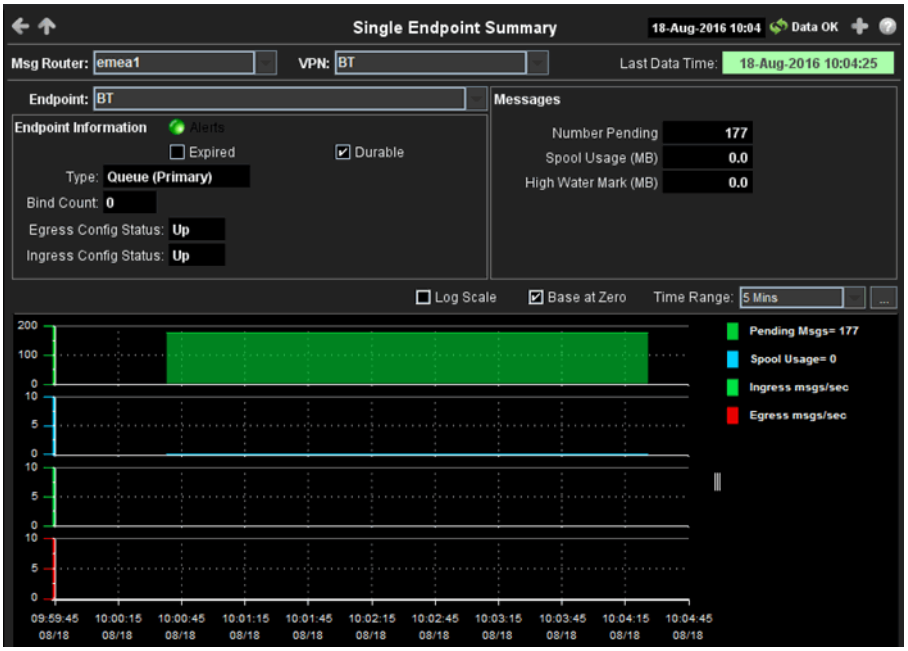
   ```
   <node label="Single Endpoint Summary" display="sol_endpoint_summary"></node>
   ```

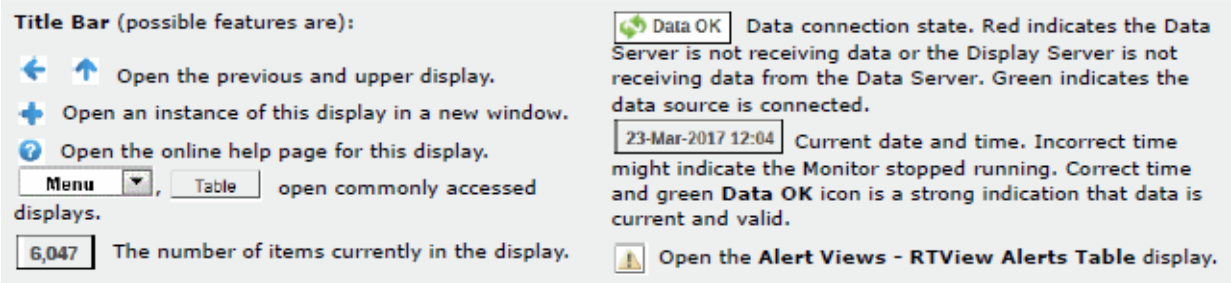
   and add/uncomment this line:

   ```
   <node label="Single Endpoint Summary Rates" display="sol_endpoint_summaryWithRates"></node>
   ```

Once the file is edited and saved in **emsample\servers\central** directory, it will get picked up automatically during startup.

Note: Collecting data for a large number of VPNs might impair the performance of the message router.





Filter By:
The display might include these filtering options:

Msg Router: Select the message router containing the VPN and client for which you want to view data.

VPN Select the VPN associated with the selected message router and containing the client for which you want to view data.

Endpoint Select the endpoint associated with the message router and VPN for which you want to view data.

Fields and Data:

Last Data Time

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

Endpoint Information

Alerts The current status of the Alerts.
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Expired When checked, performance data about the endpoint has not been received within the time specified (in seconds) in the **$solRowExpirationTime** field in the **conf\rtvapm_solmon.properties** file. The **$solRowExpirationTimeForDelete** field allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response from the endpoint. To view/edit the current values, modify the following lines in the **.properties** file:

```
# Metrics data are considered expired after this number of seconds
#
collector.sl.rtview.sub=$solRowExpirationTime:45
collector.sl.rtview.sub=$solRowExpirationTimeForDelete:3600
```

In the example above, the **Expired** check box would be checked after 45 seconds, and the row would be removed from the table after 3600 seconds.

	Durable	Displays whether or not the endpoint is durable (checked) or non-durable (unchecked). Durable endpoints remain after an message router restart and are automatically restored as part of an message router's backup and restoration process.
	Type	The type of endpoint (either queue or topic).
	Bind Count	The total number of binds connected to the endpoint.
	Egress Config Status	The status of the egress configuration.
	Ingress Config Status	The status of the ingress configuration.
Messages	**Number Pending**	The total number of pending messages on the endpoint.
	Spool Usage (MB)	The current spool usage consumed on the endpoint (in megabytes).
	High Water Mark (MB)	The highest level of spool usage on the endpoint (in megabytes).

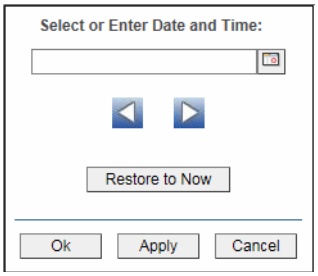
Trend Graphs
Traces the sum of process metrics for the endpoint associated with the selected message router and VPN.

- **Pending Msgs**: The number of pending messages.
- **Spool Usage**: The total spool usage consumed on the endpoint (in megabytes).
- **Ingress msgs/sec**: The number of incoming messages per second.
- **Egress msgs/sec**: The number of outgoing messages per second.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

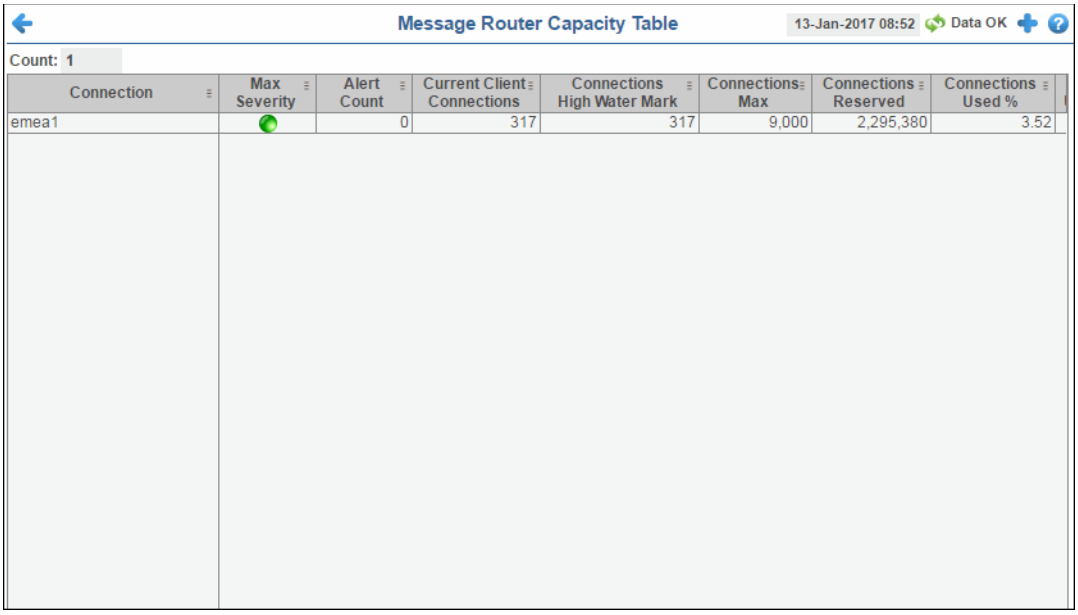
Capacity Analysis

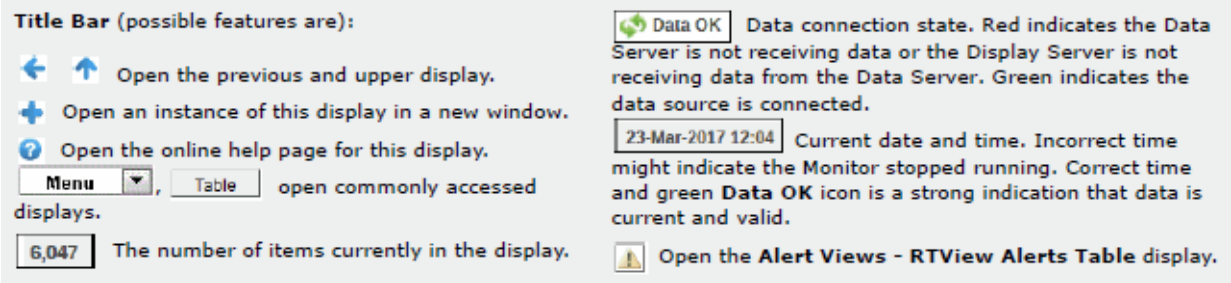
These displays provide current metrics, alert count and severity at the message router level. Displays in this View are:

- "All Message Router Capacity" on page 1045: View client, spool usage, incoming messages, outgoing messages, incoming bytes, and outgoing bytes data for all message routers.
- "Message Router Capacity" on page 1045: View client, spool usage, incoming messages, outgoing messages, incoming bytes, and outgoing bytes data for a specific message router.
- "Message Router Capacity Trends" on page 1049: View the message router capacity data for a specific message router in a trend graph format.

All Message Router Capacity

This display allows you to view the message router capacity data for all message routers in a table format. You can view client, spool usage, incoming message, outgoing message, incoming bytes, and outgoing bytes data for the message router. Double-click a row to drill-down and investigate in the "Message Router Capacity" display.





Message Router Capacity

This display, a pivoted view of the **All Message Routers Capacity** table, allows you to view the message router capacity data for a specific message router. You can view client, spool usage, incoming message, outgoing message, incoming bytes, and outgoing bytes data for the message router.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

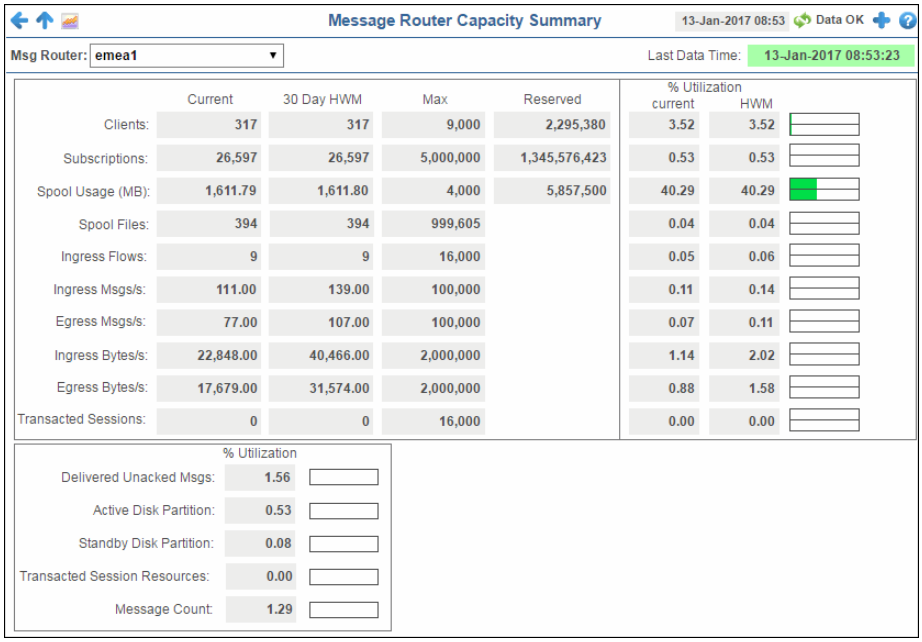
[X] A message router is expired when the drop-down menu name is appended with **[X]**.

- When the display background color is light red the data is stale.
- The **Last Data Time** | Last Data Time: 15-Aug-2016 14:34:00 | shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

● (Green) the selected message router is connected and receiving data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking the **Capacity Trends** button displays the message router's capacity metrics in the "Message Router Capacity Trends" display.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to view data.

Last Data Time

The date and time the selected message router was last updated.
● Red indicates the selected message router is offline or expired.
● Green indicates the selected message router is connected and receiving data.

Fields and Data:

Count The total number of message routers listed in the table.

Clients	**Current**	The current number of clients connected to the message router.
	30 Day HWM	The highest number of clients connected to the message router on a particular day in the past 30 days.
	Max	The maximum number of clients allowed to connect to the message router.
	Reserved	The sum over all VPNs of connections allowed for each VPN.
	% Utilization	**Current**: The number of current clients divided by the maximum number of clients. **HWM**: The highest utilization level in the last 30 days (in percent).
Subscriptions	**Current**	The current number of subscriptions on the message router.
	30 Day HWM	The highest number of subscriptions on the message router on a particular day in the past 30 days.
	Max	The maximum number of subscriptions allowed on the message router.
	Reserved	The sum over all VPNs of connections allowed for each VPN.
	% Utilization	**Current**: The number of current subscriptions divided by the maximum number of subscriptions. **HWM**: The highest utilization level in the last 30 days (in percent).
Spool Usage (MB)	**Current**	The current spool usage, in megabytes, on the message router.
	30 Day HWM	The most megabytes used by messages spools on the message router on a particular day in the past 30 days.
	Max	The maximum number of megabytes allowed to be used by message spools on the message router.
	Reserved	The sum over all VPNs of connections allowed for each VPN.
	% Utilization	**Current**: The current spool usage in megabytes divided by the maximum allowed spool usage on the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Spool Files	**Current**	The current number of spool files on the message router.
	30 Day HWM	The highest number of spool files on the message router on a particular day in the past 30 days.
	Max	The maximum number of spool files allowed to be on the message router.
	% Utilization	**Current**: The current number of spool files divided by the maximum number of spool files allowed on the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Ingress Flows	**Current**	The current number of flows coming into the message router.
	30 Day HWM	The highest number of flows coming into the message router on a particular day in the past 30 days.
	Max	The maximum number of incoming flows allowed to come into the message router.

	% Utilization	**Current**: The current number of flows divided by the maximum number of flows allowed to come into the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Ingress Msgs/s	**Current**	The current number of messages coming into the message router per second.
	30 Day HWM	The highest number of messages coming into the message router per second on a particular day in the past 30 days.
	Max	The maximum number of messages (per second) allowed to come into the message router.
	% Utilization	**Current**: The current number of incoming messages divided by the maximum number of messages allowed to come into the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Egress Msgs/s	**Current**	The current number of messages going out of the message router per second.
	30 Day HWM	The highest number of messages going out of the message router per second on a particular day in the past 30 days.
	Max	The maximum number of messages (per second) allowed to go out of the message router.
	% Utilization	**Current**: The current number of outgoing messages divided by the maximum number of messages allowed go out of the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Ingress Bytes/s	**Current**	The current number of bytes coming into the message router per second.
	30 Day HWM	The highest number of bytes coming into the message router per second on a particular day in the past 30 days.
	Max	The maximum number of bytes (per second) allowed to come into the message router.
	% Utilization	**Current**: The current number of incoming bytes divided by the maximum number of bytes allowed to come into the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Egress Bytes/s	**Current**	The current number of bytes going out of the message router per second.
	30 Day HWM	The highest number of bytes going out of the message router per second on a particular day in the past 30 days.
	Max	The maximum number of bytes (per second) allowed to go out of the message router.
	% Utilization	**Current**: The current number of outgoing bytes divided by the maximum number of bytes allowed go out of the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Transacted Sessions	**Current**	The current number of transacted sessions on the message router.
	30 Day HWM	The highest number of transacted sessions on the message router on a particular day in the past 30 days.

	Max	The maximum number of incoming transacted sessions allowed on the message router.
	% Utilization	**Current**: The current number of transacted sessions divided by the maximum number of transacted sessions allowed on the message router. **HWM**: The highest utilization level in the last 30 days (in percent).
Delivered Unacked Msgs	**% Utilization**	The current number of delivered messages that were not acknowledged divided by the maximum number of delivered messages that were not acknowledged allowed on the message router.
Active Disk Partition	**% Utilization**	The percentage of available active disk partition that has been used.
Standby Disk Partition	**% Utilization**	The percentage of available standby disk partition that has been used.
Transacted Session Resource	**% Utilization**	The current amount of transacted session resources divided by the maximum number of transaction session resources allowed on the message router.
Message Count	**% Utilization**	The current number messages divided by the maximum number of messages allowed on the message router.

Message Router Capacity Trends

This display allows you to view the message router capacity data for a specific message router in a trend graph format. You can view client, spool usage, incoming message, outgoing message, incoming bytes, and outgoing bytes data for the message router.

Data Quality Indicators:

[?] A message router is disconnected when the drop-down menu name is appended with **[?]**.

[X] A message router is expired when the drop-down menu name is appended with **[X]**.

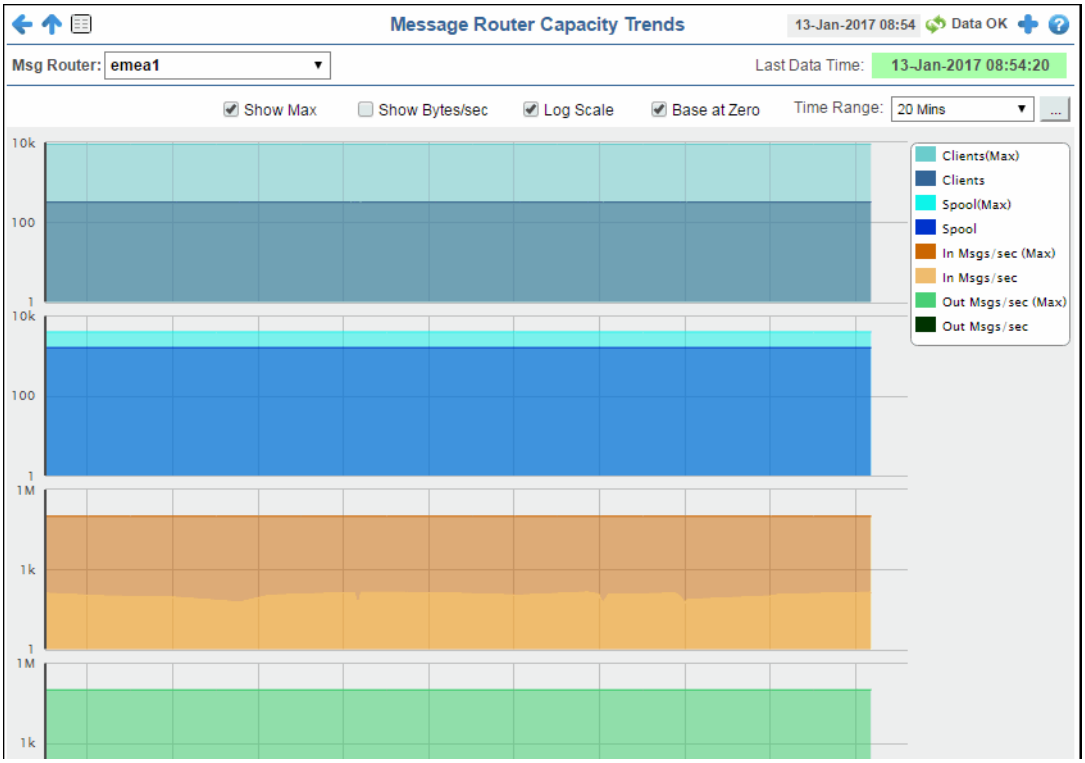
- When the display background color is light red the data is stale.
- The **Last Data Time** 

shows the date and time the selected message router was last updated.

If the **Last Data Time** background is:

(Red) the selected message router is offline or expired.

(Green) the selected message router is connected and receiving data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Msg Router: Select the message router for which you want to view data.

Last Data Time

Last Data Time: 15-Aug-2016 14:34:00

The date and time the selected message router was last updated.
Red indicates the selected message router is offline or expired.
Green indicates the selected message router is connected and receiving data.

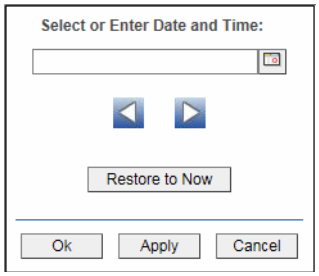
Trend Graphs
Traces the sum of process metrics for the selected message router.

- **Clients (HWM)**: The highest number of clients connected to the message router on a particular day in the past 30 days.
- **Clients (Max):** The maximum number of clients allowed to connect to the message router. This option only displays when the **Show Max** check box is selected.
- **Clients**: The current number of clients connected to the message router.
- **Spool (HWM)**: The most megabytes used by messages spools on the message router on a particular day in the past 30 days.
- **Spool (Max):** The maximum number of megabytes allowed to be used by message spools on the message router. This option only displays when the **Show Max** check box is selected.
- **Spool**: The current spool usage, in megabytes, on the message router.
- **In Msgs/sec (HWM)**: The current number of messages coming into the message router per second.
- **In Msgs/sec (Max):** The maximum number of messages (per second) allowed to come into the message router. This option only displays when the **Show Max** check box is selected.
- **In Msgs/sec**: The rate of incoming messages into the client.
- **In Bytes/sec (HWM):**The highest number of bytes coming into the message router per second on a particular day in the past 30 days. This option only displays when the **Show Bytes/sec** check box is selected.
- **In Bytes/sec (Max):** The maximum number of bytes (per second) allowed to come into the message router. This option only displays when the **Show Max** and **Show Bytes/sec** check boxes are selected.
- **In Bytes/sec:** The current number of bytes coming into the message router per second. This option only displays when the **Show Bytes/sec** check box is selected.
- **Out Msgs/sec (HWM)**: The highest number of messages going out of the message router per second on a particular day in the past 30 days.
- **Out Msgs/sec (Max)**: The maximum number of messages (per second) allowed to go out of the message router. This option only displays when the **Show Max** check box is selected.
- **Out Msgs/sec**: The current number of messages going out of the message router per second.
- **Out Bytes/sec (HWM)**: The highest number of bytes going out of the message router per second on a particular day in the past 30 days. This option only displays when the **Show Bytes/sec** check box is selected.
- **Out Bytes/sec (Max):** The maximum number of messages allowed to go out of the message router. This option only displays when the **Show Max** and **Show Bytes/sec** check boxes are selected.
- **Out Bytes/sec**: The current number of bytes going out of the message router per second. This option only displays when the **Show Bytes/sec** check box is selected.

Show Max	Selecting this toggle changes metrics using **HWM** (high water mark) to **Max** (maximum value). For example, **Clients (HWM)** becomes **Clients (Max)** and the values in the graph are updated accordingly.
Show Bytes/sec	Selecting this toggle changes metrics using **Messages/sec** to **Bytes/sec**. For example, **In Msgs/sec** becomes **In Bytes/sec** and the values in the graph are updated accordingly.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Syslog

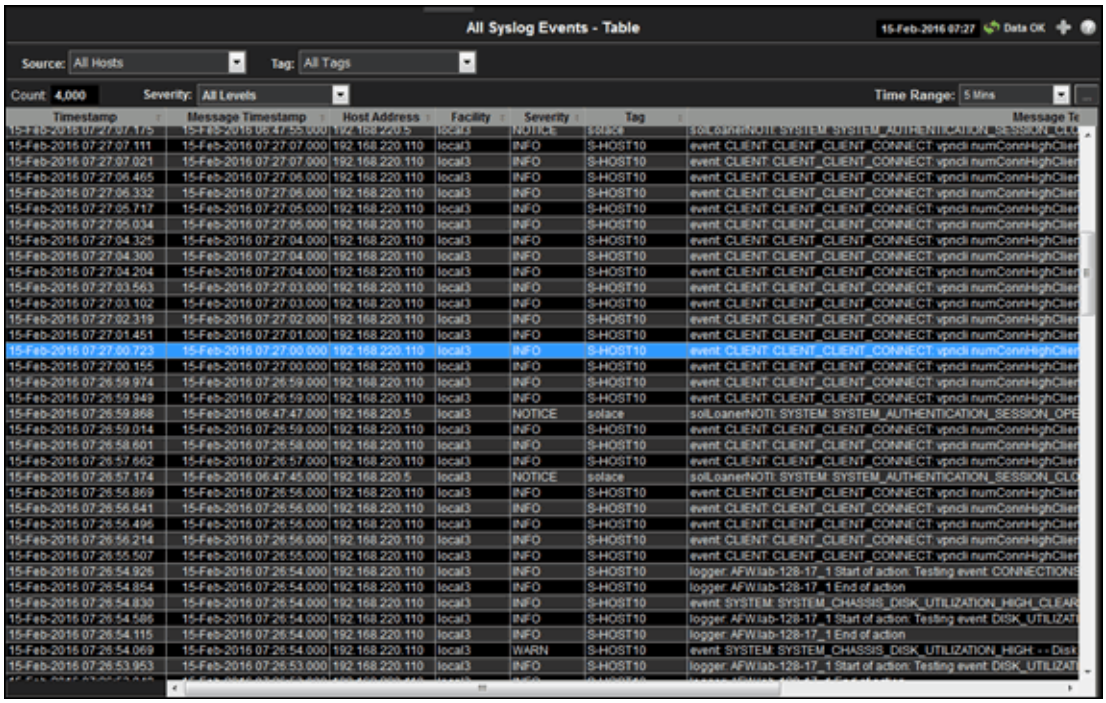
The display in this View provides a tabular list of all Syslog events:

- "All Syslog Events Table" on page 1052: View all Syslog events for all your Solace message routers.

All Syslog Events Table

This table lists all Syslog events collected from one or all Solace message routers. Each row in the table is a different message. Filter messages per single Solace message router or all message routers (choose **All Hosts** from the **Source** drop-down menu), a single tag or **All Tags**, a single severity level or all levels (choose **All Levels** from the **Severity** drop-down menu), and specify a **Time Range**.

Click a column header to sort column data in numerical, alphabetical or chronological order.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

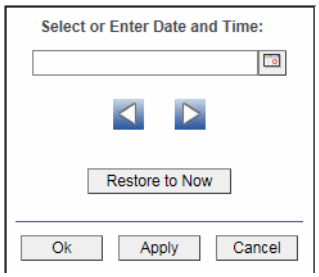
Open the **Alert Views - RTView Alerts Table** display.

Source: Select the host for which you want to view data, or **All Hosts**.

Tag: Select the message tag for which you want to view data, or **All Tags**.

Severity: Select the message severity level for which you want to view data, or **All Levels**.

Time Range: Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ....



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Timestamp The date and time the row data was last updated.

Message Timestamp The date and time the message was sent.

Host Address The host IP address. Refer to Solace documentation for more information.

Facility The message facility code. Refer to Solace documentation for more information.

Severity The message severity level. Refer to Solace documentation for more information.

- **INFO**
- **NOTICE**
- **NOTICE or higher**
- **WARN**
- **WARN or higher**
- **ERROR**
- **ERROR or higher**
- **CRITICAL**
- **ALERT**
- **EMERGENCY**

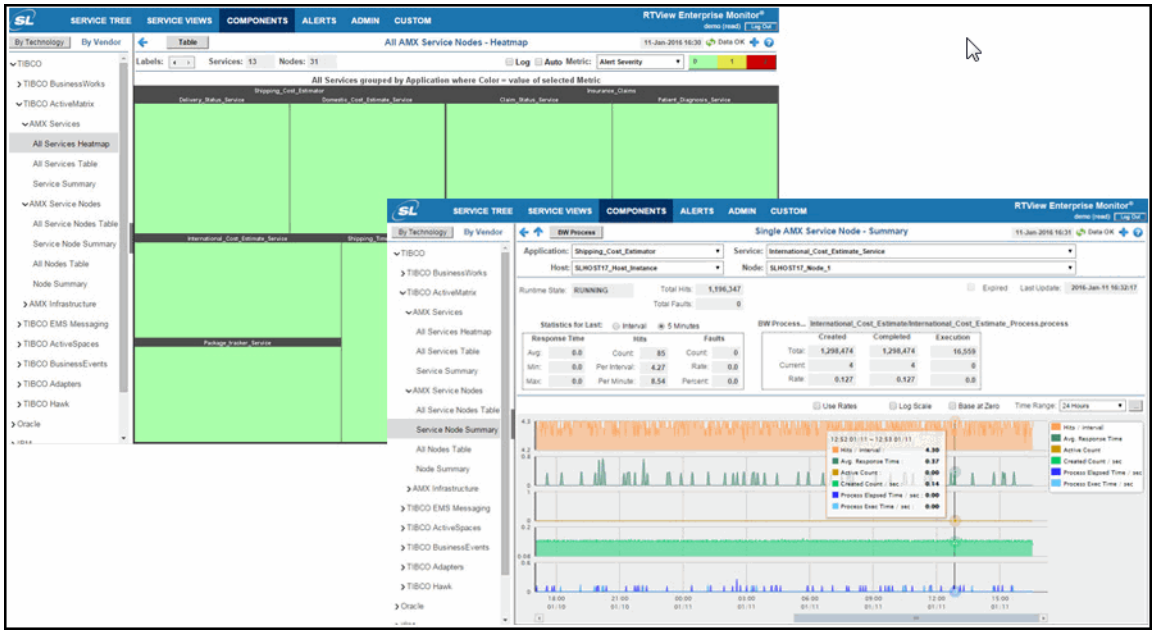
Tag The host name. Refer to Solace documentation for more information.

Message Text The content of the message.

CHAPTER 24 Solution Package for TIBCO ActiveMatrix

RTView Enterprise Monitor® and the Solution Package for TIBCO ActiveMatrix give you unprecedented power to:

- Monitor health and stability of your TIBCO ActiveMatrix servicese
- Maximize performance of your mission-critical applications
- Minimize downtime and speed recovery time in the event of a system failure



This chapter includes:

Product Overview

It has never been easier to:

- Discover all your ActiveMatrix services, automatically

RTView dynamically discovers all known AMX services by synching with TIBCO ActiveMatrix Administrator to ensure you always have the latest information.

- Populate pre-built dashboards using preset alert thresholds

RTView provides a number of pre-configured dashboards including customizable heat maps, tables and individual summaries out-of-the-box. TIBCO ActiveMatrix Service Package also provides a number of pre-set alert thresholds based on our best practices experience so that you can hit the ground running.

- Dynamically correlate relationships of applications, services and nodes with their supporting infrastructure components

RTView dynamically correlates the relationship of applications, services and nodes with their supporting infrastructure components so that you drill-down from the application level health views as well as correlate how alerts from lower level components will affect application performance.

- View aggregated and side-by-side health status of clustered nodes on one pane of glass

RTView dynamically groups together related "clusters" of load-balanced nodes so that you can summarize the health of the entire cluster as well as view all member nodes side-by-side to ensure that work is evenly balanced across the cluster and easily identify any hotspots.

- Apply alert thresholds. Globally

Instead of configuring alert thresholds one node or service at a time, RTView allows you to apply global alert thresholds to groups of services in one step, providing significantly better ease of use when configuring monitoring across a large group of TIBCO ActiveMatrix nodes and services.

- View real-time and historical data together to identify trends and spot abnormal behavior

RTView gives you the ability to intelligently capture, store and visualize time-stamped snapshots of performance data and alerts, allowing you to spot trends and add context to your real-time performance data. Now you can answer questions such as "is my traffic (or hit rate) always this high for this time of day?", "are my response times speeding up or slowing down over time?", or "am I seeing more faults today than I normally do?"

- Introspect TIBCO BusinessWorks processes when running in ActiveMatrix container

When used in conjunction with the TIBCO BusinessWorks Solution Package, RTView can give you additional insight into the performance of your BusinessWorks services running in an ActiveMatrix container by letting you drill-down into the TIBCO BusinessWorks monitor for more detailed information.

- Built Using Native TIBCO Technologies

SL Corporation has been developing TIBCO monitoring solutions since 2002. We know TIBCO technology better than anyone. TIBCO ActiveMatrix Monitor leverages TIBCO's Hawk agents, which are already built into the TIBCO platform, to subscribe to relevant health publications in real-time and create advanced visualizations to help you be more responsive.

See **README_sysreq.txt** for the full system requirements for RTView®.

Configuration Parameters You Need

To configure the Solution Package for TIBCO ActiveMatrix make a note of the following values: values:

- **PackageName=amxmon**
- **ServerDirectory**=**amxmon**
- **AlertPrefix**=**Amx**

Configure Data Collection

This section describes how to configure TIBCO ActiveMatrix so that you can collect the desired metrics, how to configure TIBCO Hawk so that you can collect TIBCO Hawk metrics, how to verify that TIBCO ActiveMatrix BusinessWorks (Version 5) Processes metrics are being collected, and how to modify default settings for the collection of TIBCO ActiveMatrix historical data.

This section includes:

Configuring Hawk for TIBCO ActiveMatrix

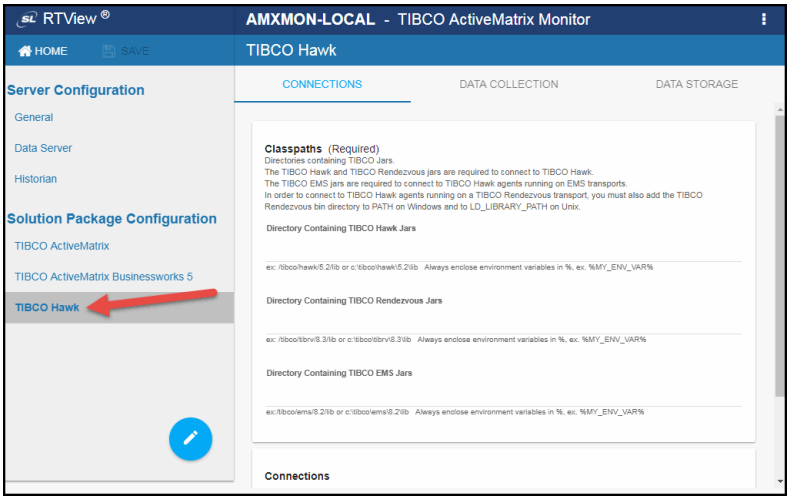
Some TIBCO ActiveMatrix metrics are derived from TIBCO Hawk Microagents installed by the TIBCO ActiveMatrix plugin. To collect these metrics, you must configure TIBCO Hawk. This section includes:

Configuring Data Collection for Hawk

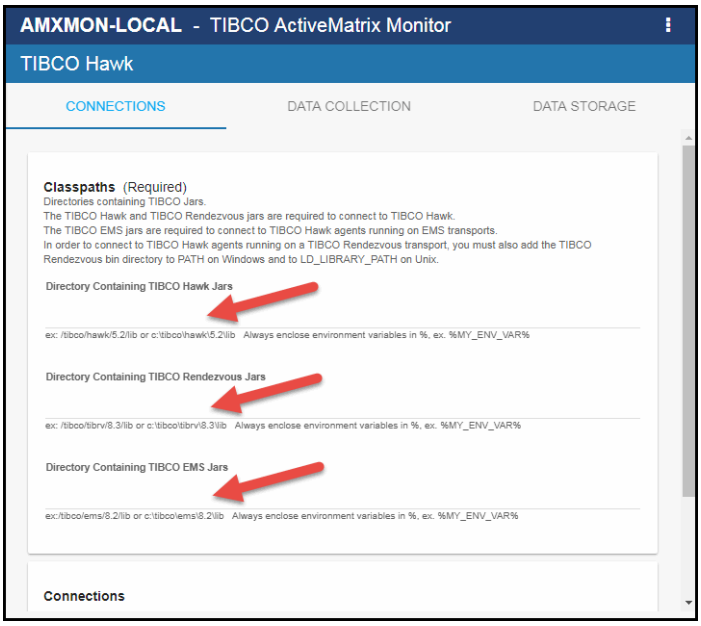
Perform the following steps to configure Hawk:

Note: Only the **Classpath** and **Connections** regions on the **CONNECTIONS** tab need to be set up for TIBCO ActiveMatrix. The default settings on the **DATA COLLECTION** and **DATA STORAGE** tabs do not need to be modified.

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO Hawk** > **CONNECTIONS** tab.



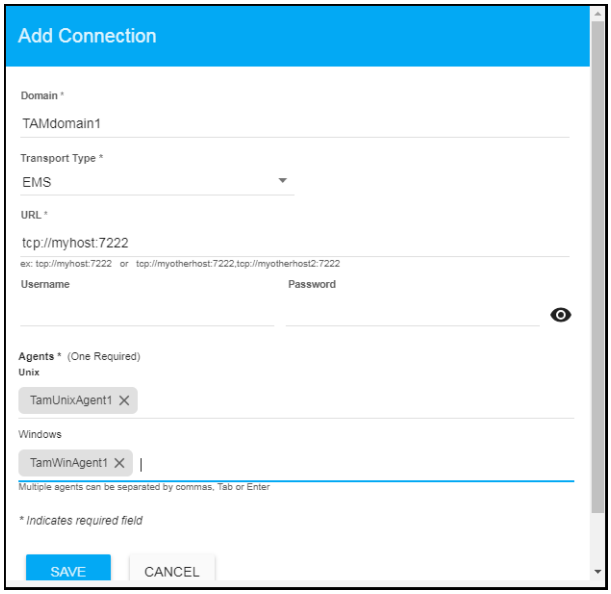
2. In the **CONNECTIONS** tab, specify the classpaths for the TIBCO Hawk jar files, the TIBCO Rendezvous jar files, and the TIBCO EMS jar files.



3. Click the + icon.

The **Add Connection** dialog displays.

4. For TIBCO Hawk domains running on **EMS** transports, specify the connection information and click **SAVE** where:



Domain: Enter the name of the domain.

Transport Type: Select **EMS** from this drop down list.

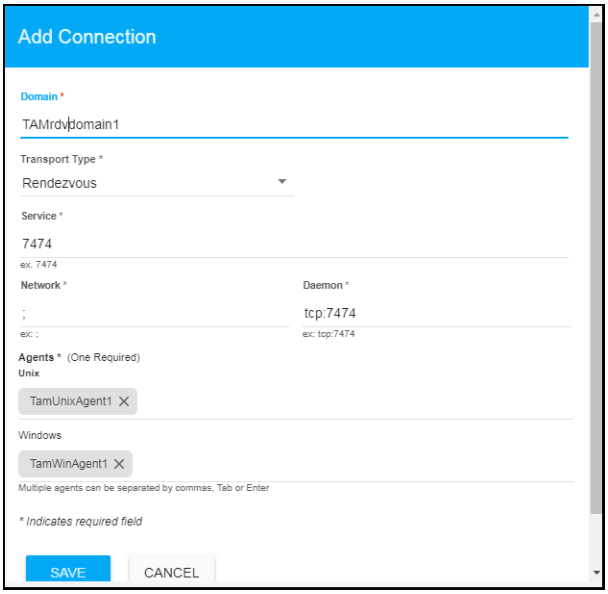
URL: Enter the complete URL for the EMS connection.

Username: The username is used when creating the EMS connection. This field is optional.

Password: This password is used when creating the EMS connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Agents: Enter the associated Unix/Windows agents. The agent name displays in the field after entering the name and typing a comma or by clicking the Tab or Enter key. You can enter more than one agent in the fields. Once the agent is specified, you can delete the agent by clicking the **X** next to their name.

For TIBCO Hawk domains running on **Rendezvous** transports, specify the connection information and click **SAVE** where:



Domain: Enter the name of the domain.

Transport Type: Select **Rendezvous** from this drop down list.

Service: Enter the Service for the Rendezvous connection.

Network: Enter the Network for the Rendezvous connection.

Daemon: Enter the Daemon for the Rendezvous connection.

Agents: Enter the associated Unix/Windows agents. The agent name displays in the field after entering the name and typing a comma or by clicking the Tab or Enter key. You can enter more than one agent in the fields. Once the agent is specified, you can delete the agent by clicking the **X** next to their name.

Note: After you complete these configuration steps and start the RTView Data Server, you can verify your Hawk configuration by viewing the **dataserver.log** file, located in the **logs** directory.

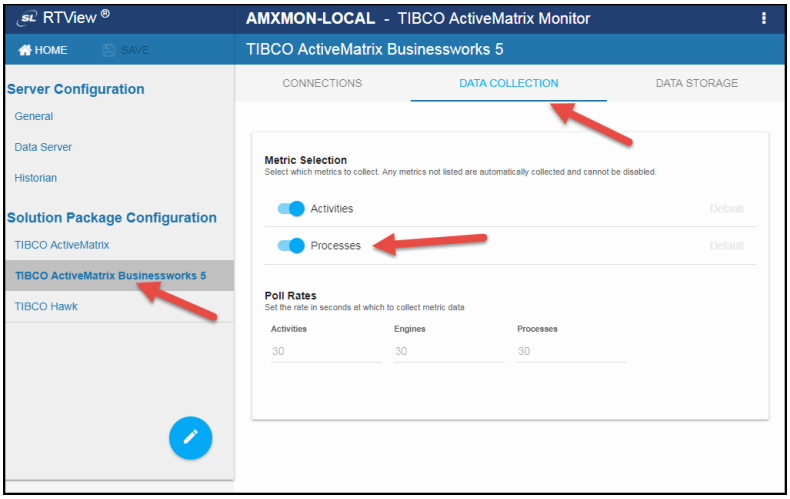
---

5. **SAVE** your changes in the RTView Configuration Application (upper left-hand corner), and then stop and restart your project using the **RESTART DATASERVER** button in the upper right-hand corner.

Verifying BW5 Processes Metrics are Collected

If your TIBCO ActiveMatrix configuration includes TIBCO ActiveMatrix BusinessWorks 5 engines, you need to verify that TIBCO ActiveMatrix BusinessWorks 5 processes are enabled so that you can collect metrics for the BW5 engines. To verify TIBCO ActiveMatrix BusinessWorks 5 processes are enabled:

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix BusinessWorks 5** > **DATA COLLECTION** tab.



2. Verify that the Processes toggle is enabled (blue for enabled, gray for disabled).

3. **SAVE** your changes and restart the data server to enable your changes.

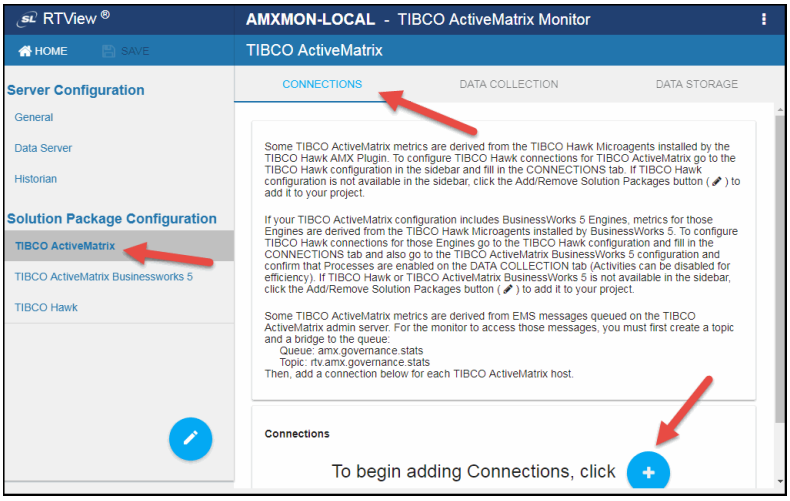
Configuring Data Collection for TIBCO ActiveMatrix

This section describes the steps required to create a connection to a TIBCO ActiveMatrix host.

Note: Some TIBCO ActiveMatrix metrics are derived from EMS messages queued on the TIBCO ActiveMatrix Admin server and, in order to access those messages, you must create a topic and a bridge to the queue in TIBCO ActiveMatrix and then create a connection (as described in the steps below) for each TIBCO ActiveMatrix host.

- Queue: amx.governance.stats
- Topic: rtv.amx.governance.stats

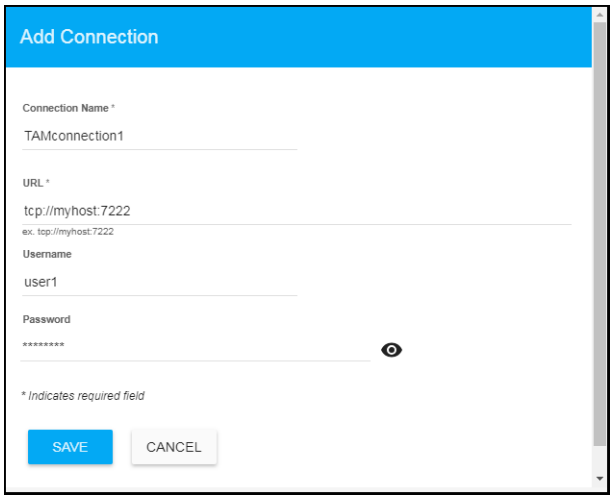
1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **CONNECTIONS** tab.



2. Click the + icon.

The **Add Connection** dialog displays.

3. Specify the connection information and click **SAVE** where:



Connection Name: Enter the name of the connection.

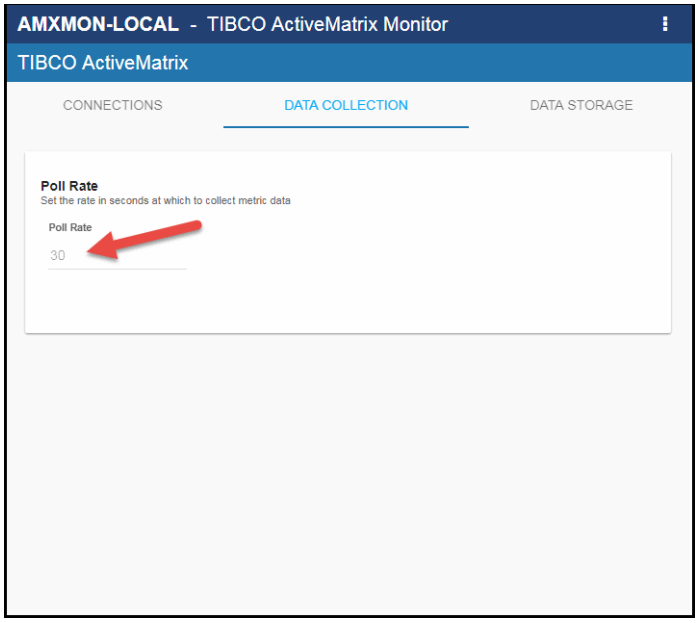
URL: Enter the complete URL for the connection.

Username: The username is used when creating the connection. This field is optional.

Password: This password is used when creating the connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

4. If you want to modify the default values for the update rates for the TIBCO ActiveMatrix caches, you can update the default polling rates in RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **DATA COLLECTION** > **Poll Rates**.

Modify the value for the **Poll Rate** field to modify the default polling rate for the _AmxNodeInfo, _AmxNodeComponentstats, _AmxNodeBindingstats, _AmxNodeComponents, _AmxServiceNodes caches.



Configuring Historical Data Collection for TIBCO ActiveMatrix

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

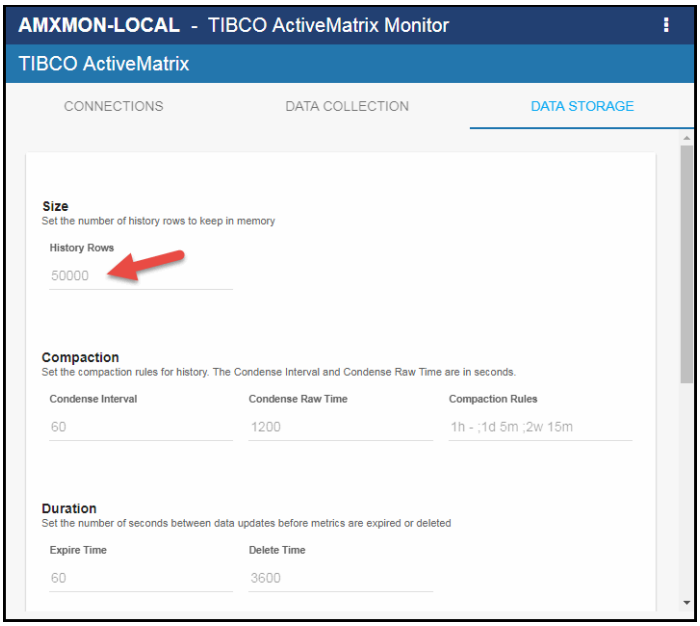
- "Defining the Storage of In Memory AMXMON History"
- "Defining Compaction Rules for AMXMON"
- "Defining Expiration and Deletion Duration for AMXMON Metrics"
- "Enabling/Disabling Storage of AMXMON Historical Data"
- "Defining a Prefix for All History Table Names for AMXMON Metrics"

Defining the Storage of In Memory AMXMON History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the AmxNodes, AmxBwProcessTotalsByService, AmxServices, and AmxServiceTotals caches. To update the default settings:

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



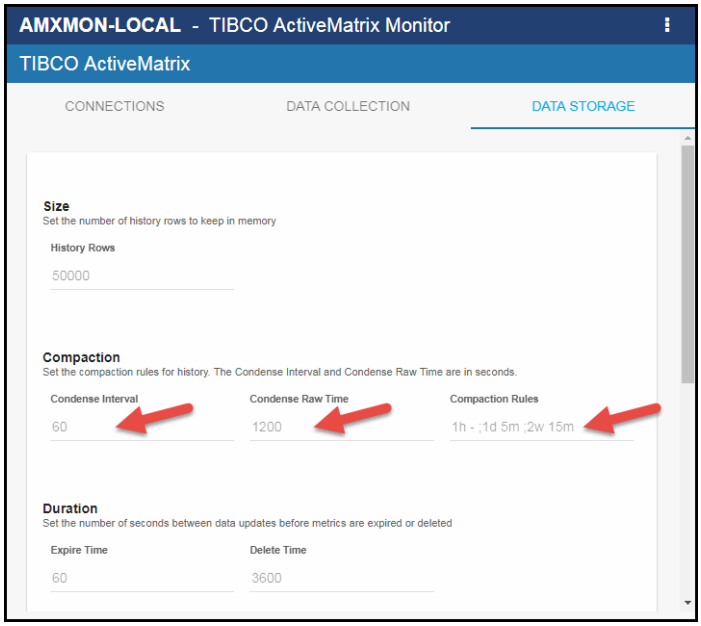
Defining Compaction Rules for AMXMON

Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed. The default is 60 seconds. The following caches are impacted by this setting: AmxNodes, AmxBwProcessTotalsByService, AmxServices, and AmxServiceTotals.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table. The default is 1200 seconds. The following caches are impacted by this setting: AmxNodes, AmxBwProcessTotalsByService, AmxServices, and AmxServiceTotals.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). The following caches are impacted by this setting: AmxNodes, AmxBwProcessTotalsByService, AmxServices, and AmxServiceTotals.

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

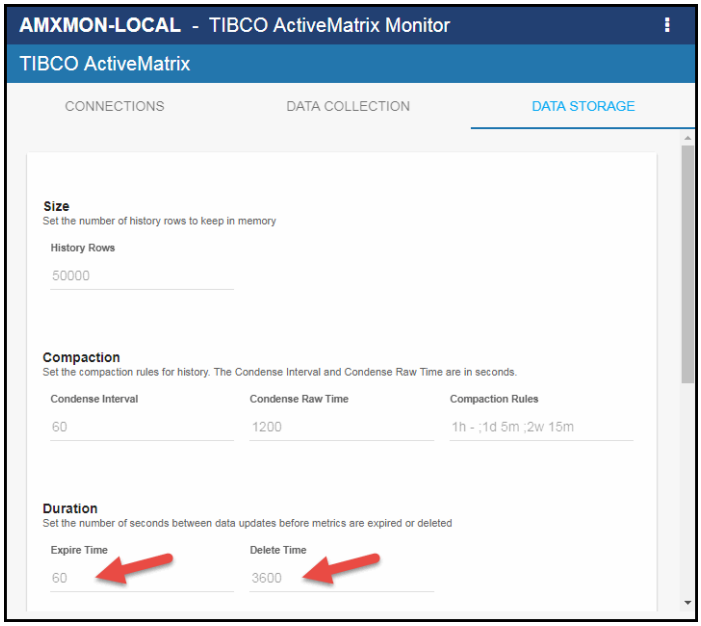


Defining Expiration and Deletion Duration for AMXMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. The **Expire Time** field, which sets the expire time for the AmxNodes, _AmxServiceNodes, and _AmxServices caches, defaults to 75 seconds. The **Delete Time**, which sets the delete time for the _AmxServiceNodes and _AmxServices caches, defaults to 3600 seconds. To modify these defaults:

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

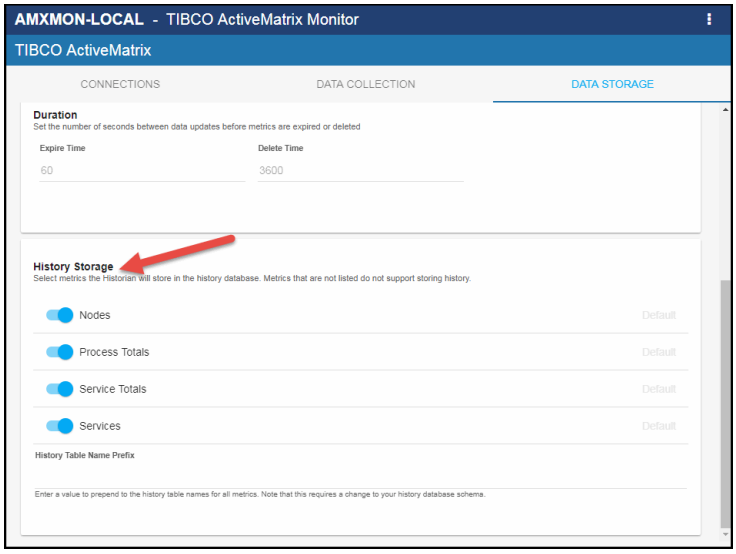


Enabling/Disabling Storage of AMXMON Historical Data

The **History Storage** region allows you to select which metrics you want the Historian to store in the history database. By default, all TIBCO ActiveMatrix historical data is saved to the database. To enable/disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggles for the various metrics that you want to collect/deselect for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for AMXMON Metrics

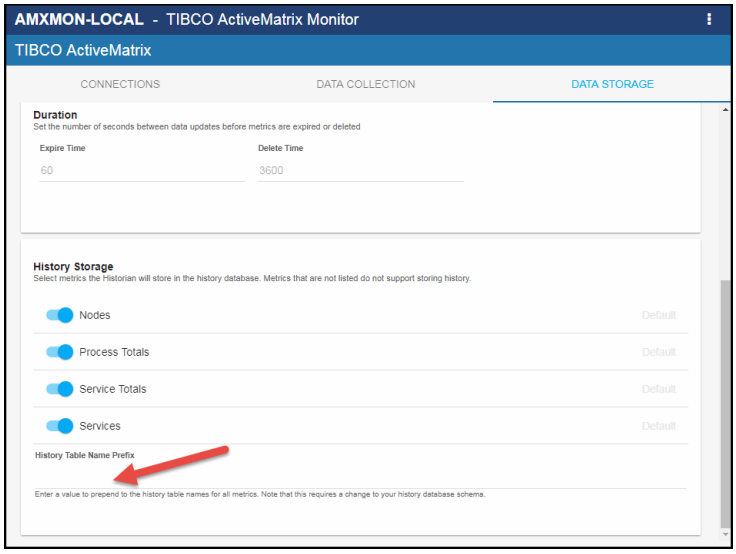
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**amxmon**/**dbconfig** and make a copy of it
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template
- Use the copied .sql template to create the tables in your database

To add the prefix:

1. Navigate to the RTView Configuration Application > **(Project Name/AMXMON-LOCAL)** > **Solution Package Configuration** > **TIBCO ActiveMatrix** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/amxmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/amxmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **AMXMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "AMXMON." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

CHAPTER 25 Solution Package for TIBCO ActiveMatrix Businessworks

The Solution Package for TIBCO ActiveMatrix BusinessWorks™ takes the time and guesswork out of monitoring and troubleshooting TIBCO ActiveMatrix BusinessWorks System deployments, providing a centralized view of both realtime and historical performance metrics across numerous ActiveMatrix BusinessWorks Servers.

The Solution Package for TIBCO ActiveMatrix BusinessWorks™ enables TIBCO users to continually assess and analyze the health and performance of their TIBCO ActiveMatrix BusinessWorks infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their ActiveMatrix BusinessWorks servers. It does so by aggregating and analyzing key performance metrics across all servers, engines, processes and activities, and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined rules and alerts that pin-point critical areas to monitor in most ActiveMatrix BusinessWorks environments and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Solution Package for TIBCO ActiveMatrix BusinessWorks™ also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

This section describes how to install, configure and setup the Solution Package for TIBCO ActiveMatrix BusinessWorks™.

See **README_sysreq.txt** for the full system requirements.

For Linux, these instructions require a BASH-compatible shell.

This document assumes you created a project directory, **rtvapm_projects**, when you installed RTView Enterprise Monitor. All examples (of configurations, property settings, command execution and so forth) refer to the project directory. The Solution Package configuration files which you modify are located in the **rtvapm_projects/emsample/servers/bwmon** folder.

This section includes:

Enabling Monitoring in TIBCO ActiveMatrix BusinessWorks

Some setup is required in TIBCO ActiveMatrix BusinessWorks Versions 5 and 6 to enable monitoring. For Version 6, there are two options: You can either install the OSGI plugin in every AppSpace you want to monitor, or you can enable the TIBCO Hawk MicroAgent in each AppSpace you want to monitor. Monitoring via the OSGI plugin is recommended for better performance and reliability.

For Version 5, monitoring must be done via TIBCO Hawk, which is enabled by default, but you also need to install the RTViewBWAgent plug-in microagent. If you enable JMX monitoring, you can access additional data such as CPU and Memory data. For BWSE engines, additional setup is needed to allow access to AMX Node data.

This section contains:

Enable Monitoring via OSGi Plugin for Version 6

This section describes the "Prerequisites" and steps required to install the RTView OSGI (Open Service Gateway Initiative) BusinessWorks plugin into "RTView TIBCO ActiveMatrix BusinessWorks", "Docker", and "Cloud Foundry".

Prerequisites

BW 6.3.4

BWCE 2.2.0

RTVAPM X.X

RTView TIBCO ActiveMatrix BusinessWorks

Note: When upgrading to a new version of the OSGi plugin jar, make sure to delete the contents of the AppNode config directory (**$TIBCO_HOME/bw/<version>/domains/<domain>/appnodes/<appspace>/<appnode>/config**) for each AppNode in the AppSpace. If you do not remove the existing contents, the plugin might not function properly.

To enable the plugin in RTView® TIBCO® ActiveMatrix BusinessWorks™, perform the following:

1. Stop all AppSpaces that are to be monitored and stop the bwagent, if running.
2. Copy the plugin to **$TIBCO_HOME/bw/<version>/system/shared**.

3. Start the bwagent. Do not start the AppNode(s) or AppSpace(s) yet.

Note: Continue to step 4 if you want to modify the default property values. You may skip steps 4-7 entirely if you want to use the default property values.

---

4. Navigate to the system config folder: **$TIBCO_HOME/bw/<version>/config/**

5. Copy the **appspace_config.ini_template** file to a temporary file.

6. Edit the temporary file and set the properties below as needed.

Available Properties	Default Value
sl.rtview.rtvagent.name	updater
sl.rtview.rtvagent.target	localhost:3372
sl.rtview.rtvagent.update	10 (seconds)
sl.rtview.bw.activities.enabled	false

7. Use the **bwadmin config** command to push the configuration to the AppSpace:

```
bwadmin config -d <domain> -cf <temporary-file> appspace <appspace>
```

8. (Optional) For any AppNode, to see plugin output (INFO or TRACE) in the **bwappnode.log** file, add the following to the "user properties" section of the **logback.xml** file (**$TIBCO_HOME/bw/<version>/domains/<domain>/appnodes/<appspace>/<appnode>/logback.xml**):

```
<logger name="com.sl.rtvapm.osgi">
<level value="INFO"/>
</logger>
```

Note: When debugging the behavior of the plugin, it is recommended to set level value to "TRACE."

---

9. Restart the AppSpace(s).

10. Repeat steps 6-9 for every AppSpace to be monitored.

Docker

To enable the plugin in Docker, perform the following:

1. Download **bwce_cf.zip** from TIBCO (for example, save the file to the **/opt** directory).

```
cd /opt/tibco/bwce/2.2/docker
cp /opt/bwce_cf.zip ./resources/bwce-runtime
```

2. Build the image

```
docker build -t tibco/bwce:latest .
```

3. Add the RTView OSGi plugin to your application by copying the application archive (**tibco.bwce.sample.BookStore.ear**, for example) and the plugin jar (**com.sl.rtvapm.osgi.jar**) to your project directory.

4. Create a Docker file containing:

```
FROM tibco/bwce:latest
MAINTAINER Tibco
ADD tibco.bwce.sample.BookStore.ear /
RUN mkdir -p /resources/addons/jars
ADD com.sl.rtvapm.osgi.jar /resources/addons/jars
EXPOSE 8080
```

5. Build the application:

```
docker build -t tibco/bookstore:latest .
```

6. Configure the plugin via Java system properties, **BW_JAVA_OPTS**, and the Docker run command, for example:

```
OPTS="-Dsl.rtview.rtvagent.target=localhost:3372 \
-Dsl.rtview.rtvagent.name=updater \
-Dsl.rtview.bw.domain=Containers \
-Dsl.rtview.bw.appspace=Docker \
-Dsl.rtview.bw.appnode=docker-1"

docker run -i \
-e ... \
-e BW_JAVA_OPTS="$OPTS" \
-e ... \
tibco/bookstore:latest
```

Available Properties	Default Value
sl.rtview.rtvagent.name	updater
sl.rtview.rtvagent.target	localhost:3372
sl.rtview.rtvagent.update	10 (seconds)
sl.rtview.rtvagent.class	SL-BW6OSGI-Agent
sl.rtview.bw.activities.enabled	false
sl.rtview.bw.domain	<system default>
sl.rtview.bw.appspace	<system default>
sl.rtview.bw.appnode	<system default>

Note: If you choose not to supply values for the **sl.rtview.bw.domain**, **sl.rtview.bw.appspace**, and **sl.rtview.bw.appnode** properties, then unique names will be created for appspace and appnode, and each container will appear as a standalone application with a single appnode. If you supply specific names, then your containers will appear in the displays as if they were appnodes in an appspace, and if they are instances of the same application, their metrics will be summed for the application as if it were

deployed to the appspace. In summary, you may configure your containers to run as if they were appnodes in an appspace; or else they will run such that each is a unique appnode and application.

7. The plugin logs to the console at levels INFO and TRACE. You can set the log level for all packages with **BW_LOGLEVEL**, and so on.

```
-e BW_LOGLEVEL=INFO
```

Cloud Foundry

To enable the plugin in Cloud Foundry, perform the following:

1. Download the **bwce-buildpack_cf-v2.2.0.18.zip** file from TIBCO.
2. Insert the plugin jar into the zip file at **/resources/addons/jars**.
3. Upload the buildpack to your cloud. For example:

   cf create-buildpack bw-buildpack bwce-buildpack_cf-v2.2.0.18.zip 1

4. Configure the plugin via Java system properties and **BW_JAVA_OPTS** in the **manifest.yml** file. For example:

```
. . .
env:
   . . .
   BW_JAVA_OPTS: '-Dsl.rtview.rtvagent.target=hostyy:3372 -
   Dsl.rtview.rtvagent.name=hostxx -Dsl.rtview.bw.domain=BW6 -
   Dsl.rtview.bw.appspace=PCF -Dsl.rtview.bw.appnode=pcf'
. . .
```

Available Properties	Default Value
sl.rtview.rtvagent.name	updater
sl.rtview.rtvagent.target	localhost:3372
sl.rtview.rtvagent.update	10 (seconds)
sl.rtview.rtvagent.class	SL-BW6OSGI-Agent
sl.rtview.bw.activities.enabled	false
sl.rtview.bw.domain	<system default>
sl.rtview.bw.appspace	<system default>
sl.rtview.bw.appnode	<system default>

5. Push the application.

Enable Monitoring via TIBCO Hawk for Versions 5 and 6

See the appropriate instructions:

- "ActiveMatrix BusinessWorks Version 6"

ActiveMatrix BusinessWorks Version 6

Perform these instructions if you are monitoring ActiveMatrix BusinessWorks version 6:

1. Enable your applications for statistics collection. You can do this using the TIBCO BusinessWorks administrator CLI with commands such as:

   bwadmin enablestats -d MyDomain -a MyAppSpace process MyAppName MyAppVersion

   Repeat for each application you wish to monitor.

2. Enable the Hawk MicroAgent in your AppNodes for each AppSpace you wish to monitor. Refer to the **Enabling TIBCO Hawk MicroAgent** section of the *TIBCO BusinessWorks6 Administration Guide*.

ActiveMatrix BusinessWorks Version 5

This section is for ActiveMatrix BusinessWorks Version 5 users.

Note: This section does not apply if all your engines are deployed as BusinessWorks Service Engines (BWSE).

Install the RTViewBWAgent plug-in microagent in the Hawk Agent for each domain you have configured to communicate with the Monitor.

RTViewBWAgent detects deployed engines and gets their maximum heap size metrics when the Hawk agent is started. If RTViewBWAgent is not installed, deployed engines are not detected until they have been started and report data to the Monitor. When live data is received the engine is added and its **Status** is set to **LIMITED**. The **Status** remains **LIMITED** because, although live data metrics are available, the deployment and maximum heap size metrics are still unavailable.

Note: After installation, you can use the Hawk Display to view the RTViewBWAgent microagent and invoke its methods: GetBWDeploymentNames and GetBWDeploymentMaxHeapSizes.

You can also configure the agent to detect deployed engines and make data updates at more frequent, specified intervals. To specify the update interval you uncomment the **-update** argument in the **BWAgentPlugin.hma** file and specify a non-zero value. When the **-update** argument is not used (is commented out), the Monitor does not report that an engine has been deployed or undeployed until the Hawk agent is restarted.

1. Navigate to the **agents/BWAgentPlugin** directory of your Monitor installation and locate the following two files:

- **BWAgentPlugin.jar**
- **BWAgentPlugin.hma**

2. For a given domain, find the plug-in directory via this path:

   <TIBCO-home>/tra/domain/<domain-name>

3. Repeat Step 2 for each Hawk domain you have configured to communicate with the Monitor.

4. To (optionally) set RTViewBWAgent to make data updates at more frequent, specified intervals, open the **BWAgentPlugin.hma** file, uncomment the **-update** argument and specify a non-zero value. The value, which defaults to 300, represents the update interval in seconds. For example, a value of **3600** updates every hour:

```
<arguments>
      <arg>-update:3600</arg>
      . .
</arguments>
```

5. Copy the **BWAgentPlugin.jar** file and **BWAgentPlugin.hma** file into the plug-in directory and restart the Hawk Agent.

Enable Monitoring via JMX for Version 5

ActiveMatrix BusinessWorks version 5 engines can also be enabled for JMX monitoring as documented in *TIBCO ActiveMatrix BusinessWorks™ Administration, Monitoring the BusinessWorks Engine Using JMX*:

To enable monitoring of BW5 engines via JMX:

1. To enable local JMX monitoring, add the following properties to **bwengine.tra**:

Jmx.Enabled=true
java.property.com.sun.management.jmxremote=true

2. To enable remote JMX monitoring, add the following properties to **bwengine.tra**: (Note <**port_number**> can be any available port)

java.property.com.sun.management.jmxremote.port=<port_number>
java.property.com.sun.management.jmxremote.authenticate=false
java.property.com.sun.management.jmxremote.ssl=false

For example, the BW Engine **MyDomain.MyApp.Procs** can be enabled for remote JMX monitoring by adding the following lines to the file

C:\Tibco\tra\domain\MyDomain\application\MyApp\MyApp-Procs.tra:

```
#
# Enable JMX on port 9000
#
Jmx.Enabled=true
java.property.com.sun.management.jmxremote=true
java.property.com.sun.management.jmxremote.port=9000
java.property.com.sun.management.jmxremote.authenticate=false
java.property.com.sun.management.jmxremote.ssl=false
```

3. After the BW Engine is enabled for JMX monitoring and restarted, it can be monitored by adding a JMX Connection property in the RTView Configuration Application where the **Connection** name is the Engine name. See "Configuring Data Collection for RTView Manager" for more information.

Enable Monitoring of BWSE Engines for Version 5

This section is for TIBCO ActiveMatrix (AMX) users, and describes how to configure BW Monitor to monitor BWSE engines. BW Monitor needs access to AMX Node data stored in EMS message queues on the AMX Host system. To make this data available to BW Monitor you will create EMS topics with bridges from the queues.

The TIBCO ActiveMatrix BusinessWorks Service Engine (BWSE) is an ActiveMatrix (AMX) component that enables BW engines to participate in the implementation of AMX services. In this case, the BWSE engines run within an AMX Node and are not visible to BW Monitor. However, you can configure BW Monitor to display these engines, as well as to gather JVM memory metrics for the AMX Nodes in which they are running.

To Configure for BWSE engines:

1. To configure the AMX Host, execute the following commands in the EMS administration tool (tibemsadmin):

   create topic rtv.amx.governance.stats

   create bridge source=queue:amx.governance.stats target=topic:rtv.amx.governance.stats

2. In AMX Administrator, in the properties for each BWSE engine, set HawkEnabled to **true**.

Configuration Parameters You Need

To configure the Monitor, make a note of the following values:

- **PackageName=bwmon**
- **ServerDirectory=bwmon**
- **AlertPrefix=Bw**

Configure Data Collection

This section describes how to collect data from the BW Servers you want to monitor. This part of the Monitor configuration is required.

This section describes how to configure the data source connections for each TIBCO BusinessWorks component that you want to monitor.

For most installations, the default Monitor property settings are sufficient. Consult Technical Support before modifying other configurations to avoid upgrade issues.

This section includes:

- "Configure for Hawk (for BW5 and BW)": Define the classpaths for TIBCO jar files and various connections for TIBCO ActiveMatrix BusinessWorks.
- "Configure for RTView Manager": Configure data collection and historical data collection for RTView Manager.

- "Configure for TIBCO ActiveMatrix Businessworks": Configure data collection and historical data collection for TIBCO ActiveMatrix BusinessWorks.
- "Configure for TIBCO ActiveMatrix Businessworks5": Configure data collection and historical data collection for TIBCO ActiveMatrix BusinessWorks Version 5.

Configure for Hawk (for BW5 and BW)

This section contains:

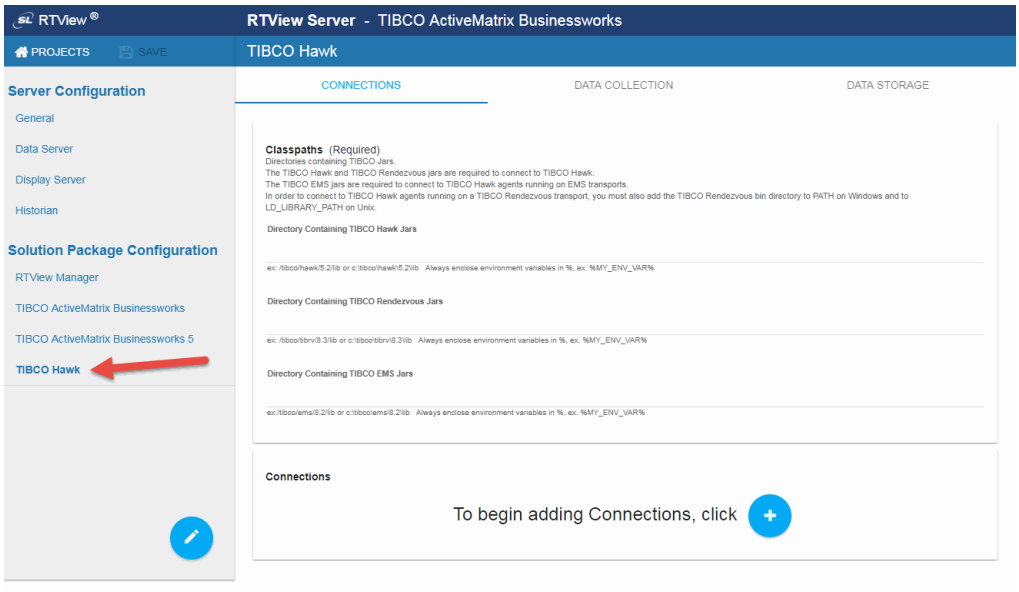
- "Configuring Data Collection for Hawk": Configure data collection in Hawk that is required for TIBCO ActiveMatrix BusinessWorks and TIBCO ActiveMatrix BusinessWorks 5.

Configuring Data Collection for Hawk

Note: Only the **Classpath** and **Connections** regions on the **CONNECTIONS** tab need to be set up for TIBCO ActiveMatrix BusinessWorks (Version 5 or 6). The **DATA COLLECTION** and **DATA STORAGE** tabs do not need to be configured.

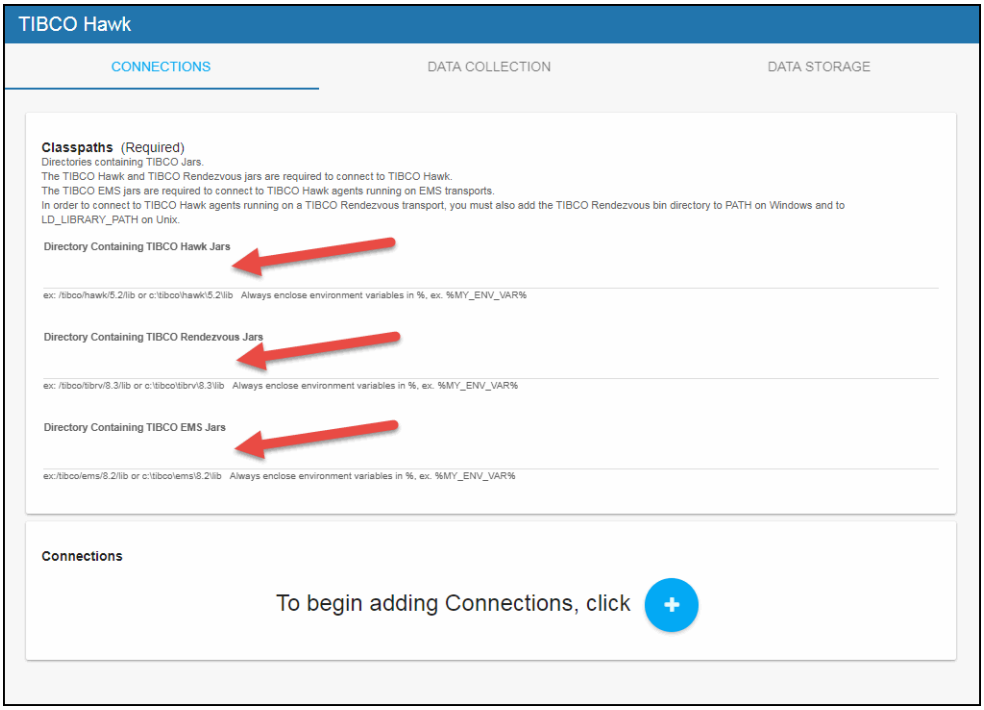
---

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO Hawk** > **CONNECTIONS** tab.



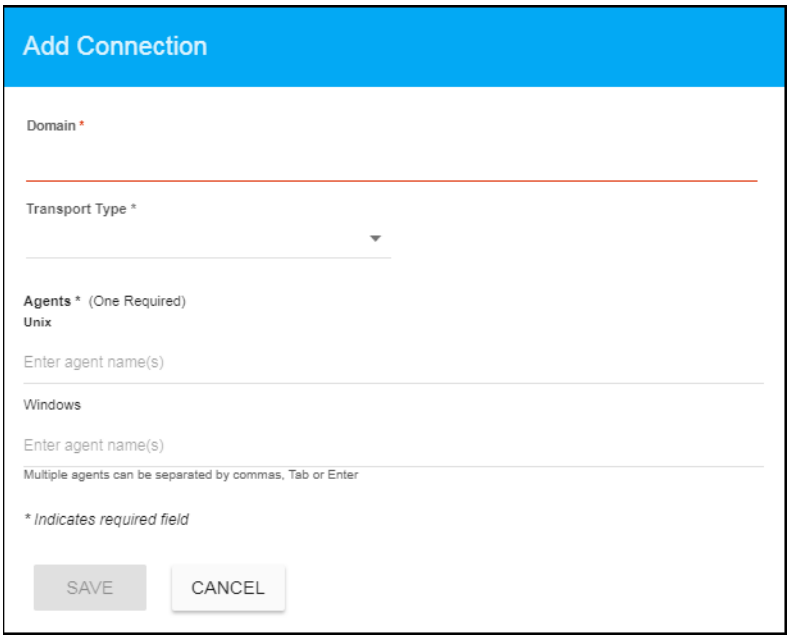
2. In the **CONNECTIONS** tab, specify the classpaths for the TIBCO Hawk jar files, the TIBCO Rendezvous jar files, and the TIBCO EMS jar files.

   Note: If using Version 6 and you have installed the OSGI plugin, TIBCO Hawk connections are not needed. Skip to Step 5.

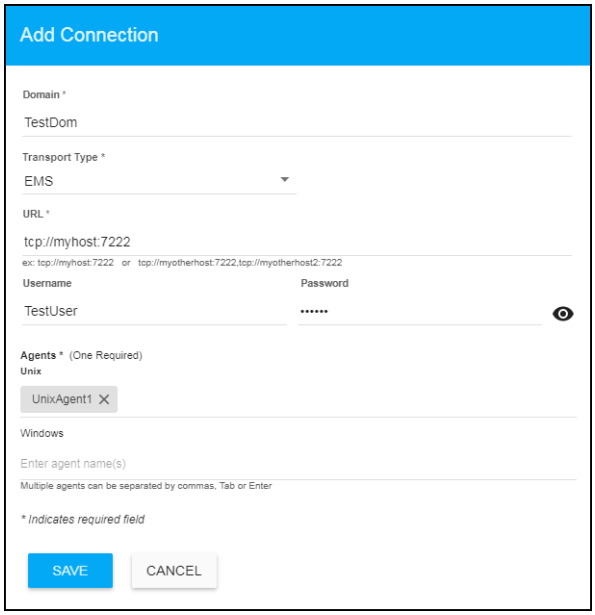


3. Click the + icon.

The **Add Connection** dialog displays.



4. For TIBCO Hawk domains running on **EMS** transports, specify the connection information and click **Save** where:



Domain: Enter the name of the domain.

Transport Type: Select **EMS** from this drop down list.

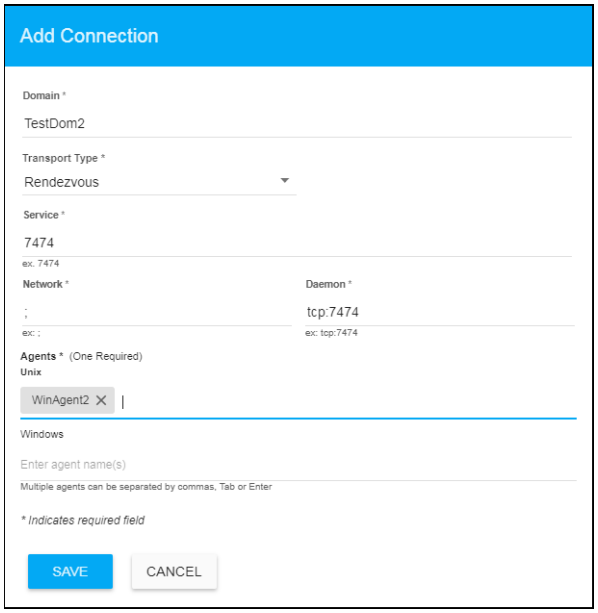
URL: Enter the complete URL for the EMS connection.

Username: The username is used when creating the EMS connection. This field is optional.

Password: This password is used when creating the EMS connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Agents: Enter the associated Unix/Windows agents. The agent name displays in the field after entering the name and typing a comma or by clicking the Tab or Enter key. You can enter more than one agent in the fields. Once the agent is specified, you can delete the agent by clicking the **X** next to their name.

For TIBCO Hawk domains running on **Rendezvous** transports, specify the connection information and click **Save** where:



Domain: Enter the name of the domain.

Transport Type: Select **Rendezvous** from this drop down list.

Service: Enter the Service for the Rendezvous connection.

Network: Enter the Network for the Rendezvous connection.

Daemon: Enter the Daemon for the Rendezvous connection.

Agents: Enter the associated Unix/Windows agents. The agent name displays in the field after entering the name and typing a comma or by clicking the Tab or Enter key. You can enter more than one agent in the fields. Once the agent is specified, you can delete the agent by clicking the **X** next to their name.

Note: After you complete these configuration steps and start the RTView Data Server, you can verify your Hawk configuration by viewing the **dataserver.log** file, located in the **logs** directory. For example:

```
2013-05-08 13:39:48,009 INFO  rtv_stdout - [rtview] ... AppMgr.initApp
2013-05-08 13:39:48,009 INFO  rtv_stdout - [rtview] ... BWMON Manager AppMgr.initApp
2013-05-08 13:39:48,025 INFO  rtv_stdout - [rtview] ... using filters file
<bwmon_filters.xml>
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] ... startApplication()
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] ... startApplication()
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] ----------------------------
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] Group: WIN_AGENTS
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] Agent: demo1(domain1)
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] Agent: demo2(domain1)
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] Agent: demo3(domain1)
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] ----------------------------
2013-05-08 1339:49,056 INFO  rtv_stdout - [rtview] ----------------------------
2013-05-08 13:39:49,056 INFO  rtv_stdout - [rtview] Group: UNIX_AGENTS
2013-05-08 13:39:49,072 INFO  rtv_stdout - [rtview] Agent: demo4(domain2)
2013-05-08 13:39:49,072 INFO  rtv_stdout - [rtview] Agent: demo5(domain2)
2013-05-08 13:39:49,072 INFO  rtv_stdout - [rtview] Agent: demo6(domain2)
```

```
2013-05-08 13:39:49,072 INFO  rtv_stdout - [rtview] ----------------------------
```

5. **SAVE** your changes in the RTView Configuration Application (upper left-hand corner), and then stop and restart your project using the following in your project directory:

   stop_rtv all

   start_rtv all

Configure for RTView Manager

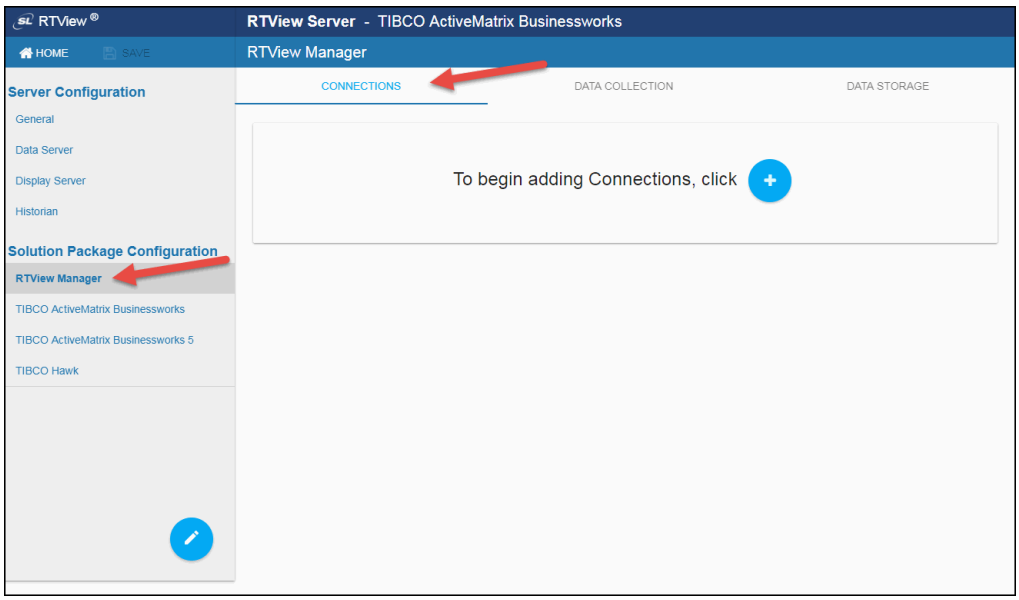
The configuration defined in this section is only relevant for Version 5 users, and only if they enabled JMX. Version 6 users do not need to complete this section.

This section contains:

- "Configuring Data Collection for RTView Manager": Defines the steps required to configure data collection in the RTView Configuration Application for RTView Manager. (Required)
- "Configuring Historical Data for RTView Manager": Describes the steps required to configure historical data collection for RTView Manager. (Optional)

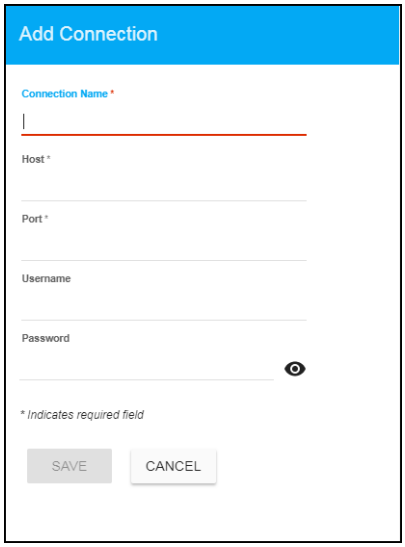
Configuring Data Collection for RTView Manager

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **RTView Manager** > **CONNECTIONS** tab.



2. Click the + icon.

   The **Add Connection** dialog displays.



3. Add a connection for each BusinessWorks engine for which you enabled monitoring via JMX. See "Enable Monitoring via JMX for Version 5" for more information.

   Connection Name: Use the Engine name for the **Connection Name** field.

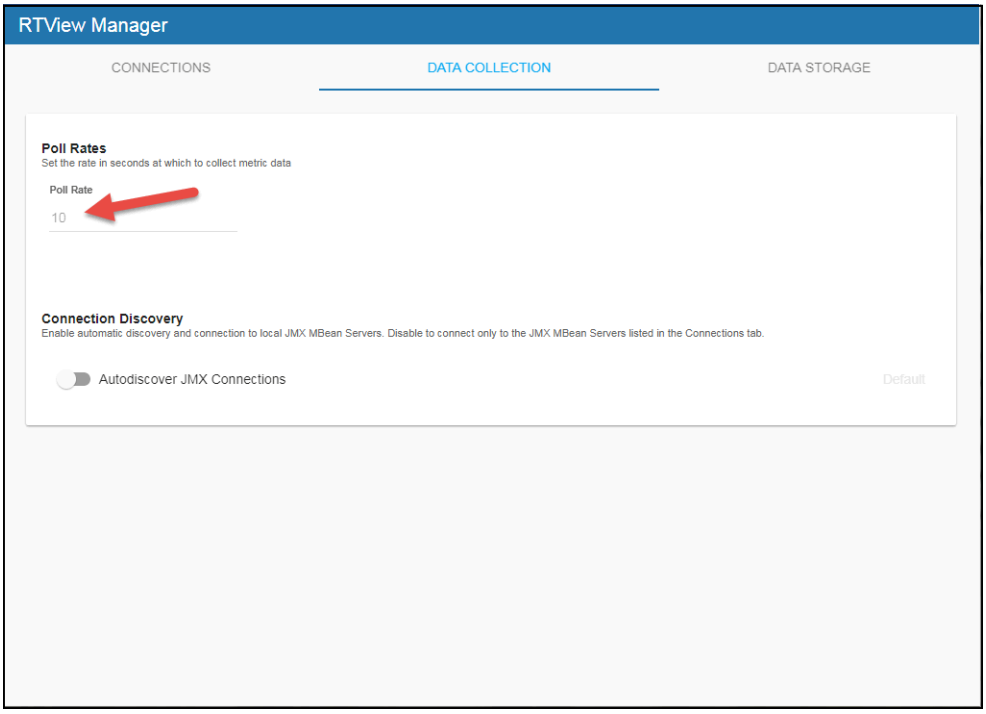
   Host: Enter the host for the engine.

   Port: Enter the **Port** specified in your **.tra** file. JMX data is available in the Monitor in the RTView Servers view.

   Username: The username is used when creating the connection. This field is optional.

   Password: This password is used when creating the connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

4. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **RTView Manager** > **DATA COLLECTION** > **Poll Rates** to update the default polling rates for all RTView Manager caches.



5. **SAVE** your changes in the RTView Configuration Application (upper left-hand corner), and then stop and restart your project using the following in your project directory:

   stop_rtv all

   start_rtv all

Configuring Historical Data for RTView Manager

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application. This section contains the following:

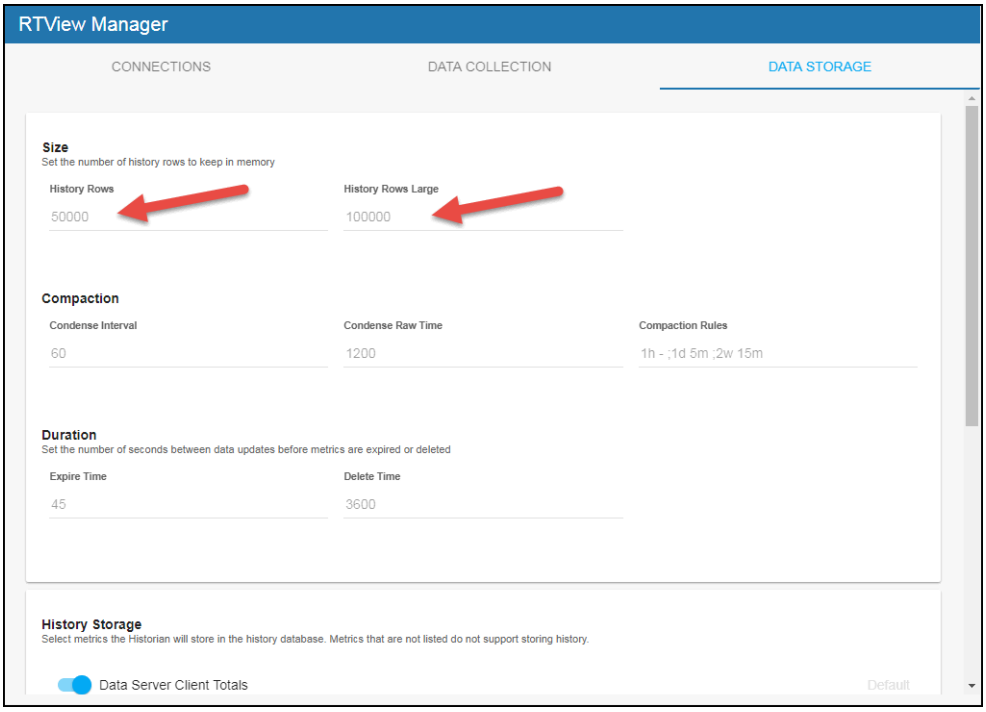
- "Defining the Storage of In Memory RTView Manager History"
- "Defining Compaction Rules for RTView Manager"
- "Defining Expiration and Deletion Duration for RTView Manager Metrics"
- "Enabling/Disabling Storage of Historical Data for RTView Manager"
- "Defining a Prefix for All History Table Names for RTView Manager Metrics"

Defining the Storage of In Memory RTView Manager History

You can modify the maximum number of history rows to store in memory in the **Data Storage** tab. The **History Rows** property defines the maximum number of rows to store for the JvmGcInfo, JvmMemoryPool, RtvDataServerManager, RtvDisplayServerManager, RtvDataServerClientTotals, TomcatGlobalRequestStats, and TomcatWebModuleTotals caches. The **History Rows Large** property defines the maximum number of rows to store for the JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerClientStats, and TomcatWebModuleStats caches. The default setting for **History Rows** is 50,000 and the default setting for **History Rows Large** is 100,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **RTView Manager** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** and **History Rows Large** fields and specify the desired number of rows.



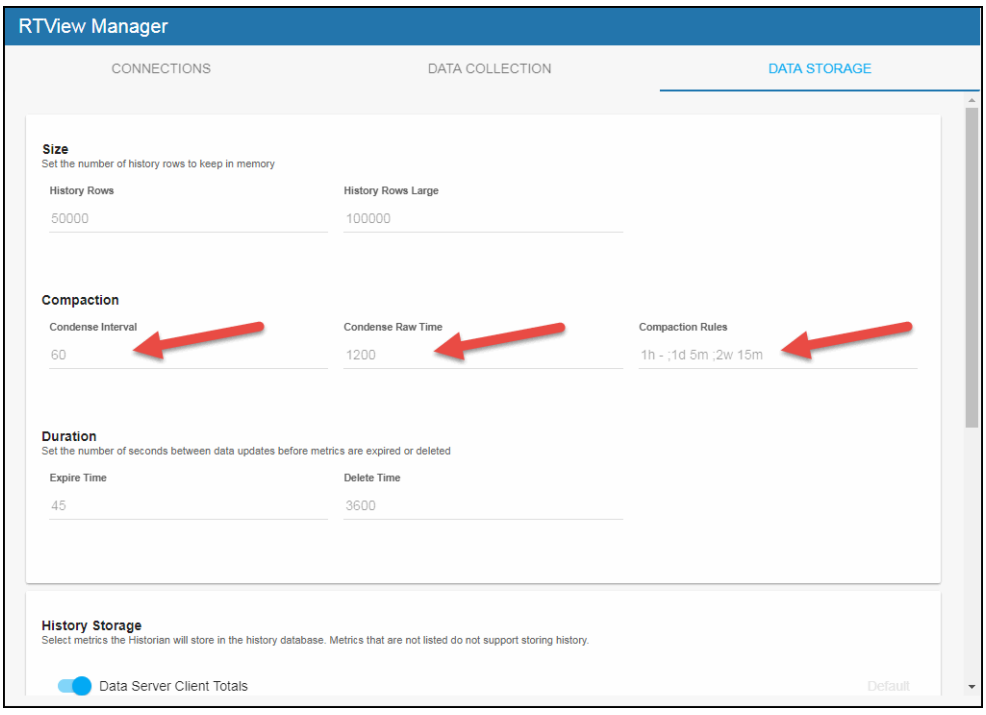
Defining Compaction Rules for RTView Manager

Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed. The default is 60 seconds. The following caches are impacted by this setting: JvmGcInfo, JvmMemoryPool, JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerManager, and RtvDataServerClientTotals.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table. The default is 1200 seconds. The following caches are impacted by this setting: JvmGcInfo, JvmMemoryPool, JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerManager, RtvDataServerClientTotals, TomcatWebModuleStats, TomcatGlobalRequestStats, and TomcatWebModuleTotals.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). The following caches are impacted by this setting: JvmOperatingSystem, JvmThreading, JvmMemory, RtvDataServerManager, RtvDataServerClientTotals, TomcatWebModuleStats, TomcatGlobalRequestStats, and TomcatWebModuleTotals.

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **RTView Manager** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.



Defining Expiration and Deletion Duration for RTView Manager Metrics

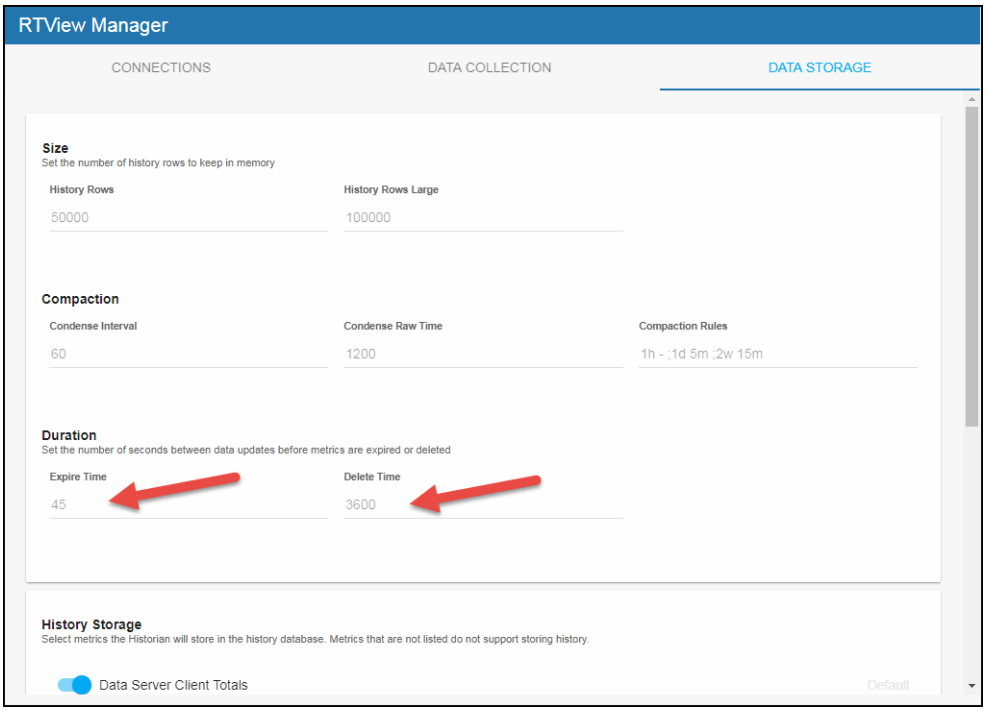
The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether.

The **Expire Time** field, which sets the expire time for the JvmConnections, JvmGcInfo, JvmMemoryPool, JvmClassLoading, JvmCompilation, JvmOperatingSystem, JvmThreading, JvmMemory, JvmMemoryManager, JvmSystemProperties, RtvDataServerManager, RtvDisplayServerManager, RtvHistorianManager, RtvDataServerClientStats, RtvDataServerClientTotals, RtvServerVersion, TomcatWebModuleStats, TomcatConnectorInfo, TomcatGlobalRequestStats, TomcatHostInfo, and TomcatWebModuleTotals caches, defaults to 45 seconds.

The **Delete Time**, which sets the delete time for the JvmConnections, JvmGcInfo, JvmMemoryPool, JvmClassLoading, JvmCompilation, JvmOperatingSystem, JvmRuntime, JvmThreading, JvmMemory, JvmMemoryManager, JvmSystemProperties, RtvDataServerManager, RtvDisplayServerManager, TomcatWebModuleStats, TomcatGlobalRequestStats, TomcatWebModuleTotals, RtvHistorianManager, RtvDataServerClientStats, RtvDataServerClientTotals, RtvServerVersion, TomcatWebModuleStats, TomcatConnectorInfo, TomcatGlobalRequestStats, TomcatHostInfo, and TomcatWebModuleTotals caches, defaults to 3600 seconds. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **RTView Manager** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

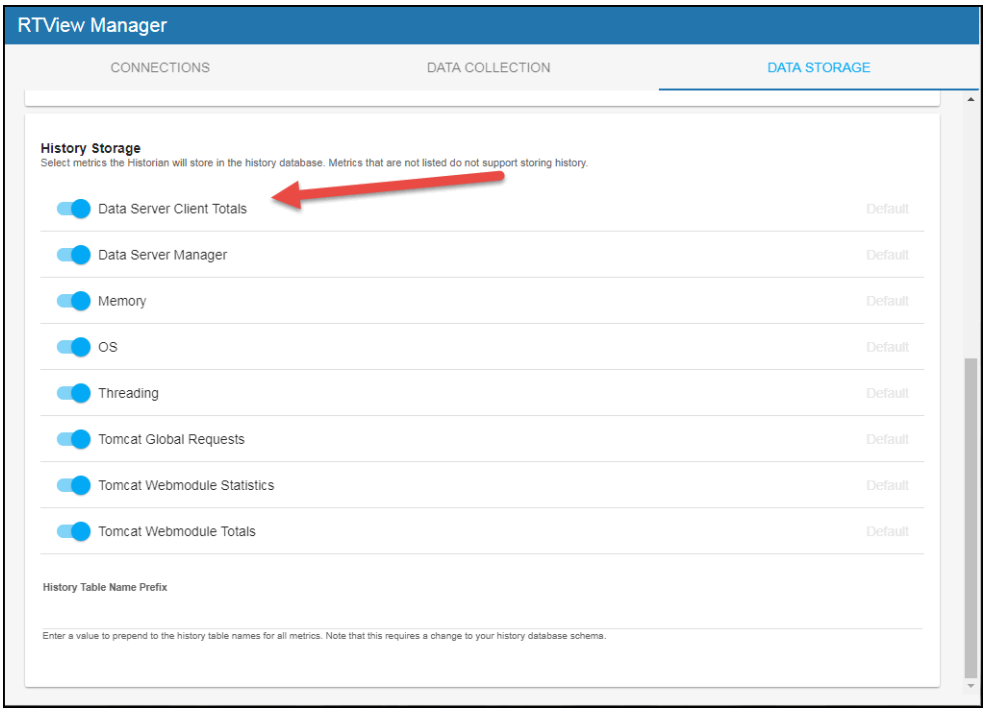


Enabling/Disabling Storage of Historical Data for RTView Manager

The **History Storage** region allows you to select which metrics you want the Historian to store in the history database. By default, all RTView Manager historical data is saved to the database. To enable/disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **RTView Manager** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggles for the various metrics that you want to collect/deselect for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for RTView Manager Metrics

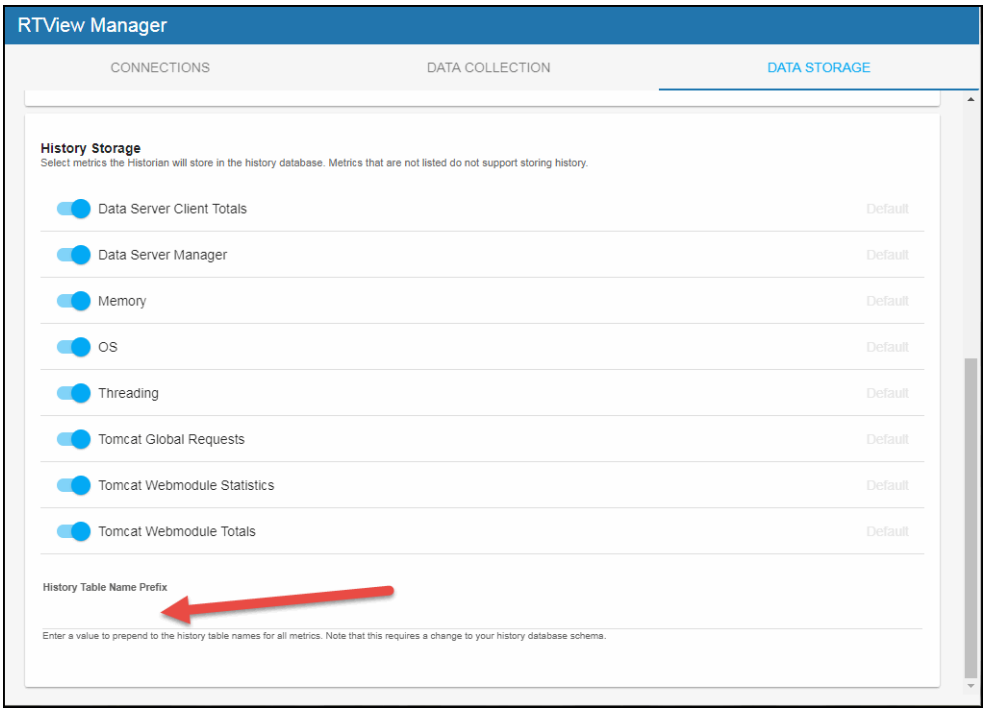
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**rtvmgr**/**dbconfig** and make a copy of it
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template
- Use the copied .sql template to create the tables in your database

To add the prefix:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **RTView Manager** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



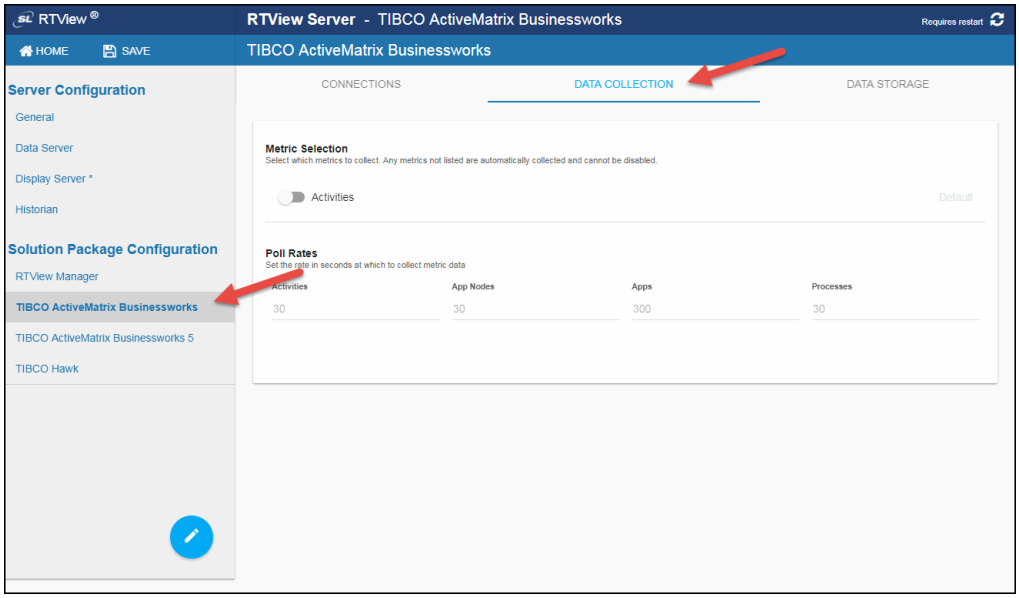
Configure for TIBCO ActiveMatrix Businessworks

This section contains:

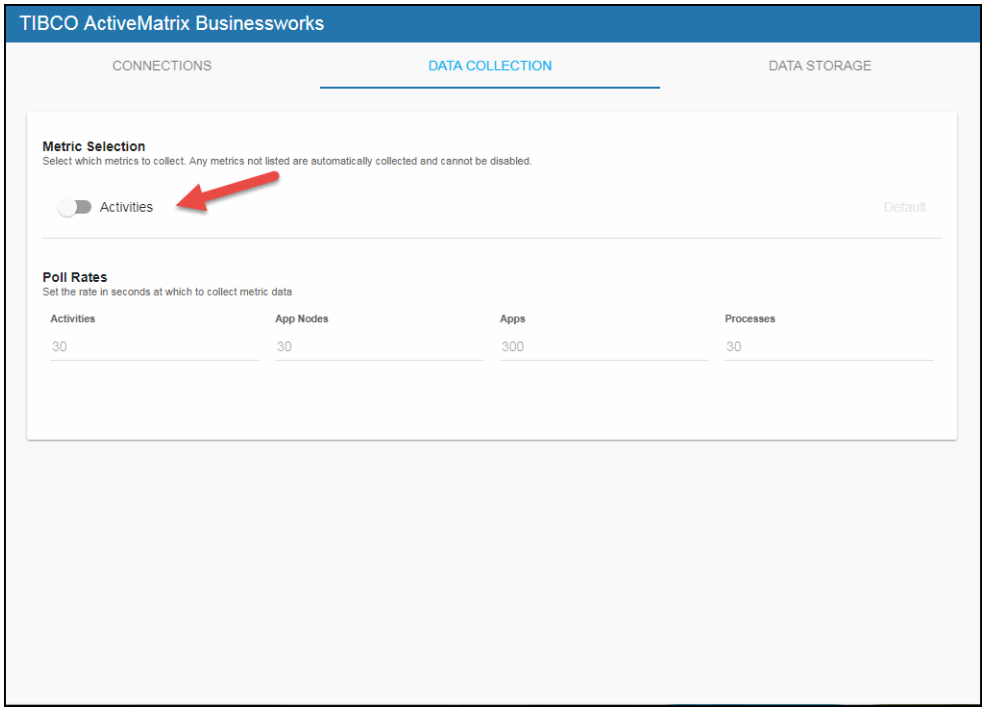
- "Configuring Data Collection in the RTView Configuration Application for Version 6": Defines the steps required to configure data collection in the RTView Configuration Application for TIBCO ActiveMatrix Businessworks. (Required)
- "Configuring Historical Data for Version 6": Describes the steps required to configure historical data collection. (Optional)

Configuring Data Collection in the RTView Configuration Application for Version 6

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix BusinessWorks** > **DATA COLLECTION** tab.

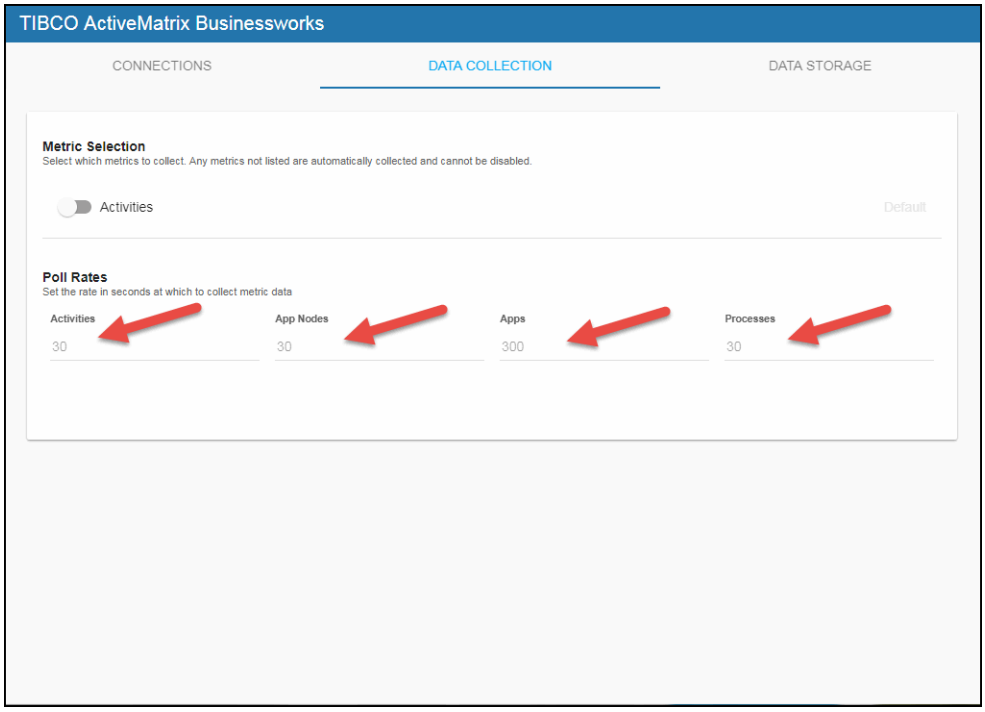


2. By default, collecting activities data for TIBCO ActiveMatris Businessworks is disabled. To enable collecting activities (Bw6Activities cache) data, navigate to the RTView Configuration Application > **TIBCO ActiveMatrix BusinessWorks** > **DATA COLLECTION** tab > **Metric Selection** section and enable the **Activities** toggle. Grey toggle is disabled, blue toggle is enabled.



3. If you want to modify the default values for the update rates for the TIBCO ActiveMatrix BusinessWorks caches, you can update the default polling rates in RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix BusinessWorks** > **DATA COLLECTION** > **Poll Rates**.

Modify the value for the **Activities** field to modify the default polling rate for the _Bw6HawkActivityStatistics, _Bw6Activities, Bw6Activities, and Bw6ActivityTotalsByProcess caches. Modify the value for the **App Nodes** field to modify the polling rate for the _Bw6HawkAppNodeProcessInfo, and _Bw6AppNodes caches. Modify the value for the **Apps** field to modify the polling rate for the _Bw6HawkApps, Bw6AppSlices, __Bw6Apps, _Bw6Apps, _Bw6AppsDelta, and Bw6Apps caches. Modify the value for the **Processes** field to modify the polling rate for the _Bw6HawkProcessStatistics, _Bw6Processes, Bw6Processes, Bw6ProcessTotalsByAppNodeAndApp, Bw6ProcessTotalsByAppNode, Bw6ProcessTotalsByApp caches.



1.

Configuring Historical Data for Version 6

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

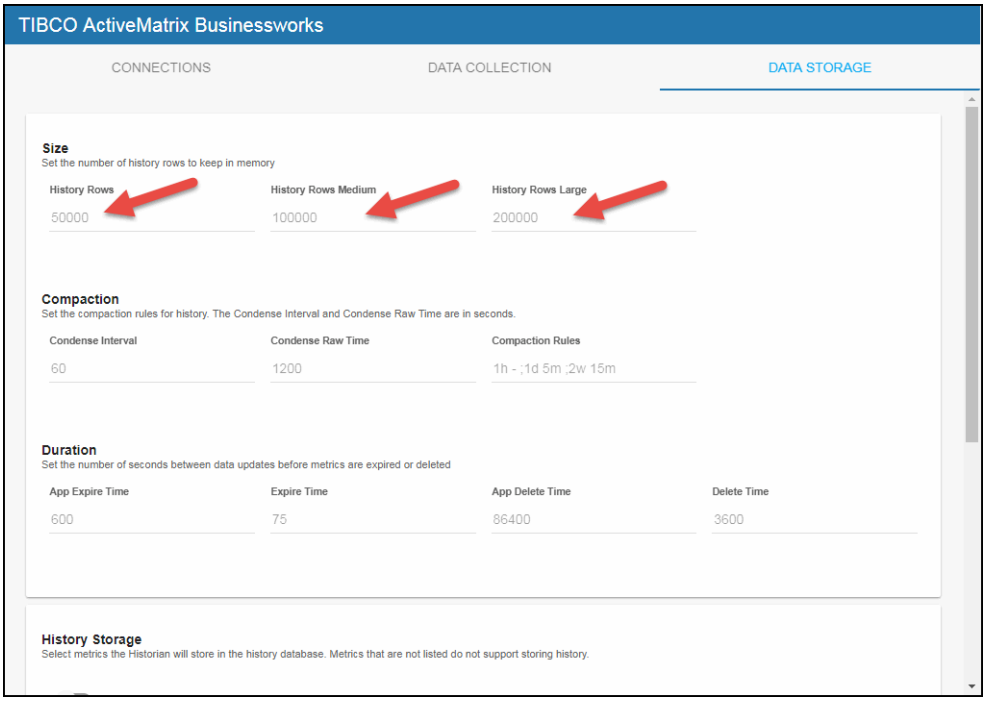
- "Defining the Storage of In Memory BWMON History"
- "Defining Compaction Rules for BWMON"
- "Defining Expiration and Deletion Duration for BWMON Metrics"
- "Enabling/Disabling Storage of BWMON Historical Data"
- "Defining a Prefix for All History Table Names for Metrics"

Defining the Storage of In Memory BWMON History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the Bw6AppNodes, Bw6ProcessTotalsByAppNode, Bw6ProcessTotalsByApp, and Bw6ProcessTotalsByAppNodeAndApp caches. The **History Rows Medium** property defines the maximum number of rows to store for the Bw6ActivityTotalsByProcess and Bw6Processes caches. The **History Rows Large** property defines the maximum number of rows to store for the Bw6Activities cache. The default setting for **History Rows** is 50,000, the default setting for **History Rows Medium** is 100,000, and the default setting for **History Rows Large** is 200,000. To update the default settings:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows**, **History Rows Medium**, and **History Rows Large** fields and specify the desired number of rows.



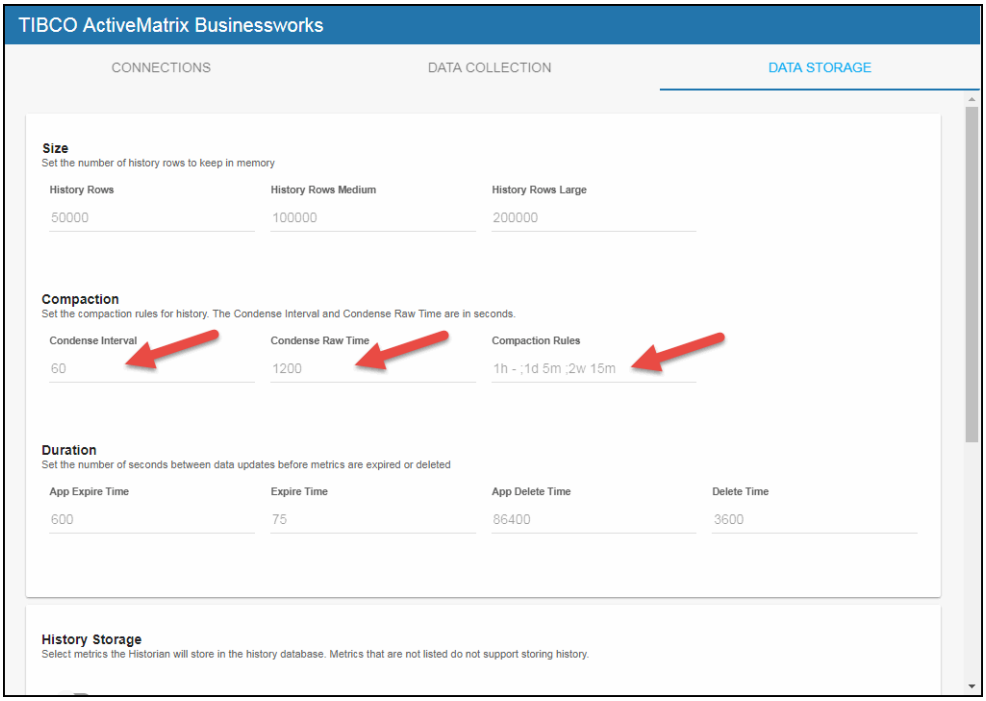
Defining Compaction Rules for BWMON

Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed. The default is 60 seconds. The following caches are impacted by this setting: Bw6Activities, Bw6ActivityTotalsByProcess, Bw6AppNodes, Bw6Processes, Bw6ProcessTotalsByAppNode, Bw6ProcessTotalsByApp, and Bw6ProcessTotalsByAppNodeAndApp.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table. The default is 1200 seconds. The following caches are impacted by this setting: Bw6Activities, Bw6ActivityTotalsByProcess, Bw6AppNodes, Bw6Processes, Bw6ProcessTotalsByAppNode, Bw6ProcessTotalsByApp, and Bw6ProcessTotalsByAppNodeAndApp.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). The following caches are impacted by this setting: Bw6Activities, Bw6ActivityTotalsByProcess, Bw6AppNodes, Bw6Processes, Bw6ProcessTotalsByAppNode, Bw6ProcessTotalsByApp, and Bw6ProcessTotalsByAppNodeAndApp.

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

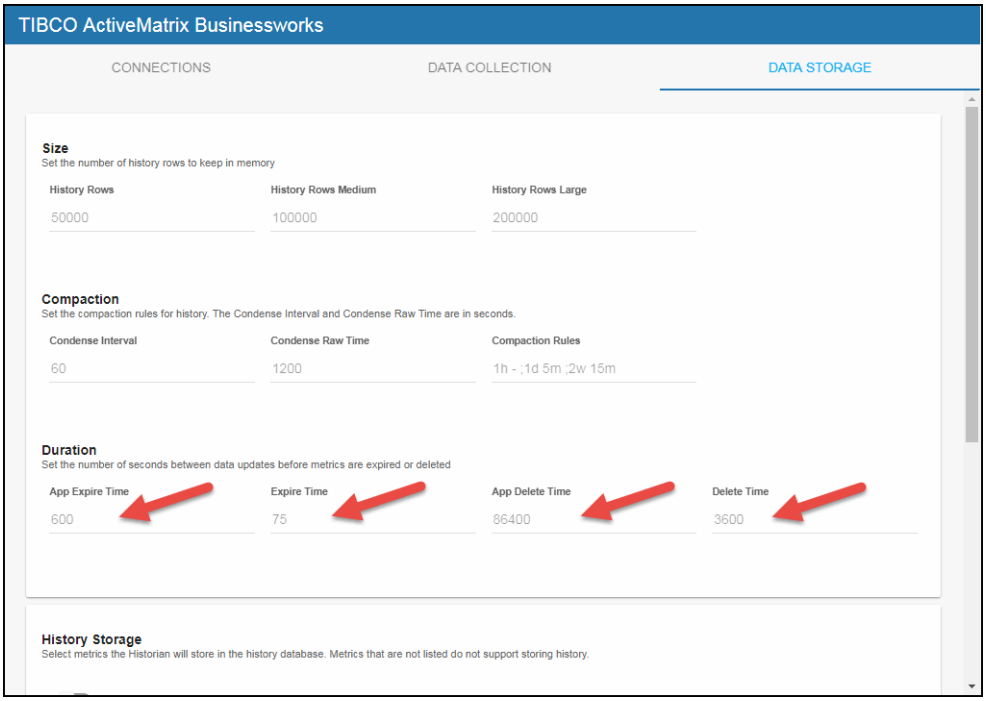


Defining Expiration and Deletion Duration for BWMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. The **App Expire Time** field, which sets the expire time for the Bw6Apps cache, defaults to 600 seconds. The **Expire Time** field, which sets the expire time for the Bw6Activities, Bw6AppSlices, Bw6OsgiAgents, and Bw6Processes caches, defaults to 75 seconds. The **App Delete Time**, which sets the delete time for the Bw6Apps cache, defaults to 86,400 seconds. The **Delete Time**, which sets the delete time for the Bw6Activities, Bw6AppSlices, Bw6AppNodes, Bw6AppNodes, Bw6OsgiAgents, and Bw6Processes caches, defaults to 3600 seconds. To modify these defaults:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **App Expire Time**, **Expire Time**, **App Delete Time**, and **Delete Time** fields and specify the desired settings.

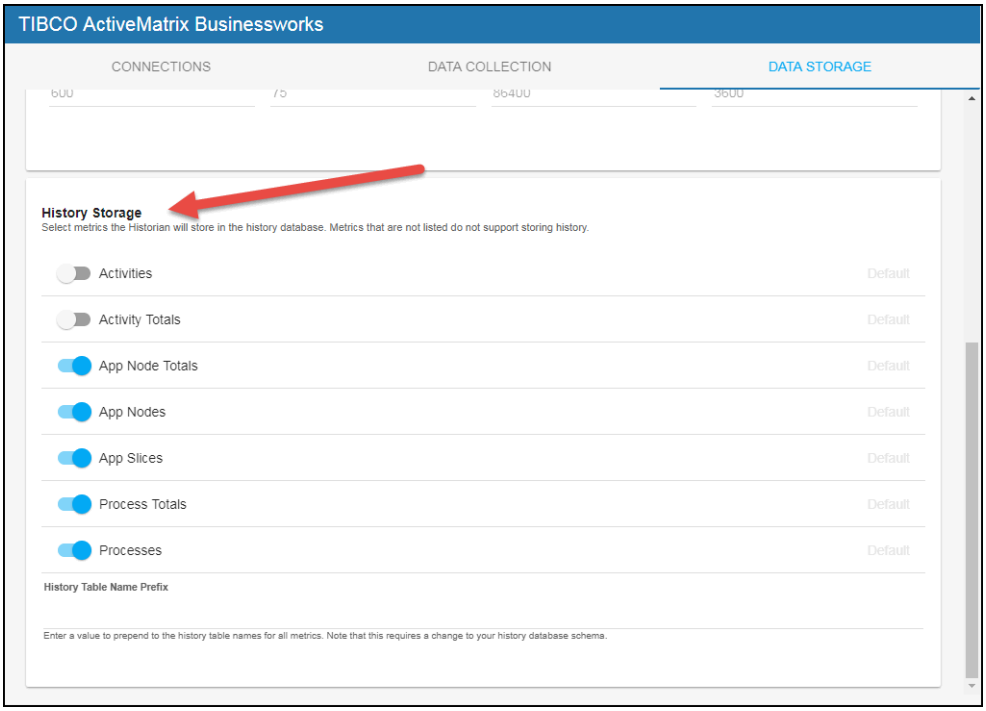


Enabling/Disabling Storage of BWMON Historical Data

The **History Storage** region allows you to select which metrics you want the Historian to store in the history database. By default, historical Activities and Activity Totals data is not saved to the database. All other metrics are saved by default. To enable/disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggles for the various metrics that you want to collect/deselect for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for Metrics

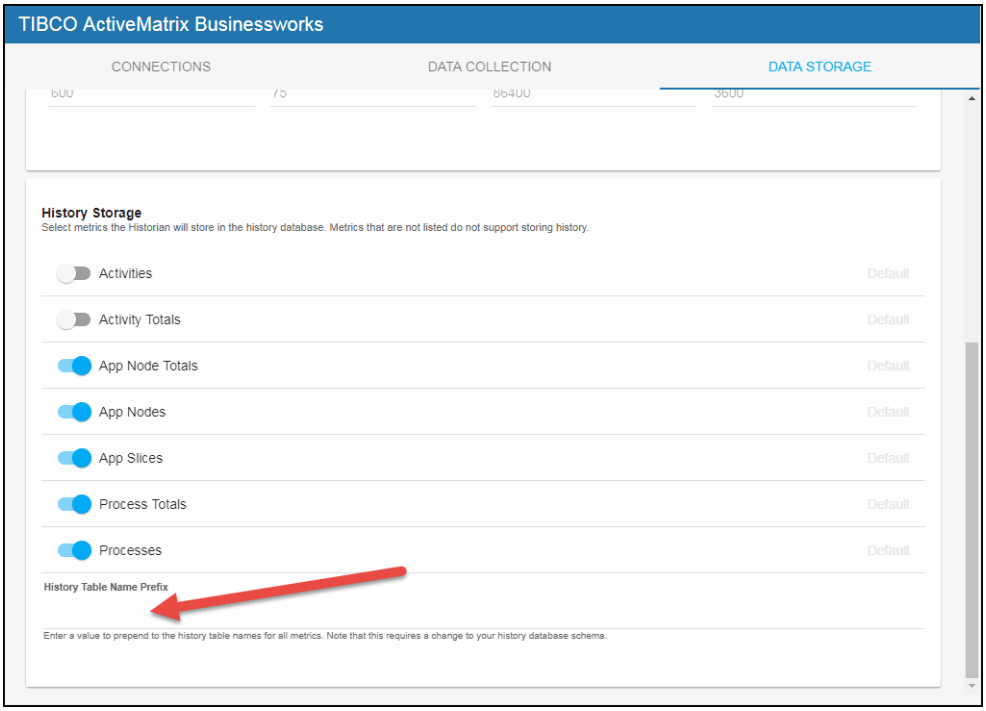
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**bw6mon**/**dbconfig** and make a copy of it
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template
- Use the copied .sql template to create the tables in your database

To add the prefix:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



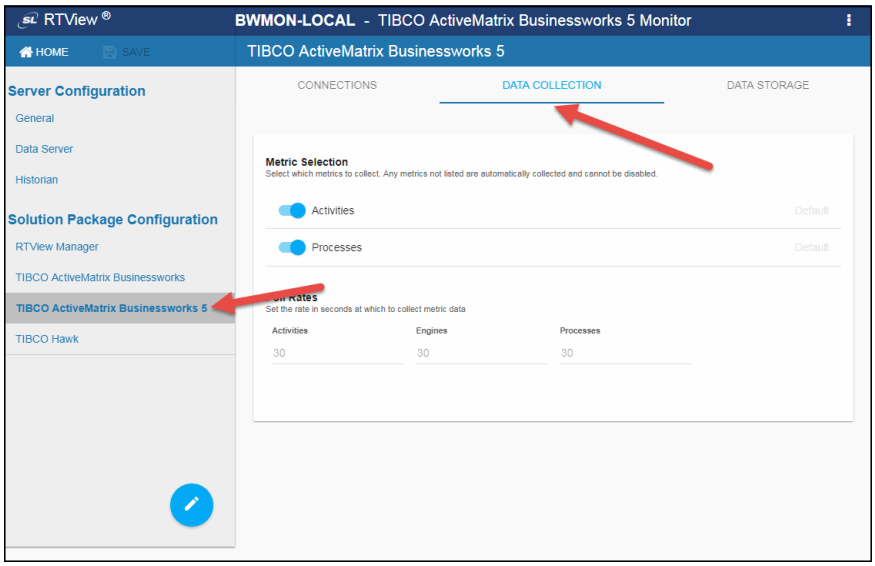
Configure for TIBCO ActiveMatrix Businessworks5

This section contains:

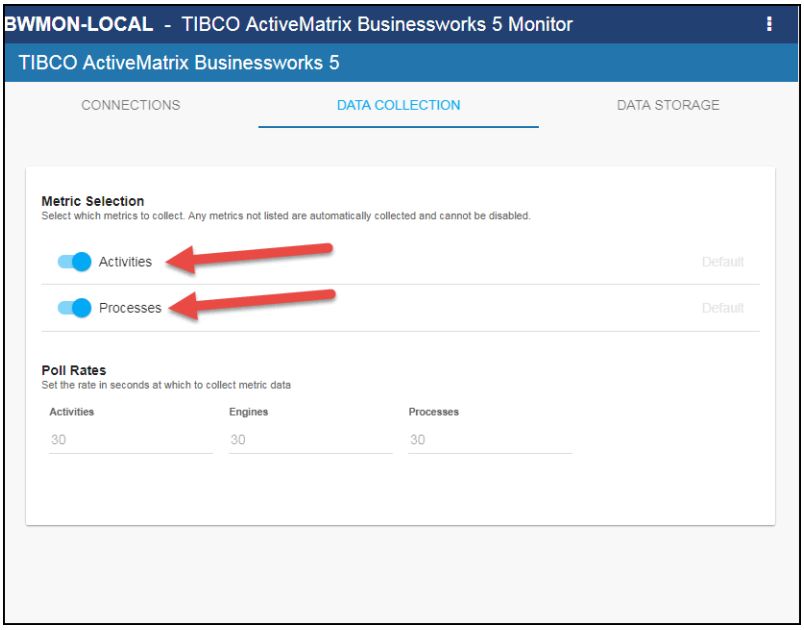
- "Configuring Data Collection in the RTView Configuration Application for Version 5": Defines the steps required to configure data collection in the RTView Configuration Application for TIBCO ActiveMatrix Businessworks. (Required)
- "Configuring Historical Data for Version 5": Describes the steps required to configure historical data collection. (Optional)
- "Configure for BWSE Engines for Version 5": Describes how to configure BW Monitor to monitor BWSE engines for TIBCO ActiveMatrix (AMX) users.
- "Create Customized Filters for Version 5": Describes how to create customized filters for BusinessWorks version 5.
- "Enable BW Servers Displays for Version 5": Describes how to make the **BW Servers - "Server Processes"** and "Single Server Process - Summary" displays visible in the Monitor for BusinessWorks version 5. By default, these displays are not enabled.
- "Reduce Collection of Process Data for Version 5": Describes how to modify data collection for BusinessWorks version 5.

Configuring Data Collection in the RTView Configuration Application for Version 5

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA COLLECTION** tab.

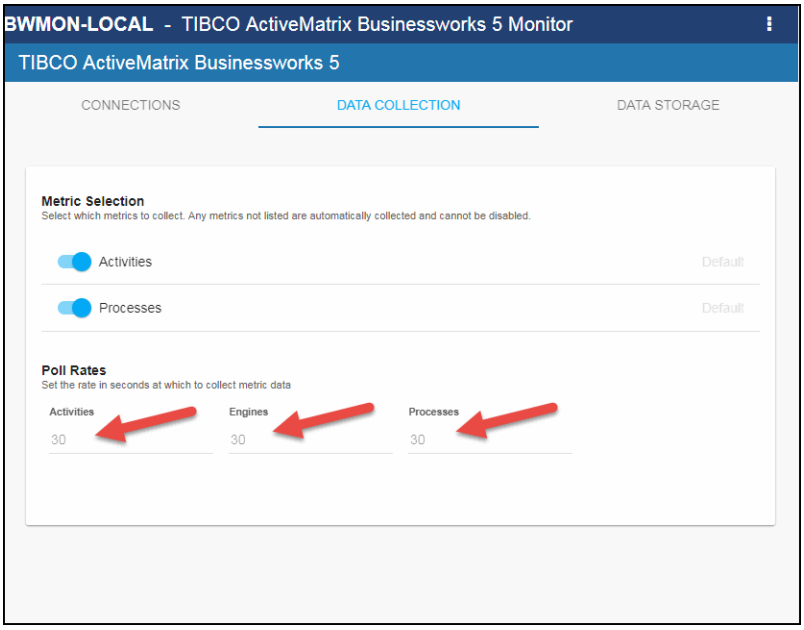


2. By default, collecting activities and processes data for TIBCO ActiveMatrix Businessworks 5 is enabled. To disable collecting activities (BwActivities cache) and processes (BwProcesses cache) data, navigate to the RTView Configuration Application > **TIBCO ActiveMatrix Businessworks 5** > **DATA COLLECTION** tab > **Metric Selection** section and disable the **Activities** and **Processes** toggles. Grey toggle is disabled, blue toggle is enabled.



3. If you want to modify the default values for the update rates for the TIBCO ActiveMatrix Businessworks 5 caches, you can update the default polling rates in RTView Configuration Application >**(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA COLLECTION** > **Poll Rates**.

Modify the value for the **Activities** field to modify the default polling rate for the BwActivities and BwActivityTotalsByProcess caches, which will update at approximately this rate, but will get occasional extra updates. Modify the value for the **Engines** field to modify the polling rate for the BwUndeployedEngines, BwEngines, BwEnginesDeployment, BwEngineState caches, which will update at approximately this rate, but will get occasional extra updates. Modify the value for the **Processes** field to modify the polling rate for the BwProcess and BwProcessTotalsByEngine caches, which will update at approximately this rate, but will get occasional extra updates.



1.

Configuring Historical Data for Version 5

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

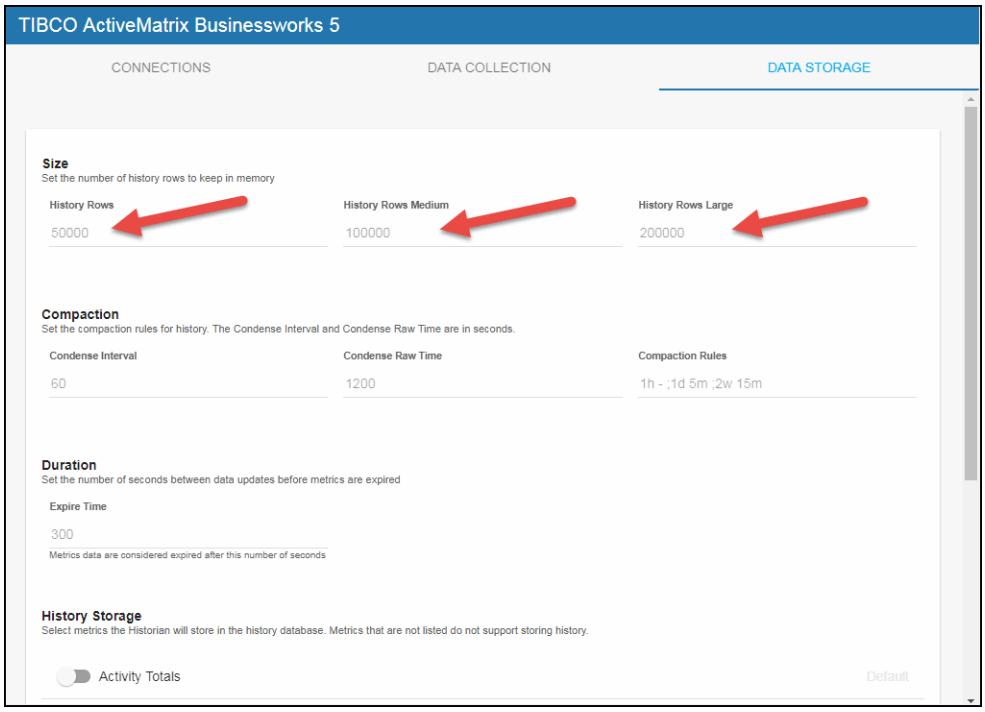
- "Defining the Storage of In Memory BWMON5 History"
- "Defining Compaction Rules for BWMON5"
- "Defining Expiration and Deletion Duration for BWMON5 Metrics"
- "Enabling/Disabling Storage of Historical Data for BWMON5"
- "Defining a Prefix for All History Table Names for BWMON5 Metrics"

Defining the Storage of In Memory BWMON5 History

You can modify the maximum number of history rows to store in memory in the **Data Storage** tab. The **History Rows** property defines the maximum number of rows to store for the BwEngines, BwProcessTotalsByEngine, and BwServers caches. The **History Rows Medium** property defines the maximum number of rows to store for the BwActivityTotalsByProcess and BwProcesses caches. The **History Rows Large** property defines the maximum number of rows to store for the BwActivities cache. The default setting for **History Rows** is 50,000, the default setting for **History Rows Medium** is 100,000, and the default setting for **History Rows Large** is 200,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows**, **History Rows Medium**, and **History Rows Large** fields and specify the desired number of rows.



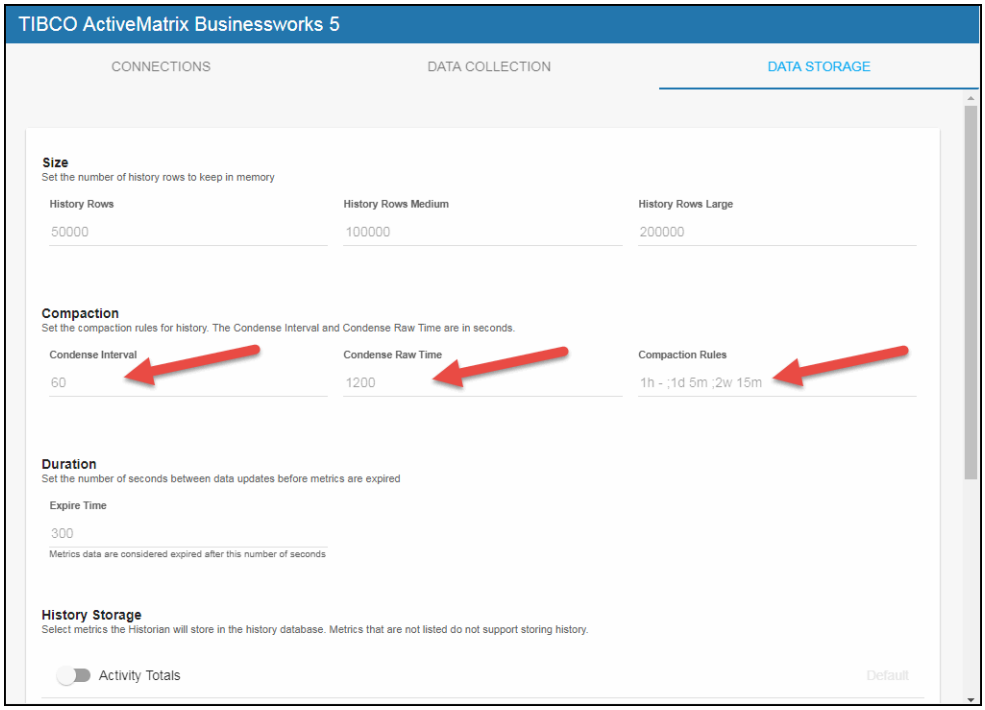
Defining Compaction Rules for BWMON5

Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed. The default is 60 seconds. The following caches are impacted by this setting: BwActivities, BwActivityTotalsByProcess, BwEngines, BwProcesses, BwProcessTotalsByEngine, and BwServers.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table. The default is 1200 seconds. The following caches are impacted by this setting: BwActivities, BwActivityTotalsByProcess, BwEngines, BwProcesses, and BwProcessTotalsByEngine.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). The following caches are impacted by this setting: BwActivities, BwActivityTotalsByProcess, BwEngines, BwProcesses, BwProcessTotalsByEngine, and BwServers.

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

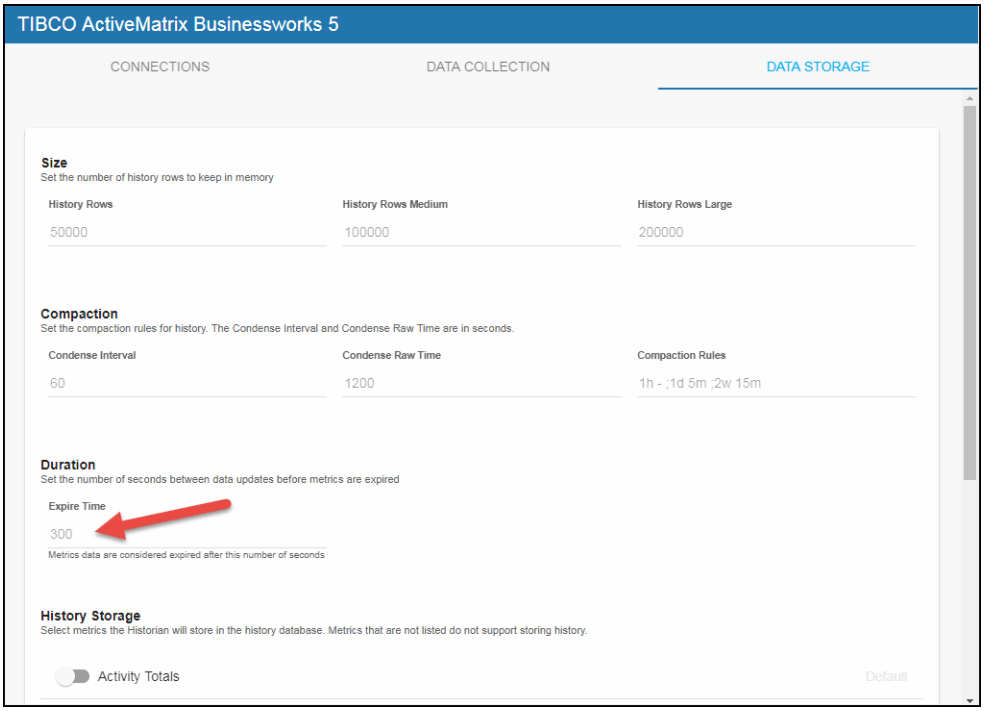


Defining Expiration and Deletion Duration for BWMON5 Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will be marked as expired. The **Expire Time** field, which sets the expire time for the BwServers cache, defaults to 75 seconds. To modify this default:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** field and specify the desired settings.

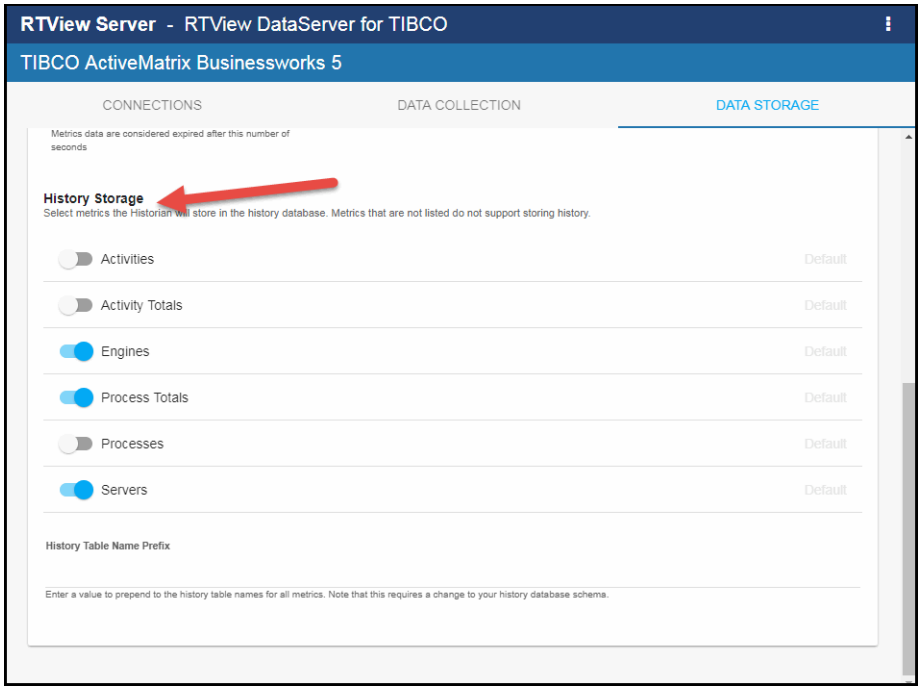


Enabling/Disabling Storage of Historical Data for BWMON5

The **History Storage** region allows you to select which metrics you want the Historian to store in the history database. By default, historical Activities, Activity Total, and Processes data is not saved to the database. All other metrics are saved by default. To enable/disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggles for the various metrics that you want to collect/deselect for the metrics that you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for BWMON5 Metrics

The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

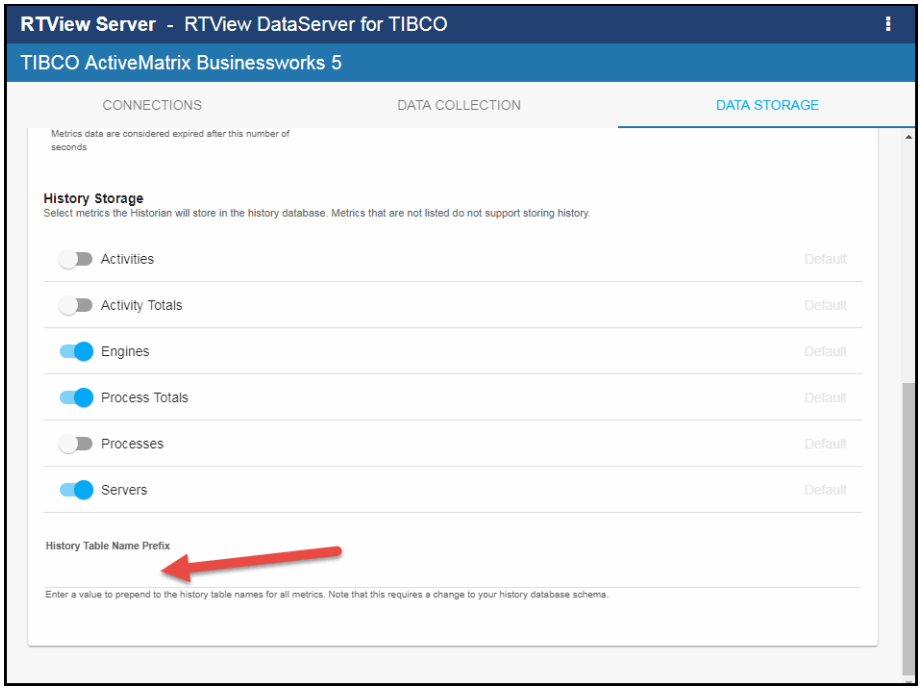
- Locate the .sql template for your database under **RTVAPM_HOME**/**bwmon**/**dbconfig** and make a copy of it
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template

Use the copied .sql template to create the tables in your database

To add the prefix:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **TIBCO ActiveMatrix Businessworks 5** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



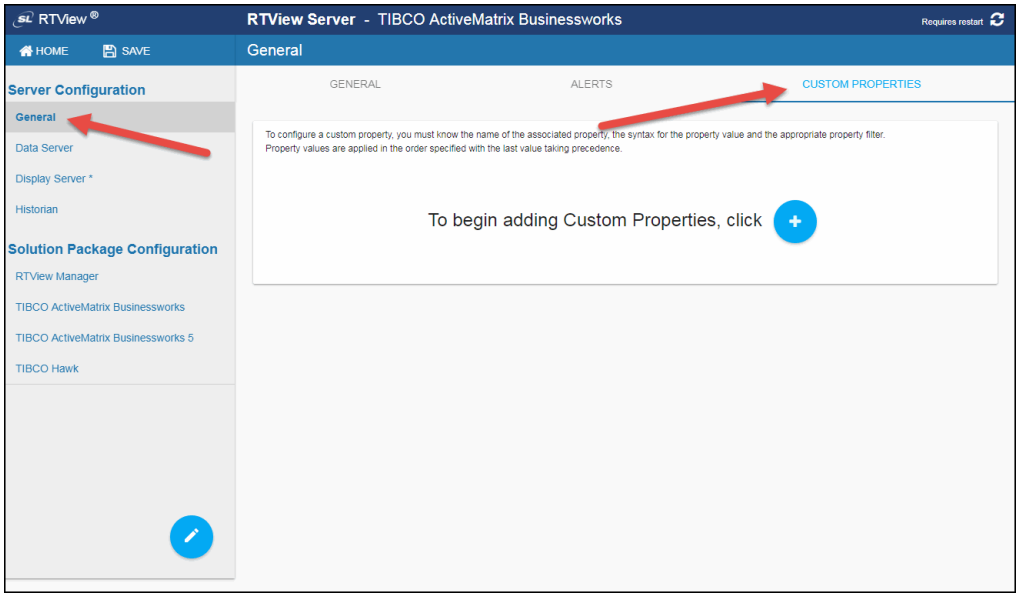
Configure for BWSE Engines for Version 5

This section is for TIBCO ActiveMatrix (AMX) users, and describes how to configure BW Monitor to monitor BWSE engines. BW Monitor needs access to AMX Node data stored in EMS message queues on the AMX Host system. To make this data available to BW Monitor you will create EMS topics with bridges from the queues.

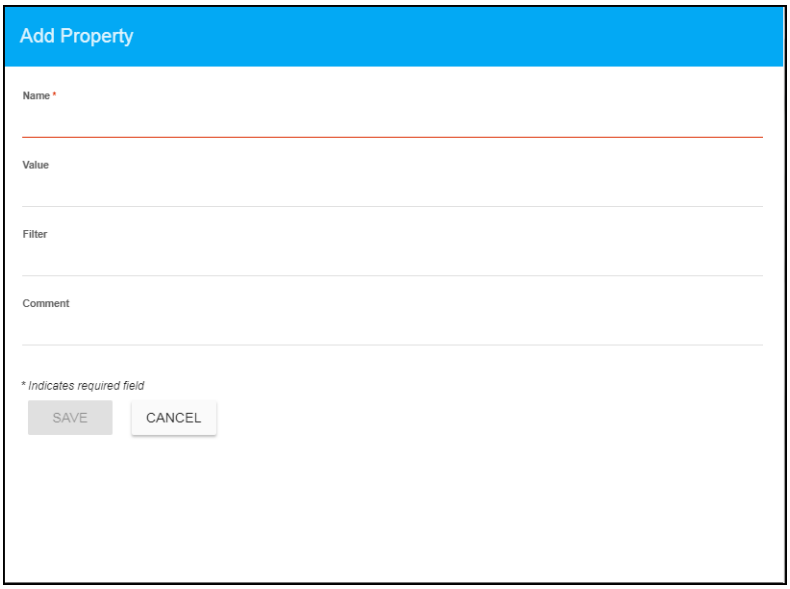
The TIBCO ActiveMatrix BusinessWorks Service Engine (BWSE) is an ActiveMatrix (AMX) component that enables BW engines to participate in the implementation of AMX services. In this case, the BWSE engines run within an AMX Node and are not visible to BW Monitor. However, you can configure BW Monitor to display these engines, as well as to gather JVM memory metrics for the AMX Nodes in which they are running.

To Configure for BWSE engines:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Server Configuration** > **General** > **CUSTOM PROPERTIES** tab.



2. Click the + icon.
The **Add Property** dialog displays.



3. Create the following custom properties, one at a time, and click **Save** after creating each:
Name: sl.rtview.cache.config
Value: bw_engine_microagents.rtv
Filter: collector

Name: sl.rtview.cache.config

Value: bw_amx_node_cache.rtv

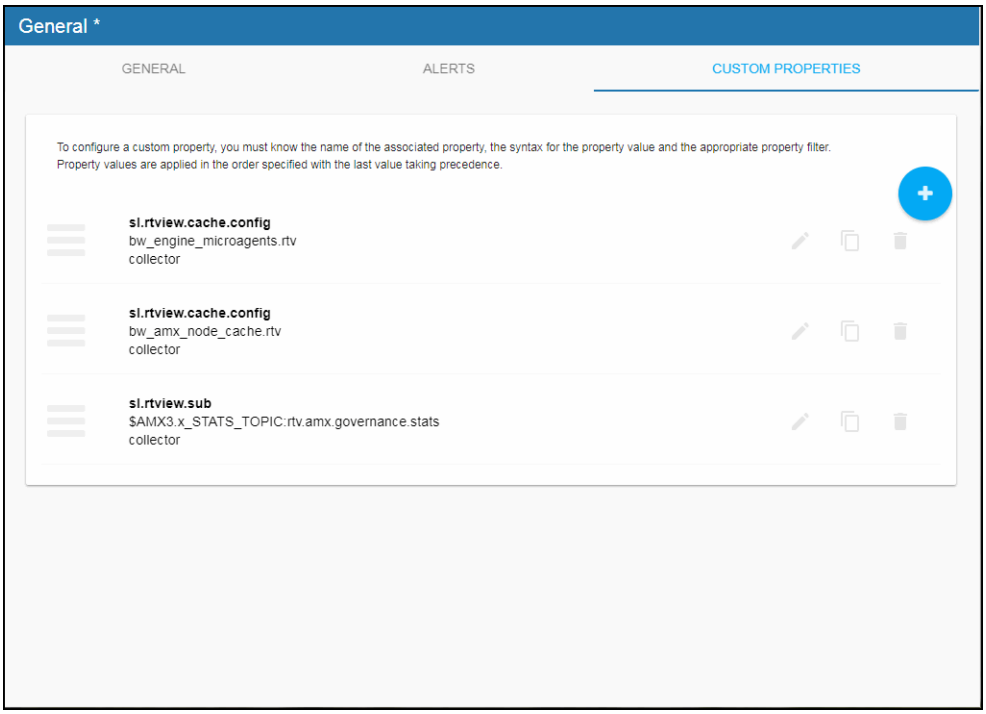
Filter: collector

Name: sl.rtview.sub

Value: $AMX3.x_STATS_TOPIC:rtv.amx.governance.stats

Filter: collector

Once all three are created and saved, the newly created properties display in the **Custom Properties** tab.



4. For each AMX host, click the + icon, add the following custom properties, and click Save after entering each:

   Name: sl.rtview.jms.jmsconn

   Value: **local** com.tibco.tibjms.TibjmsTopicConnectionFactory **tcp://localhost:7222** admin **- - - - -**

   Filter: collector

   (where **local** is the connection name and **tcp://localhost:7222** is the URL for your ems server)

   Name: sl.rtview.cache.config

   Value: bw_amx_node_cache_source.rtv $jms_conn:**local**

   Filter: collector

(where **local** is the connection name)

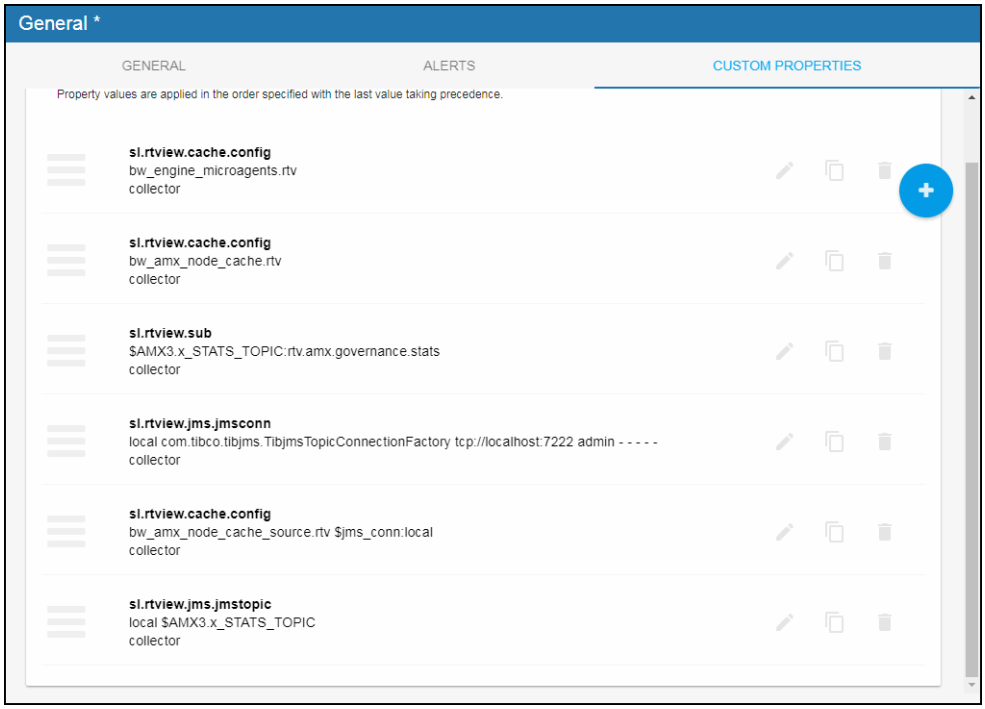
Name: sl.rtview.jms.jmstopic

Value: local $AMX3.x_STATS_TOPIC

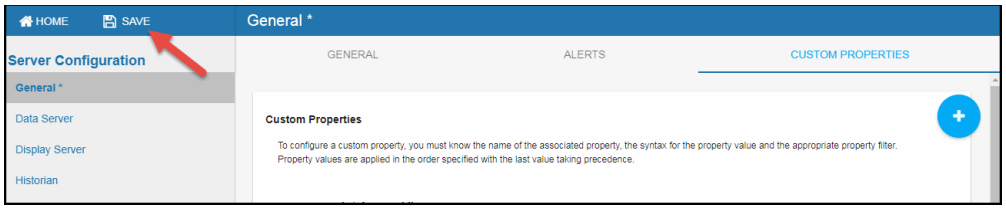
Filter: collector

(where **local** is the connection name)

Once all three are created and saved, the newly created properties display in the **Custom Properties** tab.



5. Click **Save** and restart the data server to apply your changes.



Create Customized Filters for Version 5

This section applies to BusinessWorks version 5, and describes how to create filtering options for the **Filter:** drop-down menu. By default, the **Filter:** drop-down menu only contains the **No Filter** option.

You can create filtering options that limit display data based on a combination of domain, engine, process, and activity names. You configure the filtering options prior to running the Monitor.

To create your filtering options edit the **bwmon_filters.xml** file, located in your project directory. Edit by inserting regular expressions for each type of name you want filter by, as well as a name for the filter. The filter name becomes the option in the **Filters:** drop-down menu. Instructions and examples are provided in the **bwmon_filters.xml** file.

Enable BW Servers Displays for Version 5

This section applies to BusinessWorks **version 5**, and describes how to make the **BW Servers -** Server Processes and Single Server Process - Summary displays visible in the Monitor. By default, these displays are not enabled.

The **Server Processes** and **Single Server Summary** displays show information about BW Server operating system processes. Due to limitations in TIBCO Hawk, the data they display is not available from IBM AIX or HP-UX servers.

To enable the displays:

1. Open the **bwmon_navtree.xml** file, located in your project directory.
2. Uncomment the following two lines,

<!-- <node label="Server Processes" display="bw_server_processes"/> -->

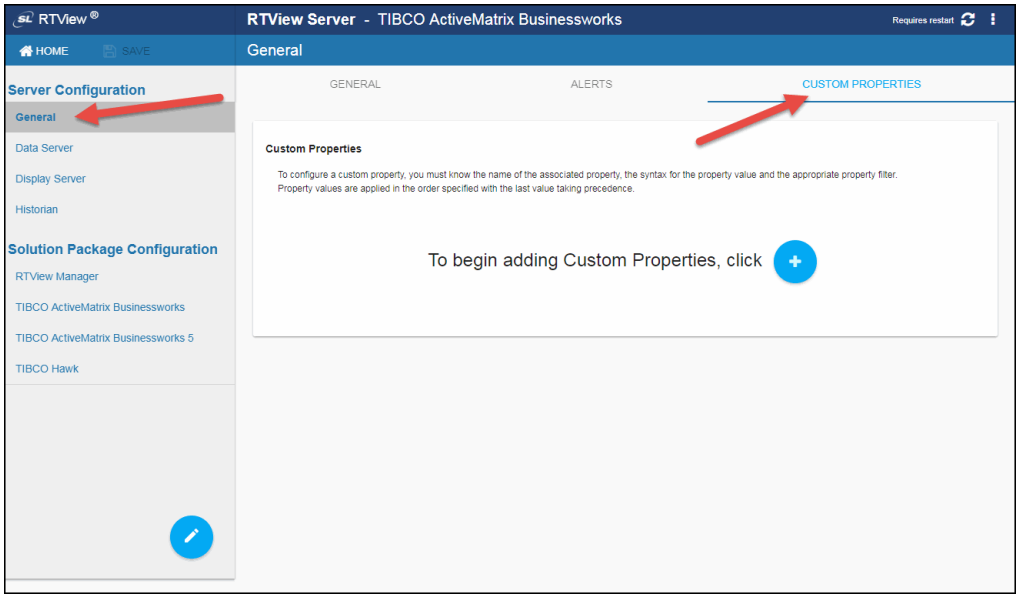
<!-- <node label="Server Process Summary" display="bw_server_process_summary"/> -->

3. Save the file.
4. Restart the Monitor.
5. Verify the displays appear under **BW Servers** in the navigation tree.

Reduce Collection of Process Data for Version 5

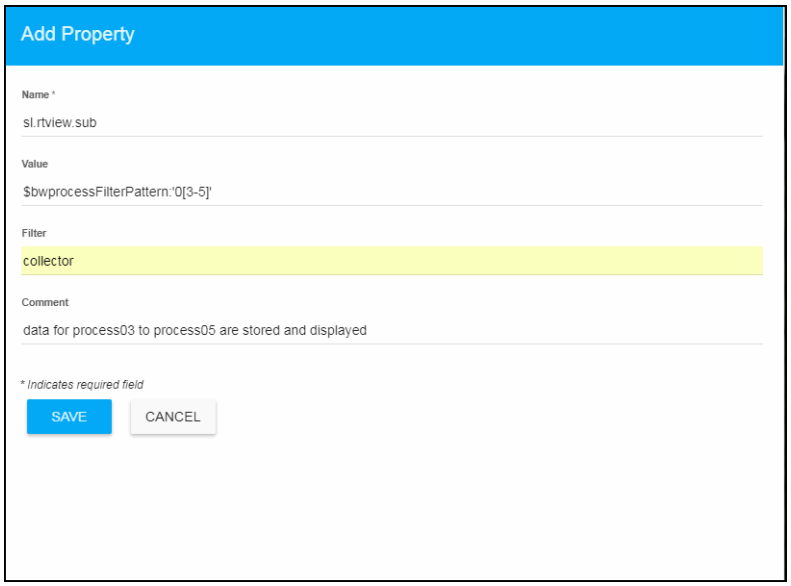
This section describes how to exclude BW5 process data that is collected by the Monitor but not of interest to you. By default, all process data is included. Excluding data stops it from being stored in the cache and removes it from displays. To exclude (or include) data, create a custom property in the RTView Configuration Application as such:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Server Configuration** > **General** > **Custom Properties** tab.



2. Click the + icon.

The **Add Property** dialog displays.



3. Define the values for the desired property. Each property specifies a regular expression that is applied to a process name. If the name matches the pattern, then the process is included. To exclude processes, start the filter pattern with **^** (negation).

For example, if you have the following processes:

process01.process

process02.process

process03.process

process04.process
process05.process
process06.process
process07.process

and you set the first property as follows:

Name: sl.rtview.sub
Value: $bwprocessFilterPattern:'0[3-5]'
Filter: collector
Comment: (description of the filter)

then the data for process03 to process05 is stored and displayed:

process03.process
process04.process
process05.process

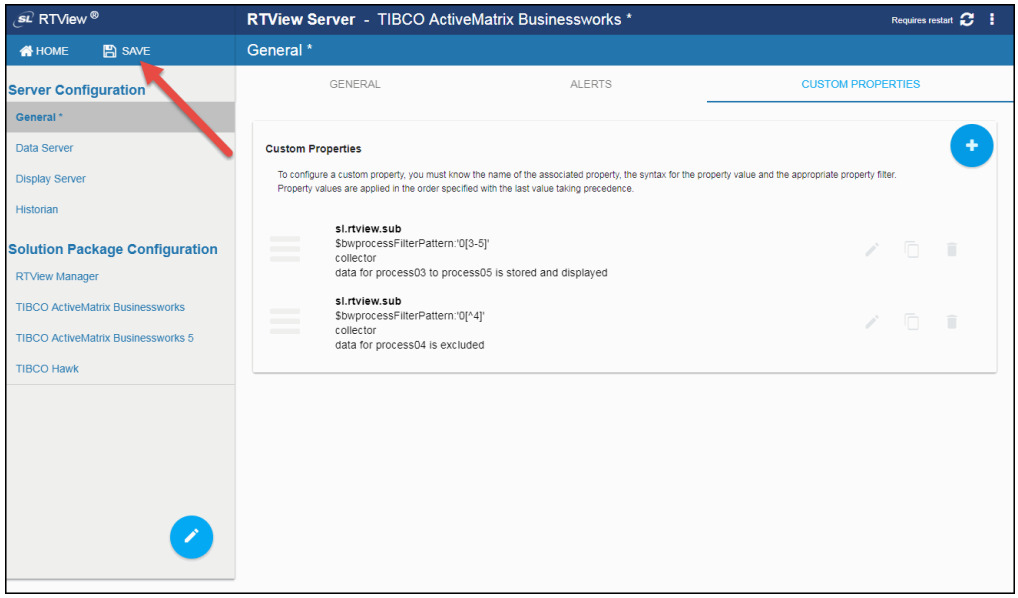
If you set the second property as follows:

Name: sl.rtview.sub
Value: $bwprocessFilterPattern:'0[^4]'
Filter: collector
Comment: (description of the filter)

Then data from process04 is excluded and you continue getting data from:

process03.process
process05.process

4. Once all your properties have been added, click **Save**.



5. Restart the data server so that your changes take effect.

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/bwmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/bwmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **BWMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "BWMON." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

BusinessWorks Monitor Views/Displays

The following Solution Package for TIBCO ActiveMatrix BusinessWorks™ Views (and their associated displays) can be found under **Components** tab **> Middleware > TIBCO BusinessWorks** after installation:

This section describes Monitor displays. This section includes:

- "BW Applications" on page 1115: The displays in this View present BusinessWorks 6 application performance metrics.
- "BW Containers" on page 1124: The displays in this View present BusinessWorks container performance metrics.
- "BW AppNodes" on page 1132: The displays in this View present BusinessWorks 6 AppNode performance metrics.
- "BW AppSlices" on page 1140: The displays in this View present BusinessWorks 6 AppSlice performance metrics.
- "BW Processes" on page 1148: The displays in this View present BusinessWorks 6 process performance metrics.
- "BW5 Engines" on page 1157: The displays in this View present BusinessWorks 5.0 engine performance metrics.
- "BW5 Processes" on page 1168: The displays in this View present BusinessWorks 5.0 process performance metrics.
- "BW5 Activities" on page 1177: The displays in this View present BusinessWorks 5.0 activity performance metrics.
- "BW5 Servers" on page 1185: The displays in this View present BusinessWorks 5.0 server performance metrics.

BW Applications

These displays present process performance data for your BusinessWorks applications and AppSpaces across BusinessWorks Domains. Process metrics are totaled by application. Use these displays to monitor critical alerts for all your BusinessWorks applications, and investigate those alerts in lower-level displays. Displays in this View are:

- "BW All Applications Heatmap" on page 1115: A color-coded heatmap view of selected application performance metrics.
- "BW All Applications Table" on page 1118: A tabular view of all available application performance data in this BusinessWorks View.
- "BW Single Application Summary" on page 1121: Current and historical metrics for a single application.

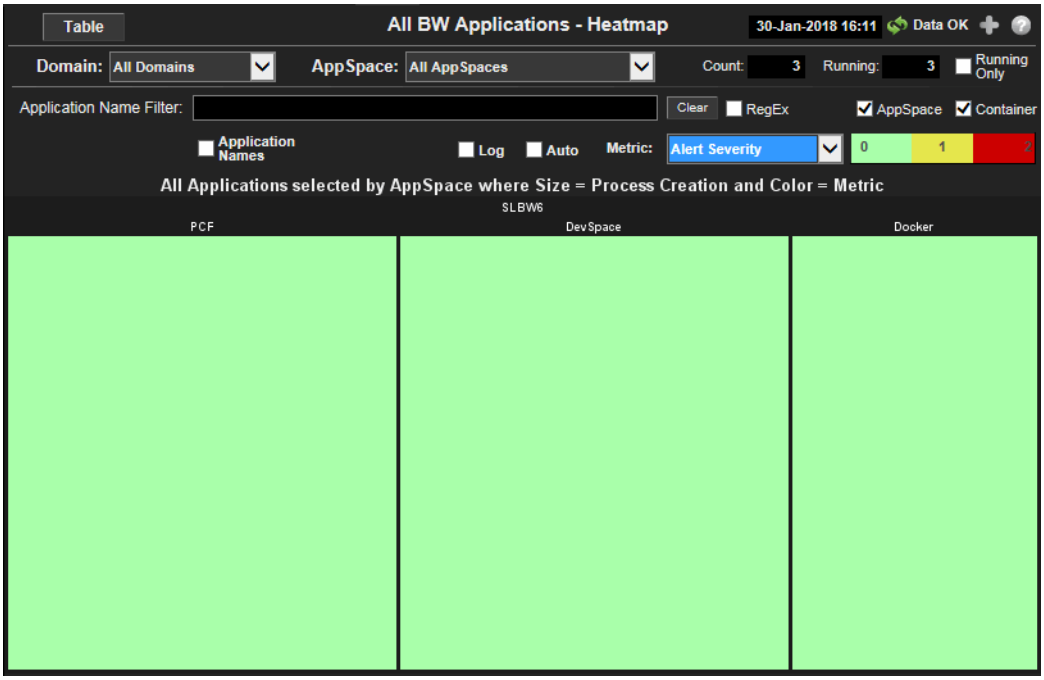
BW All Applications Heatmap

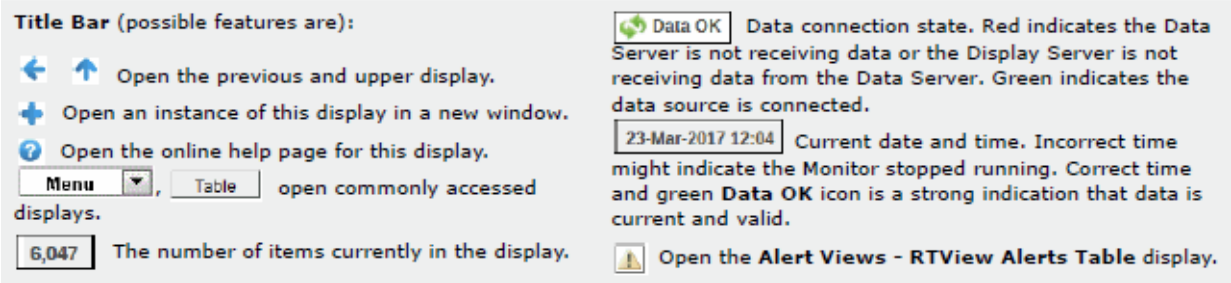
View the most critical BusinessWorks application alert states pertaining to process creation and execution for all nodes on which the applications are deployed. Use this display to quickly identify applications with critical alerts.

Each rectangle in the heatmap represents an application. The rectangle color indicates the most critical alert state associated with the application. The rectangle size represents process creation across applications; a larger size is a larger value.

Choose a domain and AppSpace from the drop-down menus. Choose a different metric to display from the **Metric** drop-down menu. Enter a string in the **Application Name Filter** field to limit data shown in the display. Use the **Application Names** check-box ☑ to include or exclude labels in the heatmap. Mouse over a rectangle to see additional metrics. By default, this display shows **Alert Severity**.

Drill-down and investigate an application by clicking a rectangle in the heatmap to view details in the "BW Single Application Summary" display.



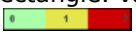
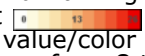
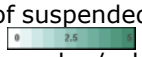
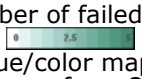
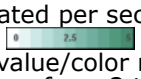
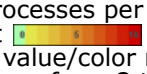
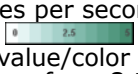


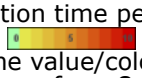
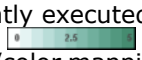
Filter By:
The display might include these filtering options:

Domain:	Select the domain for which you want to view data in the display.
AppSpace	Select the AppSpace for which you want to view data in the display.
Application Name Filter	Enter a string (all or part of a application name) to filter the data shown in the display. If you enter part of an application name, you must enter "*****" before and/or after the string. For example, if you have an application named AppNameOne, you could filter using *Name*, *NameOne, or AppName*.
Clear	Clears the **Application Name Filter** entries from the display.
RegEx	Toggles the **Application Name Filter** to accept Regular Expressions for filtering. For example, if your application name is AppNameOne and this option was toggled on, you could enter "Name" (without using "*****"to display the application in the heatmap).
AppSpace	When selected, those AppNodes deployed in an AppSpace display in the heatmap.
Container	When selected, those AppNodes deployed in a container display in the heatmap.
Application Names	Check to include labels in the heatmap.

Fields and Data:

Count:	The total number of AppSpaces currently shown in the display.
Running	The total number of AppSpaces currently running in the display.
Running Only	Select to show only running applications in the display.
Log	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.
Metric	Choose a metric to view in the display.

Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
Active Count	The total number of active processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Completed Count	The total number of completed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Suspended Count	The total number of suspended processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Failed Count	The total number of failed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Created / sec	The number of processes created per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Suspended / sec	The number of suspended processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Failed / sec	The number of failed processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

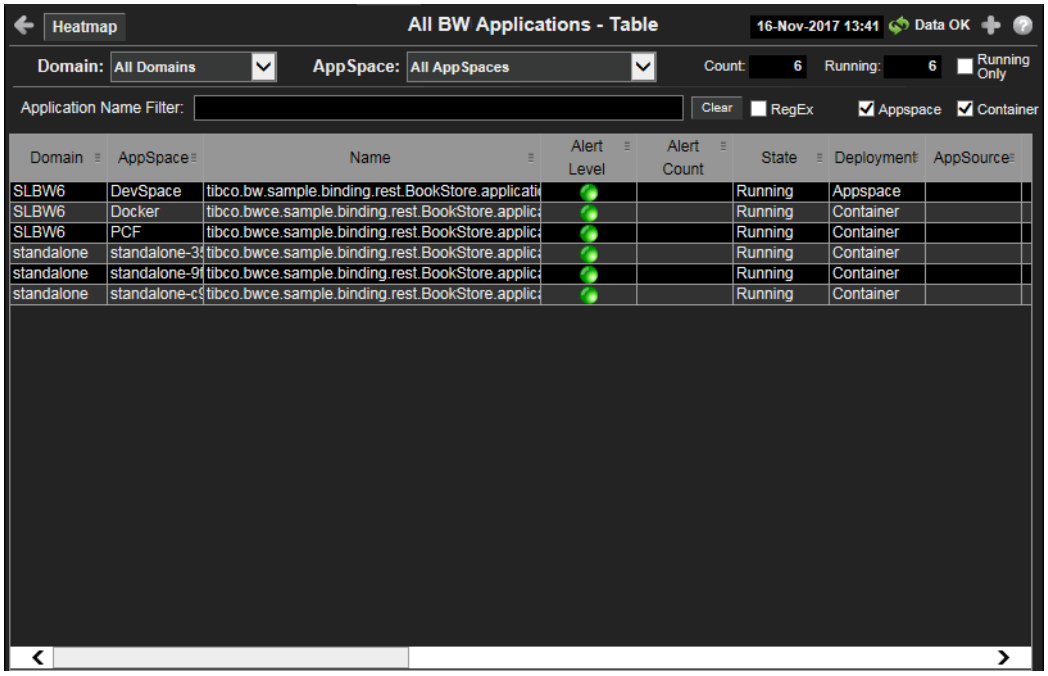
Exec Time / sec	The process execution time per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Most Recent Exec Time	The execution time for the most recently executed process in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Exec Time	The average execution time for all processes in the heatmap rectangle, calculated by dividing the delta execution time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Elapsed Time	The average elapsed time for all processes in the heatmap rectangle, calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

BW All Applications Table

View BusinessWorks data shown in the "BW All Applications Heatmap", and additional details, in a tabular format.

Each row in the table is an application. Choose a domain and AppSpace from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order. Enter a string in the **Application Name Filter** field to limit data shown in the display.

Drill-down and investigate by clicking a row to view details for the selected application in the "BW Single Application Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

AppSpace Choose an AppSpace to show data for in the display.

Application Name Filter Enter a string (all or part of a application name) to filter the data shown in the display. If you enter part of an application name, you must enter "*****" before and/or after the string. For example, if you have an application named AppNameOne, you could filter using *Name*, *NameOne, or AppName*.

Clear Clears the **Application Name Filter** entries from the display.

RegEx Toggles the **Application Name Filter** to accept Regular Expressions for filtering. For example, if your application name is AppNameOne and this option was toggled on, you could enter "Name" (without using "*****"to display the application in the table).

AppSpace When selected, those AppNodes deployed in an AppSpace display in the table.

Container When selected, those AppNodes deployed in a container display in the table.

Fields and Data:

Count:	The total number of applications in the AppSpace.
Running	The total number of applications currently running in the AppSpace.
Running Only	Select to show only running applications in the display.

Table:
Each row in the table is a different application.

Domain	The domain in which the application resides.
AppSpace	The AppSpace in which the application resides.
Name	The name of the application.
Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the application.
State	The current status of the application. Valid values are **Running** and **Stopped.**
AppNodes	The total number of AppNodes associated with the application.
Active Processes	The number of currently active application processes.
Suspended Processes	The number of suspended application processes.
Failed Processes	The number of failed application processes.
Completed Processes	The number of completed application processes.
Created /sec	The number of application processes created per second.
Suspended / sec	The number of application process suspensions per second.
Failed /sec	The number of application process failures per second.
Exec Time/ sec	The number of processes executed per second.
Recent Exec Time	The number of seconds for the most recently executed process.
Average Exec Time	The average number of seconds for all processes to execute.
Version	The application version.
Module	The application module.
Shared Module	The shared module, if any.
Time Stamp	The date and time the row data was last updated.

Source	Name of RTView Data Server sending this data (or localhost).
Expired	When checked, data has not been received from this host in the specified amount of time.

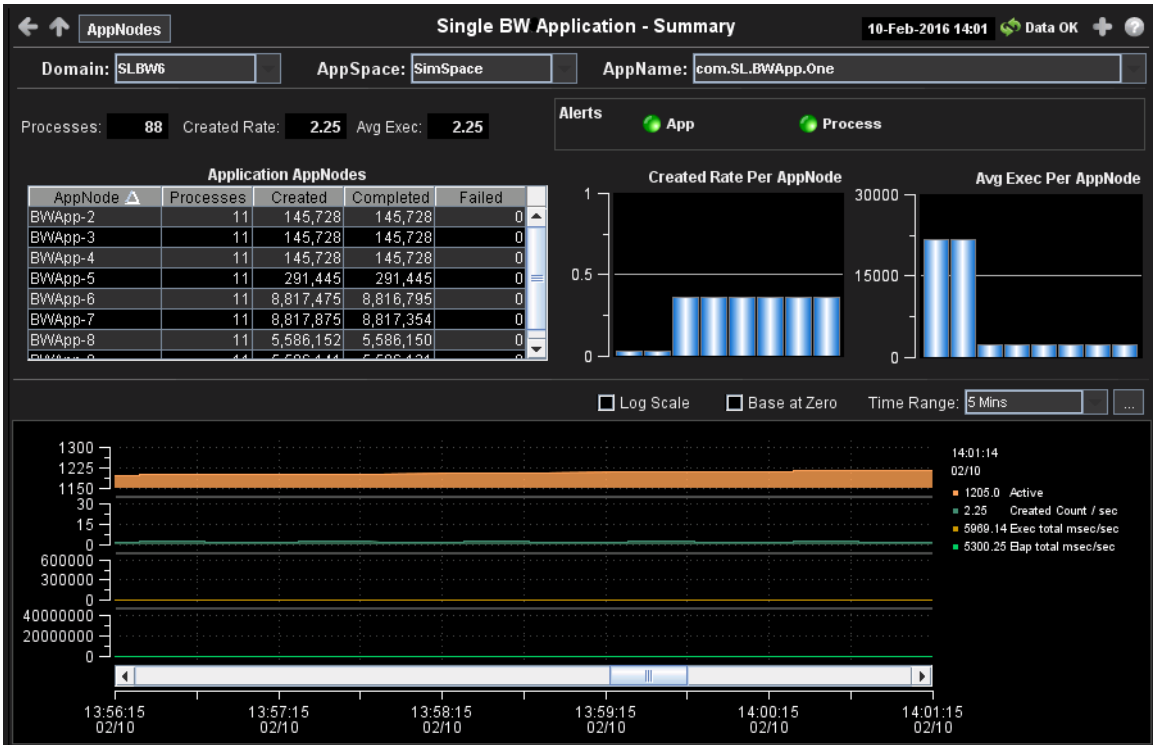
BW Single Application Summary

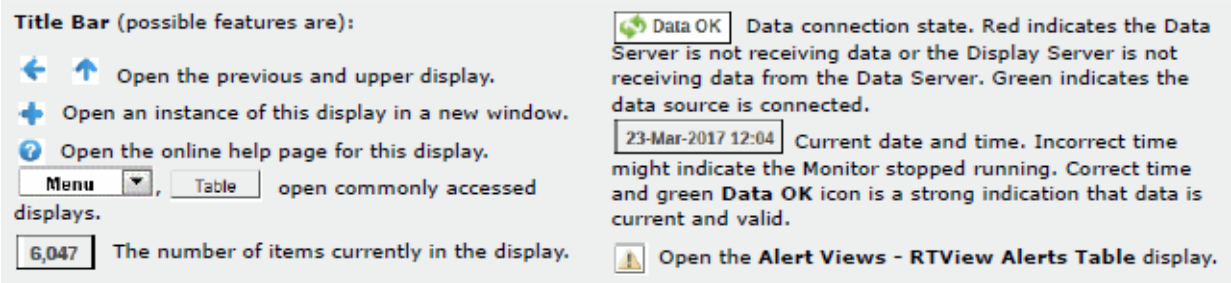
View current and historical metrics for a single BusinessWorks application across multiple nodes. Use this display to investigate performance issues of application AppNodes within an AppSpace. Use this display to view all available data for each AppNode by Domain and AppSpace.

This display includes a list of AppNodes with their host names and memory metrics, bar graphs per AppNode for process creation and execution, and trend graphs of process creation and execution metrics.

The summary display also shows the AppNodes of the deployment and process metrics totaled by AppNode. This is useful to see the deployment and load balancing of the Application in current and historical time.

Choose a domain, AppSpace and Application from the drop-down menus. Drill-down and investigate by clicking an AppNode in the table to view details in the "BW Single AppNode Summary" display.





Filter By:
The display might include these filtering options:

Domain: Select the domain for which you want to view data in the display.

AppSpace Choose the AppSpace for which you want to view data in the display.

AppName: Choose the AppName for which you want to view data in the display.

Fields and Data:

Processes: The number of processes currently running for the selected application.

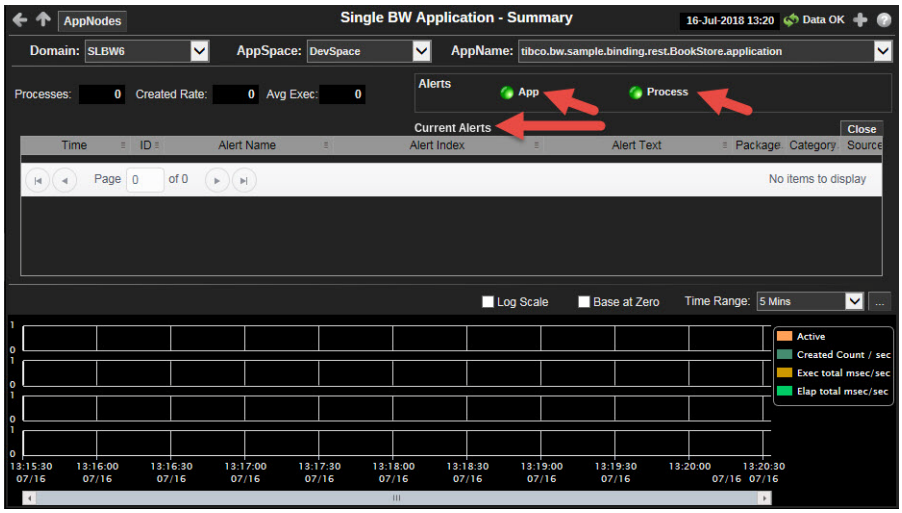
Created Rate: The number of processes created per second for the selected application.

Avg Exec: The average number of seconds for processes to execute for the selected application.

Alerts
Indicates the greatest severity level and the number of open **App** and **Process** alerts for the selected application. Values range from **0** to **2**, where **2** is the greatest Severity:

- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Click on the alert indicator to display a table listing the current alerts for the selected application. Click the **Close** button (for the current alerts table) to close the table.



Application Appnodes Table
Each row in the table is a different AppNode. Column values describe processes for the selected application on that AppNode. Click a row to view AppNode details in the "BW Single AppNode Summary" display.

AppNode	The name of the AppNode.
Processes	The number of processes currently running on the AppNode.
Created	The total number of processes created on the AppNode.
Completed	The total number of completed processes on the AppNode.
Failed	The total number of failed processes on the AppNode.

Created Rate Per AppNode Bar Graph
The bar graph shows the current process creation rate per AppNode. Click to drill-down and investigate in the "BW Single AppSlice Summary" display.

AvgExec Per AppNode Bar Graph
The bar graph shows the current average process execution rate per AppNode for the selected application. Click to drill-down and investigate in the "BW Single AppSlice Summary" display.

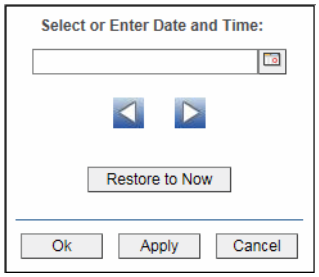
Trend Graphs
Traces the sum of process metrics across all processes in all slices of the selected application.

Active	Traces the number of currently active application processes.
Created Count / sec	Traces the number of created application processes.
Exec total msec/sec	Traces the rate at which the application is accumulating process execution time, in milliseconds per second.
Elap total msec/sec	Traces the rate at which the application accumulates process elapsed time, in milliseconds per second.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW Containers

These displays present process performance data for your BusinessWorks containers across BusinessWorks Domains. Process metrics are totaled by container. Use these displays to monitor critical alerts for all your BusinessWorks containers, and investigate those alerts in lower-level displays. Displays in this View are:

- "All Containers Heatmap" on page 1124: A color-coded heatmap view of selected container performance metrics.
- "All Containers Table" on page 1127: A tabular view of all available container performance data in this BusinessWorks View.
- "Single Container Summary" on page 1130: Current and historical metrics for a single container.

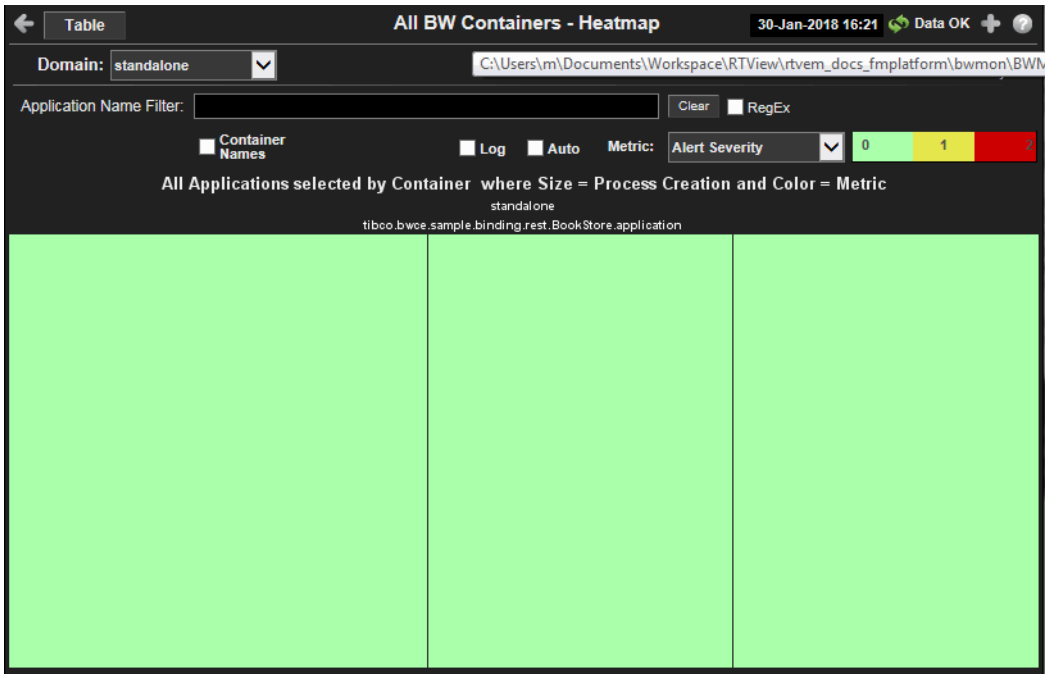
All Containers Heatmap

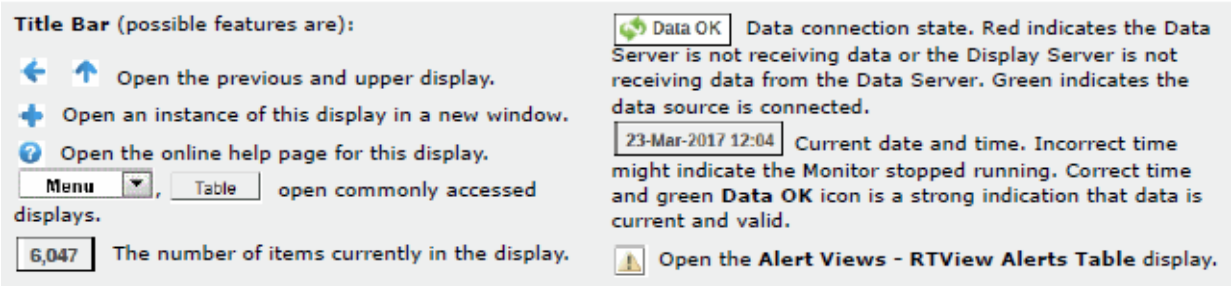
View the most critical BusinessWorks container alert states pertaining to process creation and execution for all nodes on which the containers are deployed. Use this display to quickly identify containers with critical alerts.

Each rectangle in the heatmap represents a container. The rectangle color indicates the most critical alert state associated with the container. The rectangle size represents process creation across containers; a larger size is a larger value.

Choose a domain and AppSpace from the drop-down menus containing the containers for which you want to view metrics. By default, this display shows the heatmap based on the **Alert Severity** metric, but you can select a different metric from the **Metric** drop-down menu to view the heatmap based on the selected metric. To view data shown for a specific container(s) in the display, enter a string in the **Container Name Filter** field. Use the **Container Names** check-box ☑ to include or exclude labels in the heatmap. You can mouse over a rectangle to see additional metrics.

Drill-down and investigate a container by clicking a rectangle in the heatmap, which opens the details for the selected container in the "Single Container Summary" display.





Filter By:
The display might include these filtering options:

Domain:	Select the domain for which you want to view data in the display.
Application Name Filter	Enter a string (all or part of an application name) to filter the data shown in the display. If you enter part of a application name, you must enter "*****" before and/or after the string. For example, if you have an application named AppNameOne, you could filter using *Name*, *NameOne, or AppName*. You can also enable the **RegEx** toggle to just enter a portion of the application name.

Clear Clears the **Application Name Filter** entries from the display.

RegEx Toggles the **Application Name Filter** to accept Regular Expressions for filtering. For example, if your application name is AppNameOne and this option was toggled on, you could enter "Name" (without using "*"to display the application in the heatmap).

Container Names Check to include container name labels in the heatmap.

Fields and Data:

Count: The total number of containers currently shown in the display.

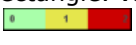
Running The total number of containers currently running in the display.

Running Only Select to show only running containers in the display.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

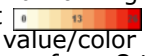
Metric Choose a metric to view in the display.

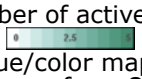
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

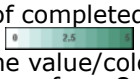
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

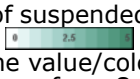
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

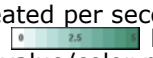
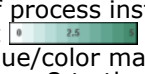
Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Active Count The total number of active processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Completed Count The total number of completed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Suspended Count The total number of suspended processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

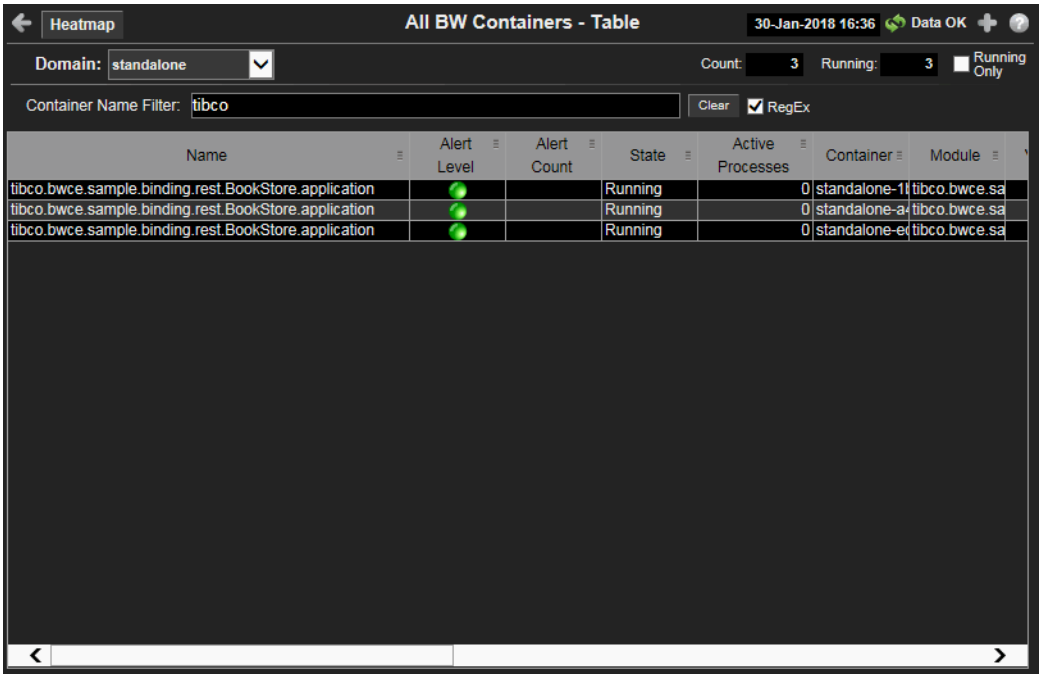
Failed Count	The total number of failed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Created / sec	The number of processes created per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Suspended / sec	The number of suspended processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Failed / sec	The number of failed processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Exec Time / sec	The process execution time per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Most Recent Exec Time	The execution time for the most recently executed process in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Exec Time	The average execution time for all processes in the heatmap rectangle, calculated by dividing the delta execution time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Elapsed Time	The average elapsed time for all processes in the heatmap rectangle, calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

All Containers Table

This display provides a view of the most critical BusinessWorks container alert states pertaining to process creation and execution for all nodes on which the containers are deployed in a tabular format. Use this display to quickly identify containers with critical alerts. Each row in the table is a container in the selected domain.

Select a domain from the drop-down menu to view associated containers and, optionally, enter a string in the **Container Name Filter** field to further limit the list of containers shown in the display. You can click a column header to sort column data in numerical or alphabetical order.

To view additional details for a specific container, drill-down and investigate by clicking the row in the table for the desired container, which opens the "Single Container Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

Container Name Filter Enter a string (all or part of a container name) to filter the data shown in the display. If you enter part of an container name, you must enter "*****" before and/or after the string. For example, if you have a container named ContNameOne, you could filter using *Name*, *NameOne, or ContName*.

Clear Clears the **Container Name Filter** entries from the display.

RegEx Toggles the **Container Name Filter** to accept Regular Expressions for filtering. For example, if your application name is ContNameOne and this option was toggled on, you could enter "Name" (without using "*****"to display the container in the table).

Fields and Data:

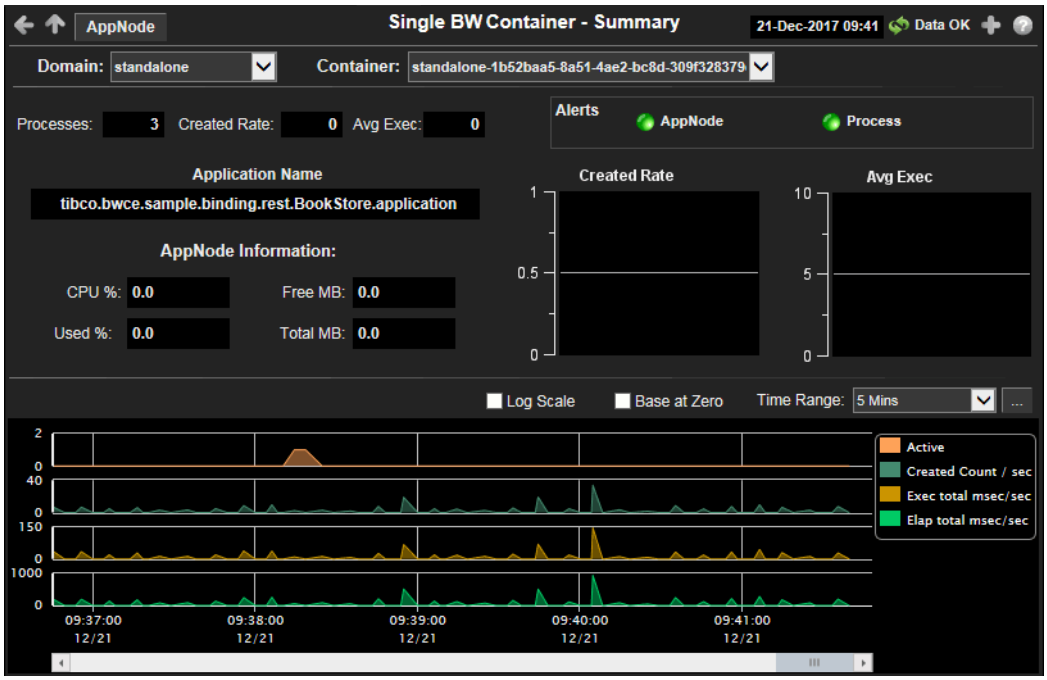
Count: The total number of containers listed in the table.

Running	The total number of containers that are currently running.
Running Only	Select to show only running containers in the display.

Table:
Each row in the table is a different application.

Name	The name of the container.
Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts in the container.
State	The current status of the application. Valid values are **Running** and **Stopped.**
Active Processes	The number of currently active processes in the container.
Container	The name of the container.
Module	The name of the container module.
Version	The version of the container.
Average Exec Time	The average number of seconds for all processes to execute.
Completed Processes	The number of completed processes in the container.
Expired	When checked, data has not been received from this host in the specified amount of time.
Failed Processes	The number of failed processes in the container.
Recent Exec Time	The number of seconds for the most recently executed process.
Created /sec	The number of processes created per second in the container.
Failed /sec	The number of process failures per second in the container.
Suspended / sec	The number of process suspensions per second in the container.
Exec Time/ sec	The number of processes executed per second in the container.
Suspended Processes	The number of suspended application processes in the container.
Time Stamp	The date and time the row data was last updated.
Source	Name of RTView Data Server sending this data (or localhost).

Single Container Summary



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Select the domain for which you want to view data in the display.

Container Choose the container for which you want to view data in the display.

Fields and Data:

Processes: The number of processes currently running on the selected container.

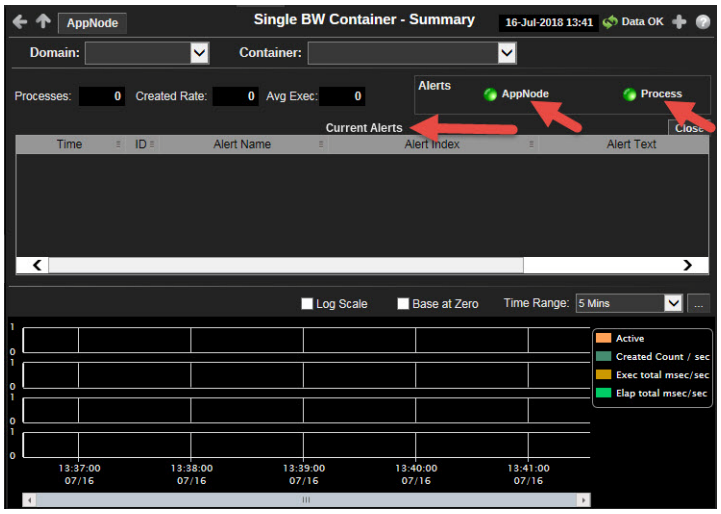
Created Rate: The number of processes created per second on the selected container.

Avg Exec: The average number of seconds for processes to execute on the selected container.

Alerts
Indicates the greatest severity level and the number of open **AppNode** and **Process** alerts for the selected container. Values range from **0** to **2**, where **2** is the greatest Severity:

- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Click on the alert indicator to display a table listing the current alerts for the selected container. Click the **Close** button (for the current alerts table) to close the table.



Application Name The name of the application running on the container.

AppNode Information

CPU %	The percentage of CPU used by the AppNode.
Used %	The percentage of memory used by the AppNode.
Free MB	The amount of free memory, in megabytes.
Total MB	The total amount of used and free memory, in megabytes.

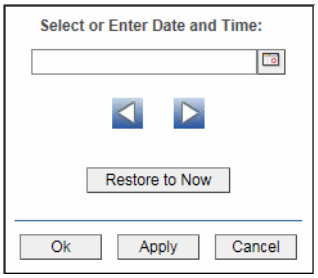
Created Rate Bar Graph
The bar graph shows the current process creation rate per AppNode. Click to drill-down and investigate in the "BW Single AppSlice Summary" display.

AvgExec Bar Graph
The bar graph shows the current average process execution rate per AppNode for the selected application. Click to drill-down and investigate in the "BW Single AppSlice Summary" display.

Trend Graphs
Traces the sum of process metrics across all processes in all slices of the selected container.

Active	Traces the number of currently active application processes on the container.
Created Count / sec	Traces the number of created application processes on the container.
Exec total msec/sec	Traces the rate at which the application is accumulating process execution time, in milliseconds per second, on the container.

Elap total msec/sec	Traces the rate at which the application accumulates process elapsed time, in milliseconds per second, on the container.
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW AppNodes

These displays present internal JVM memory and host CPU utilization for BusinessWorks AppNodes and their resources. This is useful because the AppNode performance is dependent on both internal and external factors and they sometimes interact. Displays in this View are:

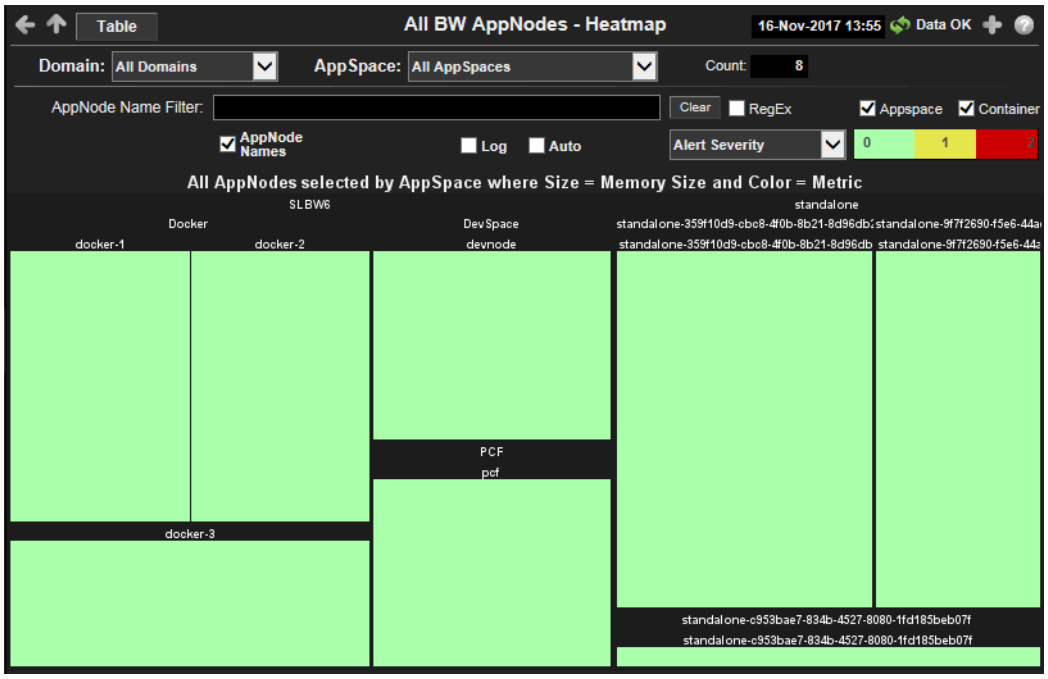
- "BW All AppNodes Heatmap" on page 1132: A color-coded heatmap view of utilization metrics.
- "BW All AppNodes Table" on page 1135: A tabular view of all available utilization data in this BusinessWorks View.
- "BW Single AppNode Summary" on page 1137: Current and historical metrics for a single AppNode.

BW All AppNodes Heatmap

View the most critical JVM memory and host resource utilization for BusinessWorks AppNodes. Use this display to quickly identify AppNodes with critical alerts.

Each rectangle in the heatmap represents an AppNode. The rectangle color indicates the most critical alert state associated with the AppNode. The rectangle size represents the maximum memory used in the rectangle; a larger size is a larger value.

Choose a domain and AppSpace from the drop-down menus. Choose a different metric to display from the **Metric** drop-down menu. Enter a string in the **AppNode Name Filter** field to limit data shown in the display. Use the **AppNode Names** check-box ☑ to include or exclude labels in the heatmap. Mouse over a rectangle to see additional metrics. By default, this display shows **Alert Severity**. Drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected application in the "BW Single AppNode Summary" display.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display.
AppSpace	Choose an AppSpace to show data for in the display.
Count:	The total number of AppNodes in the AppSpace.

AppNode Name Filter Enter a string to limit data shown in the display.

Clear Clears the **Application Name Filter** entries from the display.

RegEx Toggles the **Search Text** field to accept Regular Expressions for filtering.

AppSpace When selected, those AppNodes deployed in an AppSpace display in the heatmap.

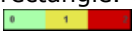
Container When selected, those AppNodes deployed in a container display in the heatmap.

AppNode Names Check to include labels in the heatmap.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display.

Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

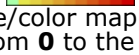
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

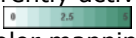
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Used% The percent (%) CPU used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Memory Used% The percent (%) memory used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Active Processes The number of currently active processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

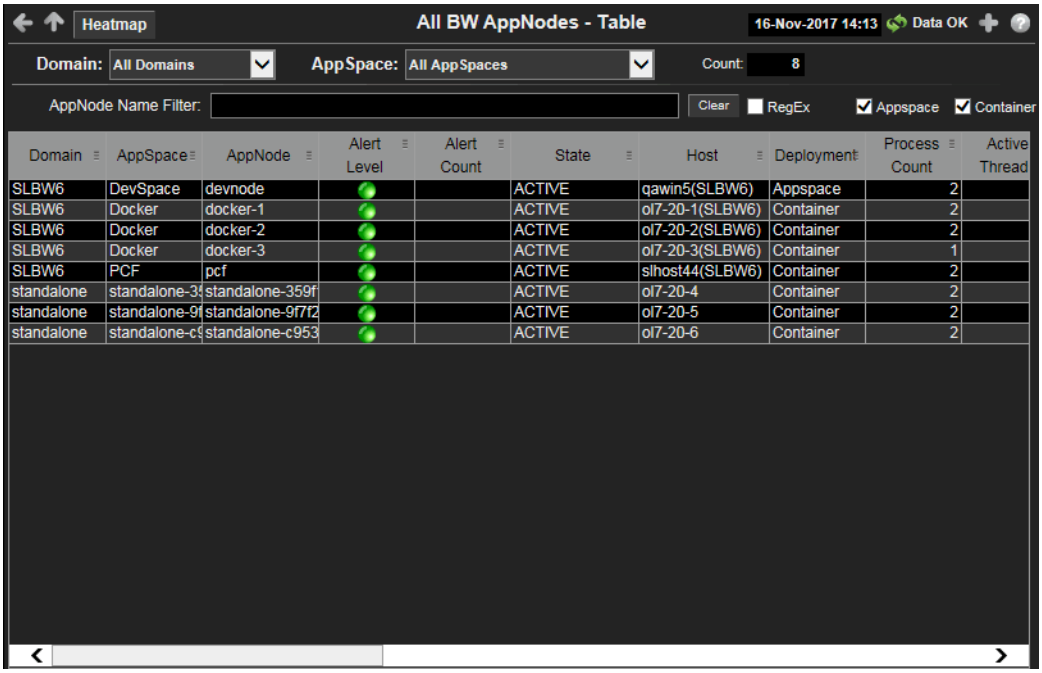
Created Processes	The number of processes created in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Created /sec	The number of processes created per second in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

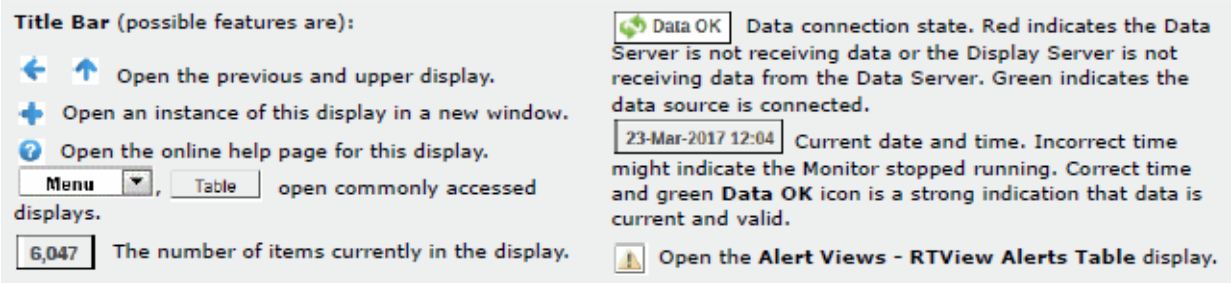
BW All AppNodes Table

View BusinessWorks data shown in the "BW All AppNodes Heatmap" display, and additional details, in a tabular format. Use this display to view all available data for each AppNode by Domain and AppSpace.

Each row in the table is an AppNode. Choose a domain and AppSpace from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order. Enter a string in the **Application Name Filter** field to limit data shown in the display.

Drill-down and investigate by clicking a row to view details for the selected AppNode in the "BW Single AppNode Summary" display.





Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display.
AppSpace	Choose an AppSpace to show data for in the display.
Count:	The total number of rows in the table.
AppNode Name Filter	Enter a string to limit data shown in the display.
Clear	Clears the **Application Name Filter** entries from the display.
RegEx	Toggles the **Search Text** field to accept Regular Expressions for filtering.
AppSpace	When selected, those AppNodes deployed in an AppSpace display in the AppNodes table.
Container	When selected, those AppNodes deployed in a container display in the AppNodes table.
Count:	The total number of rows in the table.

Table:
Column values describe the AppNode.

Domain	The domain in which the AppNode resides.
AppSpace	The AppSpace in which the AppNode resides.
AppNode	The name of the AppNode.
Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the AppNode.
Host	The host on which the AppNode resides.
Process Count	The number of processes running.
Active Threads	The number of currently active threads.
Total Memory	The total amount of used and free memory, in megabytes.
Used Memory	The amount of used memory, in megabytes.

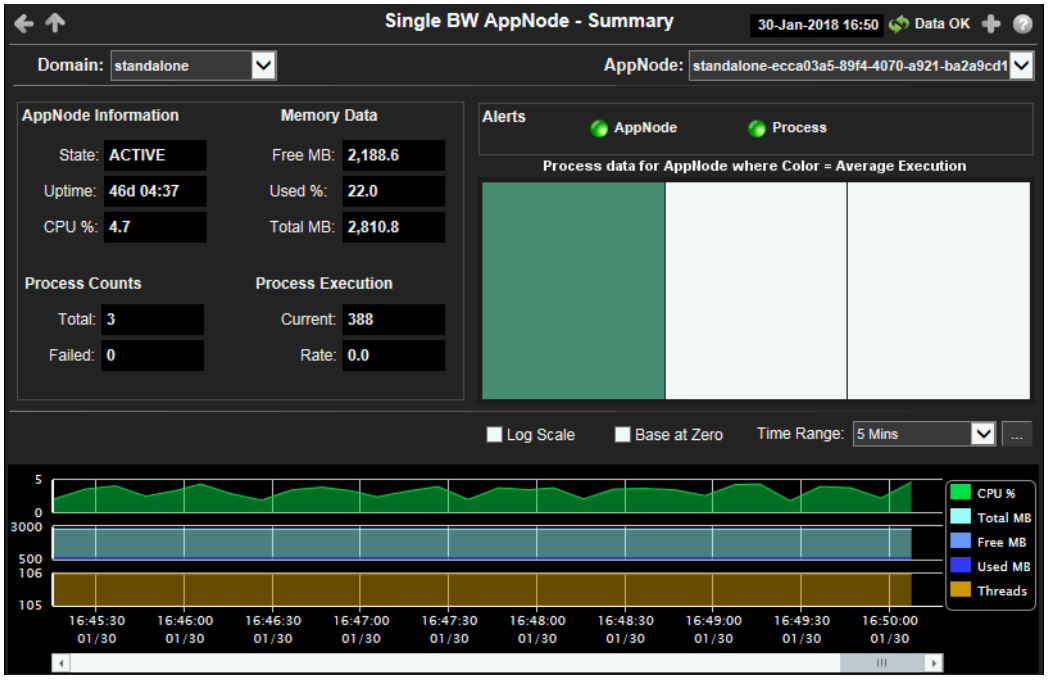
Free Memory	The amount of free memory, in megabytes.
Used Memory%	The percent (%) used memory.
Used CPU%	The percent (%) used CPU.
System Process ID	A unique string identifier for the process.
Up Since	The date and time the AppNode was last started.
Active Processes	The number of currently active processes.
Suspended Processes	The number of suspended application processes.
Failed Processes	The number of failed application processes.
Completed Processes	The number of completed application processes.
Created /sec	The number of application processes created per second.
Suspended / sec	The number of application processes suspended per second.
Failed /sec	The number of failed application processes per second.
Exec Time / sec	The number of application processes executed per second.
Recent Exec Time	The number of seconds for the most recently executed process.
Average Exec Time	The average number of seconds for all processes to execute.
Time Stamp	The date and time the row data was last updated.
Source	Name of RTView Data Server sending this data (or localhost).

BW Single AppNode Summary

View current and historical utilization and performance metrics for a single BusinessWorks AppNode. Use this display to investigate performance issues on an AppNode.

This display includes a heatmap showing most critical alerts pertaining to process execution, and trend graphs tracing CPU utilization and thread count.

Choose a domain, AppSpace and AppNode from the drop-down menus. Use the **Time-Range** to "zoom-in" or "zoom-out" on a specific time frame in the trend graph. Drill-down and investigate by clicking an AppNode in the table to view details in the "BW Single AppNode Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

AppSpace Choose an AppSpace to show data for in the display.

AppNode: Choose an AppNode to show data for in the display.

Fields and Data:

AppNode Information

Uptime: The number of days, hours and minutes since the AppNode started.

CPU% The percent (%) CPU used on the AppNode.

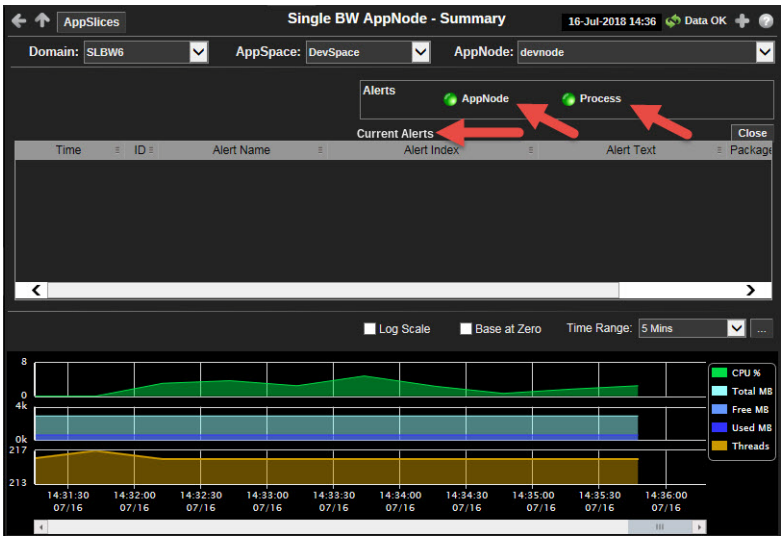
Threads: The number of currently active threads for the AppNode.

Memory Data

Free: The amount of available memory on the AppNode.

Used% The percent (%) memory used on the AppNode.

	Total	The total amount of memory on the AppNode.
Process Counts	**Total:**	The number of currently active processes for the AppNode.
	Failed:	The number of failed processes for the AppNode.
Process Execution	**Current**	The number of processes executed by the AppNode.
	Rate:	The number of processes executed per second.
Alerts		Indicates the greatest severity level and the number of open **AppNode** and **Process** alerts for the selected AppNode. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded. Click on the alert indicator to display a table listing the current alerts for the selected AppNode. Click the **Close** button (for the current alerts table) to close the table.



Heatmap
Each rectangle in the heatmap represents an AppSlice. The rectangle color indicates the most critical **Average Exec Time** alert state associated with the AppSlice. The rectangle size represents the maximum number of processes executed in the rectangle; a larger size is a larger value. Click a rectangle to drill-down and investigate in the "BW Single AppSlice Summary" display.

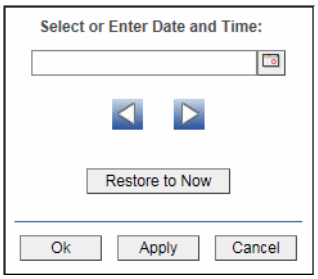
Trend Graphs
Traces the sum of process metrics across all processes for all applications on the AppNode.

- **CPU%**: The percent (%) CPU used on the AppNode.
- **Total MB**: The amount of memory used.
- **Free MB**: The amount of available memory.
- **Used MB**: The amount of used memory.
- **Threads**: The number of threads.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW AppSlices

These displays present process metrics totaled by Application and AppNode for AppSlices. This is useful to see how the application is distributed and how each part of it is performing. The AppSlice is the part of an application running on a specific AppNode when the application is deployed to multiple AppNodes. Displays in this View are:

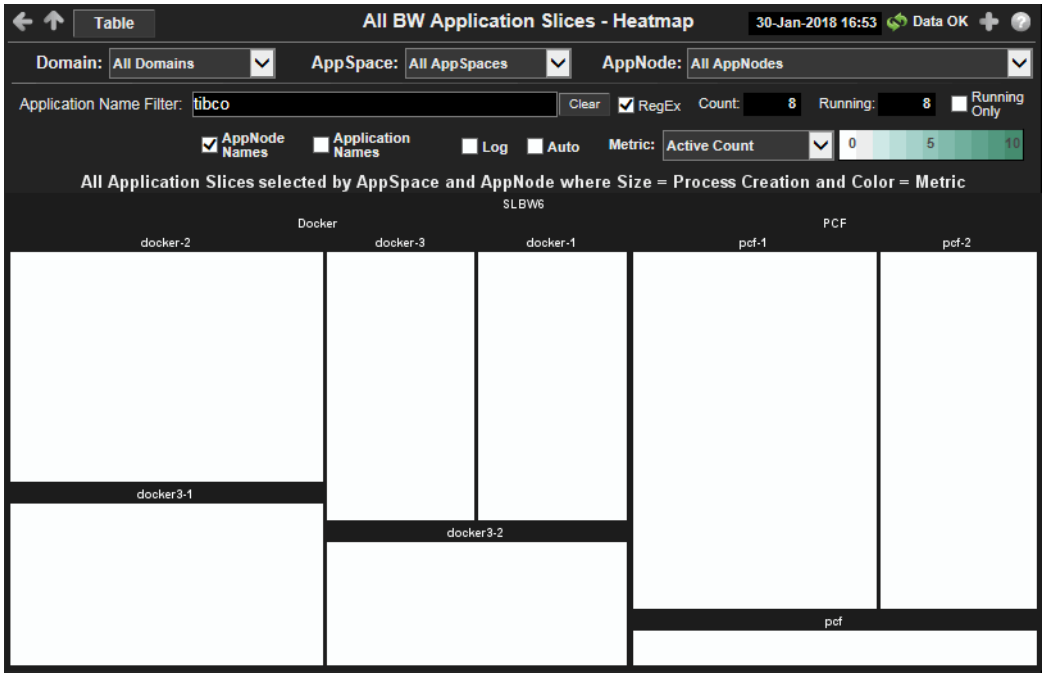
- "BW All AppSlices Heatmap" on page 1140: A color-coded heatmap view of process creation and execution metrics.
- "BW All AppSlices Table" on page 1143: A tabular view of all available data in this BusinessWorks View.
- "BW Single AppSlice Summary" on page 1145: Current and historical metrics for a single AppSlice.

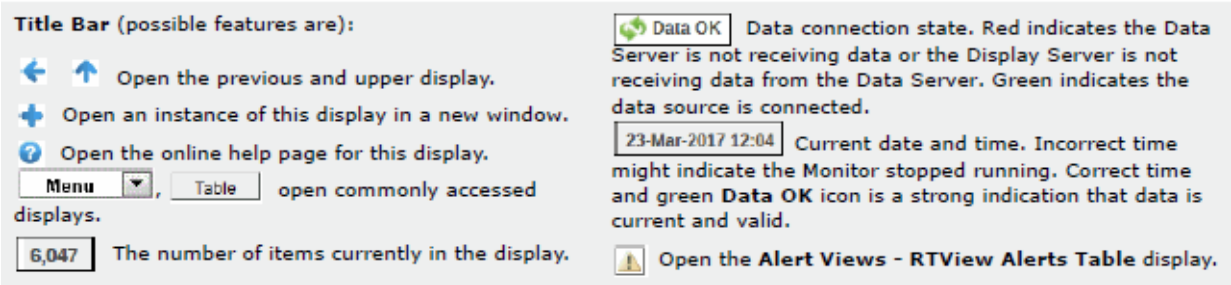
BW All AppSlices Heatmap

View the most critical performance metrics for BusinessWorks AppSlices. Use this display to quickly identify AppSlices with high process execution numbers.

Each rectangle in the heatmap represents an AppSlice. The rectangle color indicates the process execution numbers for the AppSlice. The rectangle size represents the number of processes created in the rectangle; a larger size is a larger value.

Choose a domain, AppSpace and AppNode from the drop-down menus. Choose a different metric to display from the **Metric** drop-down menu. Enter a string in the **Application Name Filter** field to limit data shown in the display. Use the **AppNode Names** and **Application Names** check-boxes ☑ to include or exclude labels in the heatmap. Mouse over a rectangle to see additional metrics. By default, this display shows **Active Count**. Drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected application in the "BW Single AppSlice Summary" display.





Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

AppSpace Choose an AppSpace to show data for in the display.

AppNode: Choose an AppNode to show data for in the display.

Fields and Data:

Application Name Filter Enter a string to limit data shown in the display.

Clear Clears the **Application Name Filter** entries from the display.

RegEx Toggles the **Search Text** field to accept Regular Expressions for filtering.

Count The number of AppNodes in the display.

Running The total number of AppSpaces currently running in the display.

Running Only Select to show only running applications in the display.

AppNode Names Check to include labels in the heatmap.

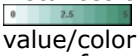
Application Names Check to include labels in the heatmap.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display.

- **Active Count** The total number of active processes in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
- **Completed Count** The total number of completed processes in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
- **Suspended Count** The total number of suspended processes in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
- **Failed Count** The total number of failed processes in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
- **Created / sec** The number of processes created per second in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
- **Suspended / sec** The number of suspended processes per second in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

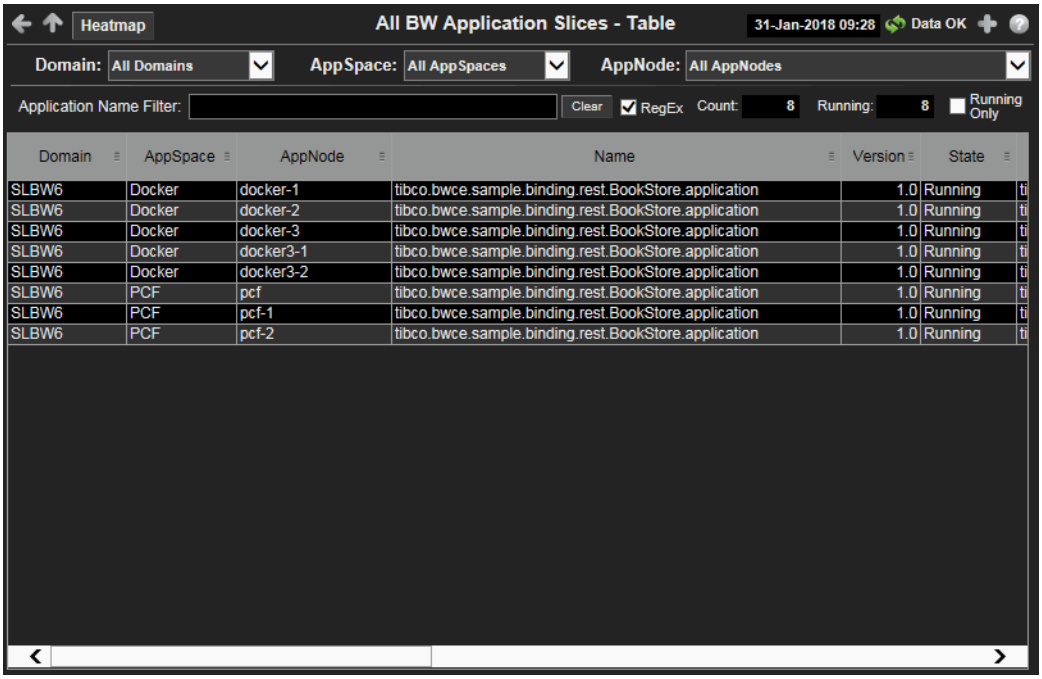
Failed / sec	The number of failed processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Exec Time / sec	The process execution time per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Most Recent Exec Time	The execution time for the most recently executed process in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Exec Time	The average execution time for all processes in the heatmap rectangle, calculated by dividing the delta execution time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Elapsed Time	The average elapsed time for all processes in the heatmap rectangle, calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

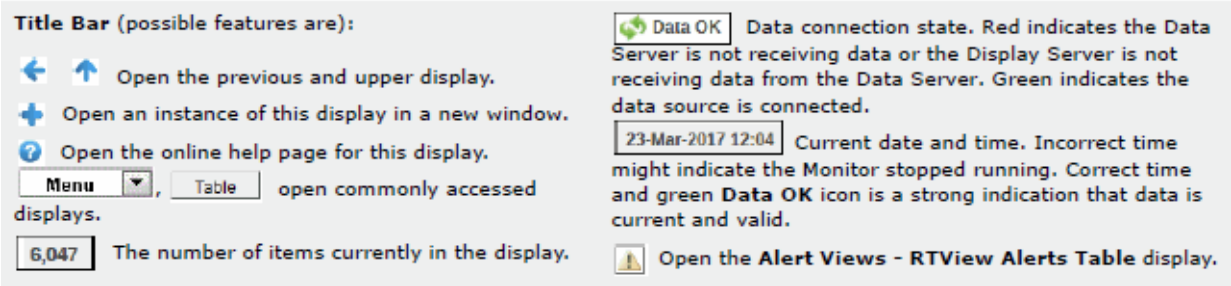
BW All AppSlices Table

View BusinessWorks data shown in the "BW All AppSlices Heatmap", and additional details, in a tabular format.

Each row in the table is an AppSlice. Choose a domain (or **All Domains**), an AppSpace (or **All AppSpaces**) and an AppNode (or **All AppNodes**) from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order. Enter a string in the **Application Name Filter** field to limit data shown in the display.

Drill-down and investigate by clicking a row to view details in the "BW Single AppSlice Summary" display.





Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display.
AppSpace	Choose an AppSpace to show data for in the display.
AppNode	Choose an AppNode to show data for in the display.
Application Name Filter	Enter a string to limit data shown in the display.
Clear	Clears the **Application Name Filter** entries from the display.
RegEx	Toggles the **Application Name Filter** to accept Regular Expressions for filtering.

Fields and Data:

Count:	The total number of rows in the table.
Running	The total number of applications currently running in the AppSpace.

Running Only	Select to show only running applications in the display.

Table:
Each row in the table is a different AppNode.

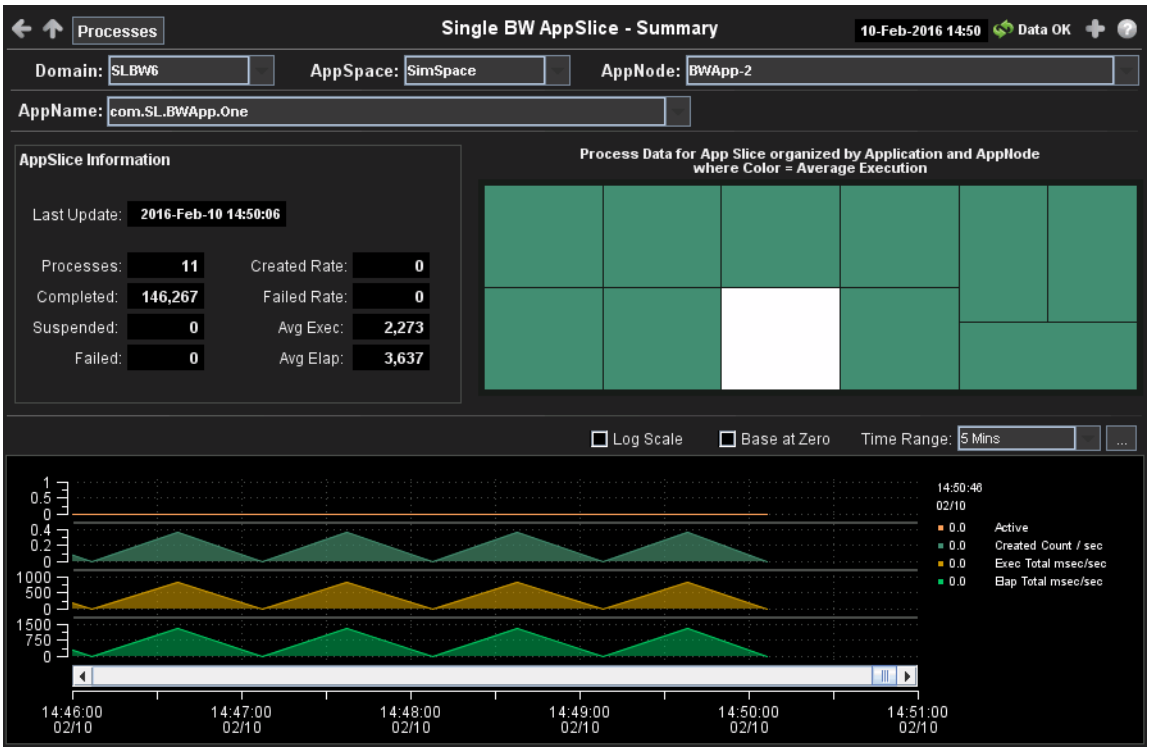
Domain	The domain in which the AppSpace resides.
AppSpace	The AppSpace the AppNode is associated with.
AppNode	The name of the selected AppNode.
Name	The name of the application.
Version	The application version.
State	The current status of the application. Valid values are **Running** and **Stopped**.
Module	The application module.
Shared Module	The shared module, if any.
Active Processes	The number of currently active application processes.
Suspended Processes	The number of suspended application processes.
Failed Processes	The number of failed application processes.
Completed Processes	The number of completed application processes.
Created /sec	The number of application processes created per second.
Suspended / sec	The number of application process suspensions per second.
Failed /sec	The number of application process failures per second.
Exec Time / sec	The number of processes executed per second.
Recent Exec Time /sec	The number of seconds for the most recently executed process.
Average Exec Time	The average number of seconds for all processes to execute.
Time Stamp	The date and time the row data was last updated.
Source	Name of RTView Data Server sending this data (or localhost).

BW Single AppSlice Summary

View current and historical utilization and performance metrics for a single BusinessWorks AppSlice. Use this display to investigate performance issues on an AppSlice level.

This display includes a heatmap showing the most critical process execution alerts for AppSlices on the selected application, and trend graphs tracing process execution times.

Choose a domain, AppSpace, AppNode and AppNode from the drop-down menus. Use the **Time-Range** to "zoom-in" or "zoom-out" on a specific time frame in the trend graph. Drill-down and investigate by clicking a process in the heatmap to view details in the "BW Single Process Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

AppSpace Choose an AppSpace to show data for in the display.

AppNode: Choose an AppNode to show data for in the display.

AppName: Choose an AppName to show data for in the display.

Fields and Data:

AppSlice Information

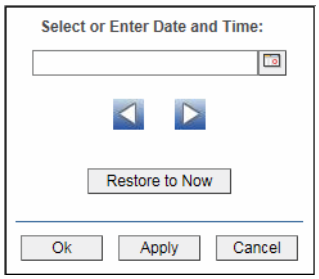
Last Update: The date and time the data was last updated.

Processes	The number of active processes.
Completed:	The total number of completed processes summed across all processes in one AppSlice of the application.
Suspended:	The total number of suspended processes
Failed:	The total number of failed processes
Created Rate:	The number of application processes created per second.
Failed Rate:	The number of failed application processes per second.
Avg Exec:	The average number of seconds for processes to execute.
Avg Elap:	The average amount of elapsed time for processes, in seconds.

Heatmap
Each rectangle in the heatmap represents one process in an AppSlice. The rectangle color indicates the most critical **Average Exec Time** alert state associated with the AppSlice. The rectangle size represents the processes execution time in the rectangle; a larger size is a larger value. Click a rectangle to drill-down and investigate in the "BW Single Process Summary" display.

Trend Graphs
Traces the sum across all processes in one AppSlice of the application.
- **Active**: Traces the number of active processes.
- **Created Count**: Traces the number of processes created.
- **Exec Total msec/sec**: Traces the rate at which the application accumulates process execution time, in milliseconds per second.
- **Elap Total msec/sec**: Traces the rate at which the application is accumulating process elapsed time, in milliseconds per second.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW Processes

These displays present performance data for BusinessWorks processes. Use these displays to verify that individual BusinessWorks processes are executing and using resources as expected. Displays in this View are:

- "BW All Processes Heatmap" on page 1148: A color-coded heatmap view of selected process performance metrics.
- "BW All Processes Table" on page 1151: A tabular view of all available process performance data in this BusinessWorks View.
- "BW Single Process Summary" on page 1154: Current and historical metrics for a single process.

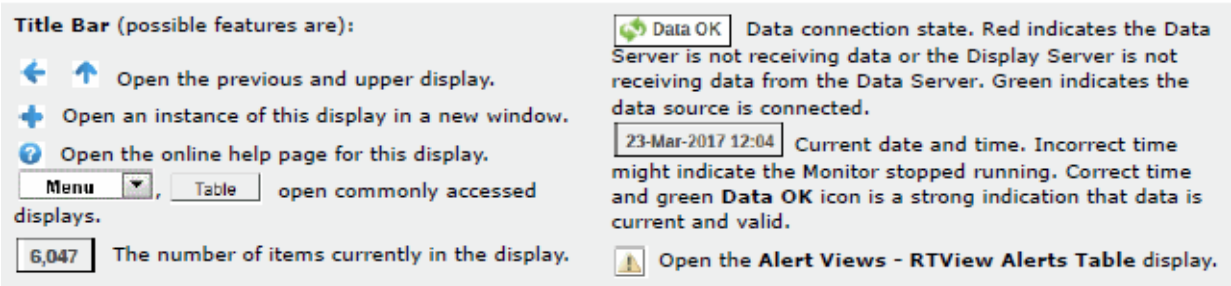
BW All Processes Heatmap

View the most critical BusinessWorks alerts pertaining to process creation and execution. Use this display to quickly identify processes with critical alerts.

Each rectangle in the heatmap represents a process. The rectangle color indicates the most critical alert state associated with the processes (the rectangle size is uniform for all processes.)

Choose a domain, applications, AppNode and AppSpace from the drop-down menus. Choose a different metric to display from the **Metric** drop-down menu. Enter a string in the **Process Name Filter** field to limit data shown in the display. Use the **Application Names** and **Process Names** check-boxes ☑ to include or exclude labels in the heatmap. Mouse over a rectangle to see additional metrics. By default, this display shows **Alert Severity**.

Drill-down and investigate by clicking a rectangle in the heatmap to view details in the "BW Single Process Summary" display.



Filter By:
The display might include these filtering options:

Domain: Choose a domain to show data for in the display.

AppSpace Choose an AppSpace to show data for in the display.

AppNode: Choose an AppNode to show data for in the display.

AppName Choose an AppName to show data for in the display.

Count: The total number of processes currently shown in the display.

Fields and Data:

Process Name Filter Enter a string to limit data shown in the display.

Clear Clears the **Processes Name Filter** entries from the display.

RegEx Toggles the **Processes Name Filter** to accept Regular Expressions for filtering.

Application Names Check to include labels in the heatmap.

Process Names Check to include labels in the heatmap.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

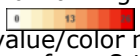
Metric Choose a metric to view in the display.

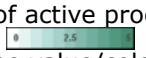
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Active Count The total number of active processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

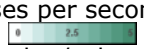
Completed Count The total number of completed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Suspended Count The total number of suspended processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Failed Count The total number of failed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Created / sec The number of processes created per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Suspended / sec The number of suspended processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Failed / sec The number of failed processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Exec Time / sec The process execution time per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Most Recent Exec Time The execution time for the most recently executed process in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

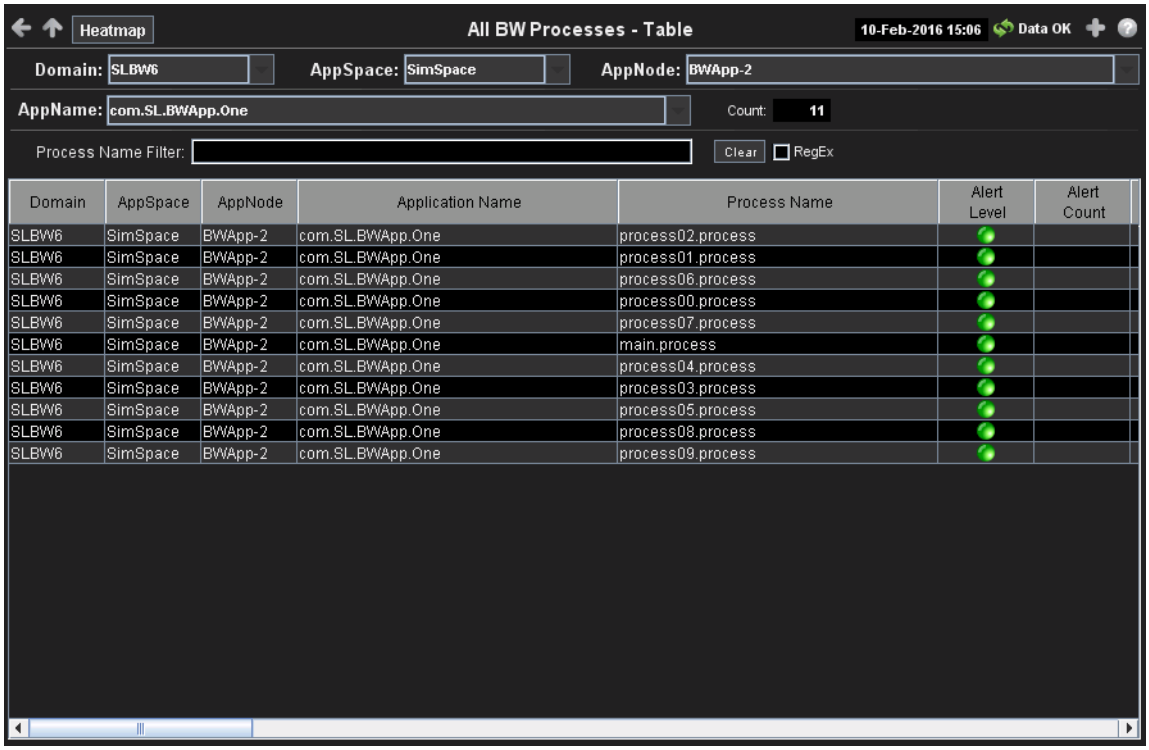
Average Exec Time	The average execution time for all processes in the heatmap rectangle, calculated by dividing the delta execution time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Most Recent Elapsed Time	The elapsed time for the most recent process in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Elapsed Time	The average elapsed time for all processes in the heatmap rectangle, calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

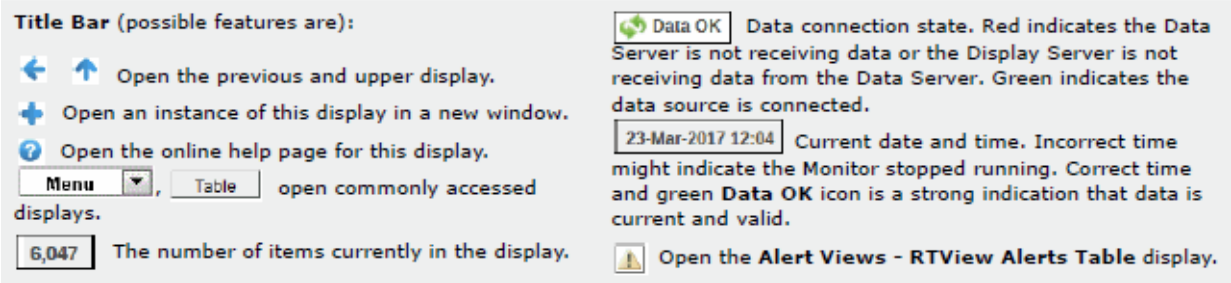
BW All Processes Table

View BusinessWorks data shown in the "BW All Applications Heatmap", and additional details, in a tabular format.

Each row in the table is a process. Choose a domain, applications, AppNode and AppSpace from the drop-down menus. Click a column header to sort column data in numerical or alphabetical order. Enter a string in the **Process Name Filter** field to limit data shown in the display.

Drill-down and investigate by clicking a row to view details for the selected process in the "BW Single Process Summary" display





Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display.
AppSpace	Choose an AppSpace to show data for in the display.
AppNode:	Choose an AppNode to show data for in the display.
AppName	Choose an AppName to show data for in the display.

Fields and Data:

Count:	The total number of processes in the AppSpace.
Process Name Filter	Enter a string to limit data shown in the display.
Clear	Clears the **Application Name Filter** entries from the display.
RegEx	Toggles the **Application Name Filter** to accept Regular Expressions for filtering.

Table:
Each row in the table is a different AppSlice. Column values are associated with the process.

Domain	The domain in which the process resides.
AppSpace	The AppSpace in which the process resides.
AppNode	The AppSpace in which the process resides.
Application Name	The name of the application in which the process is running.
Process Name	The name of the process.
Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the process.
Total Exec Time	Total execution time (in milliseconds) for all successfully completed process instances.
Delta Exec Time	Execution time accumulated during the current polling period.

Exec Time/ sec	Delta execution time per second.
Recent Exec Time	Execution time (in milliseconds) of the most recently completed process instance.
Total Elapsed Time	Total elapsed time (in milliseconds) for all successfully completed process instances.
Delta Elapsed Time	Elapsed time accumulated during the current polling period.
Elapsed Time/sec	Delta elapsed time per second.
Recent Elapsed Time	Elapsed clock time (in milliseconds) of the most recently completed process instance.
Active	The number of currently active processes
Created	The number of processes created.
Suspended	The number of process suspensions.
Failed	The number of process failures.
Completed	The number of completed processes.
Delta Active	The number of active processes since the last data update.
Active/sec	The number of active processes per second.
Delta Created	The number of created processes since the last data update.
Created/sec	The number of created processes per second.
Delta Suspended	The number of suspended processes since the last data update.
Suspended/ sec	The number of suspended processes per second.
Delta Completed	The number of completed processes since the last data update.
Completed/ sec	The number of completed processes per second.
Delta Failed	The number of failed processes since the last data update.
Failed/sec	The number of failed processes per second.
Min Exec Time	Execution time (in milliseconds) of the process instance that has completed in the shortest amount of execution time.
Max Exec Time	Execution time (in milliseconds) of the process instance that has completed in the longest amount of execution time.
Average Exec Time	Average execution time (in milliseconds) for all successfully completed process instances.
Min Elapsed Time	Elapsed clock time (in milliseconds) of the process instance that has completed in the shortest amount of elapsed time.
Max Elapsed Time	Elapsed clock time (in milliseconds) of the process instance that has completed in the longest amount of elapsed time.

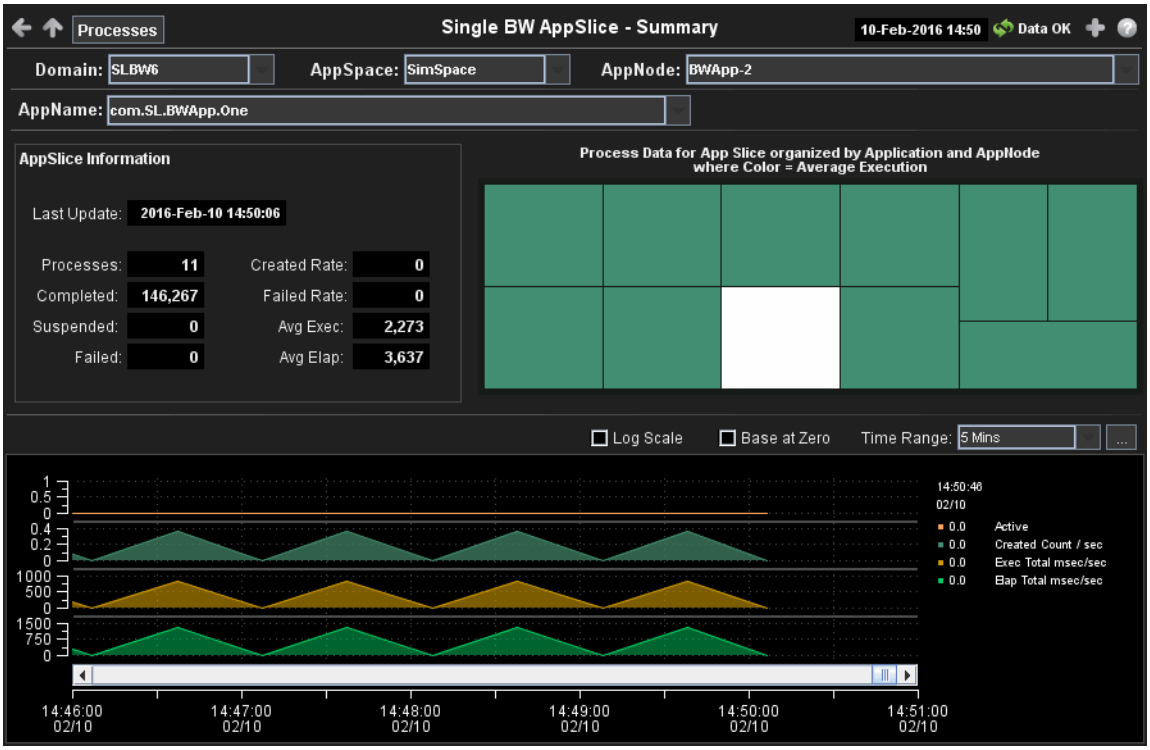
Average Elapsed Time	Average elapsed clock time (in milliseconds) for all successfully completed process instances.
Count Since Reset	The number of times the process has executed since statistics were reset.
Main Process	The name of the main process.
Application Version	The application version.
Module Name	The application module.
Module Version	The module version.
Time Stamp	The date and time the row data was last updated.
Source	Name of RTView Data Server sending this data (or localhost).

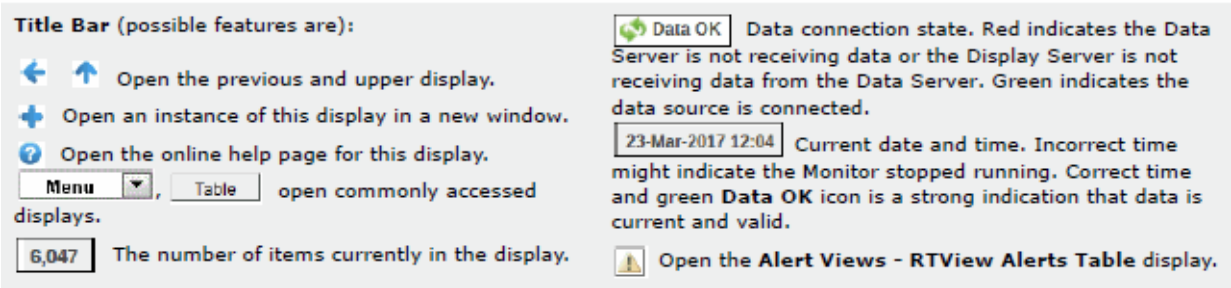
BW Single Process Summary

View current and historical execution metrics for a single BusinessWorks process. Use this display to investigate performance issues for a process.

This display includes trend graphs tracing process and activity execution counts and times.

Choose a domain, application, AppNode and AppSpace from the drop-down menus. Use the **Time-Range** to "zoom-in" or "zoom-out" on a specific time frame in the trend graph.





Filter By:
The display might include these filtering options:

Domain:	Choose a domain to show data for in the display.
AppSpace	Choose an AppSpace to show data for in the display.
AppNode:	Choose an AppNode to show data for in the display.
AppName	Choose an application to show data for in the display.
Process	Choose a process to show data for in the display.

Fields and Data:

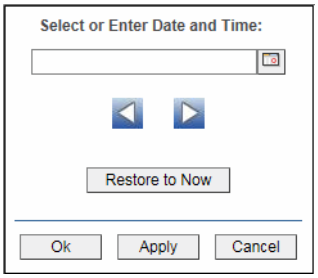
Activity Count:		The number of activities defined for the process.
Main Process:		The name of the main process.
Active		Number of active instances for this process definition. This number is calculated using the Hawk method named GetProcesses. This method returns information about process instances that are active at the time of update. The value here displays the current total count of all active instances discovered for this process definition. The trend below displays the same value over time.
Active/sec		The number of currently active application processes per second.
Created	**Total**	The number of process instances created for this process definition.
	Current	The number of process instances created this update cycle.
	Rate	The number of process instances created per second.
Completed	**Total**	The number of process instances completed for this process definition.
	Current	The number of process instances completed this update cycle.
	Rate	The number of process instances completed per second.
Errors	**Total**	The number of errors accumulated by all process instances.
	Current	The number of errors accumulated this update cycle.
	Rate	The number of errors accumulated per second.
Execution	**Min**	The shortest execution time of any process instance, in milliseconds.
	Max	The longest execution time of any process instance, in milliseconds.

	Average	The average execution time for all completed process instances, in milliseconds.
	Current	The amount of time accumulated this update cycle.
	Rate	The amount of time accumulated per second.
Elapsed	**Min**	The shortest elapsed time of any process instance, in milliseconds.
	Max	The longest elapsed time of any process instance, in milliseconds.
	Average	The average elapsed time for all completed process instances, in milliseconds.
	Current	The amount of elapsed time accumulated this update cycle.
	Rate	The amount of elapsed time accumulated per second.

Trend Graphs
Traces application process and activity metrics for the selected process.

- **Active Count**: Traces the number of currently active processes.
- **Created Count:** Traces the number of created processes.
- **Process Elapsed Time/sec**: Traces the rate at which the application is accumulating process elapsed time, in milliseconds per second.
- **Process Exec Time/sec**: Traces the rate at which the application is accumulating process execution time, in milliseconds per second.
- **All Activities Exec Count/sec**: Traces the number of executed activities per second.
- **All Activities Exec Time/sec**: Traces the amount of execution time for executed activities per second.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW5 Engines

These displays present performance metrics for BW5 Engines. Displays in this View are:

- "All Engines Heatmap" on page 1157:Performance metrics of CPU and memory utilization for all BW Engines.
- "All Engines Table" on page 1160: Available metrics from the Hawk microagent for each BW Engine.
- "All Engines Grid" on page 1163: Displays the main health metrics and a single trend graph per engine, summarizing the status of each BW Engine.
- "Single Engine Summary" on page 1165: Detailed performance metrics and alert status for a single BW Engine.

All Engines Heatmap

Quick view of BW5 Engines status for the selected **Filter** and **Server**. Each rectangle in the heatmap represents an engine. Rectangle size represents Max Heap Size and the color represents the most severe value in the heatmap rectangle is shown for the selected Metric. By default, the maximum **Alert Severity** is shown:

Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

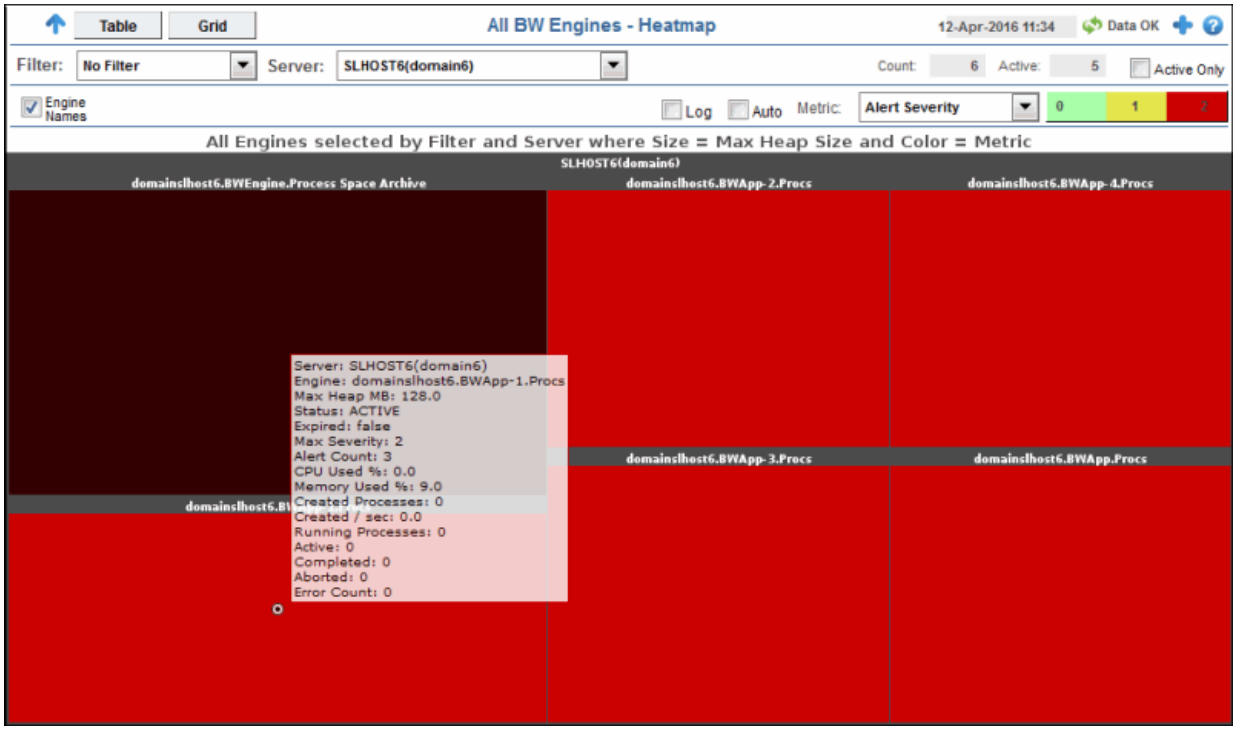
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

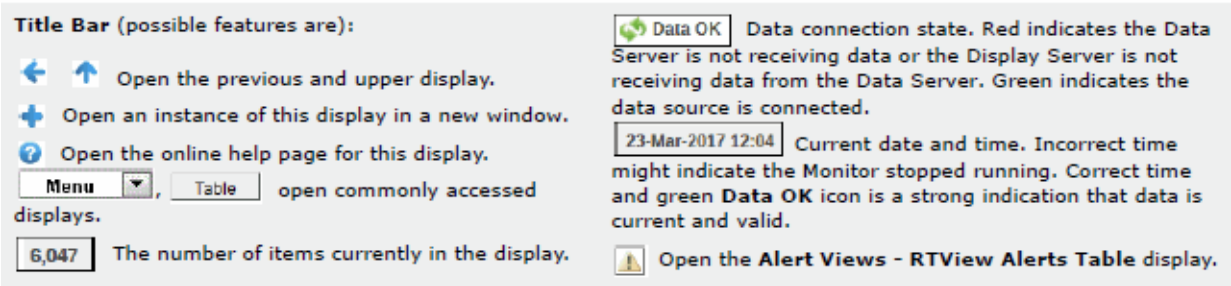
Green indicates that no metrics have exceeded their alert thresholds.

Mouseover to see the following performance metrics:

- **Server**: Server agent name.
- **Engine**: Engine name.
- **Max Heap MB**: Maximum heap allocated to this engine for the JVM.
- **Status**: ACTIVE, STOPPED or LIMITED.
- **Expired**: When checked, data has not been received from this host in the specified amount of time.
- **Alert Count**: Number of current alerts
- **CPU Used %**: Percent of server CPU used by engine.
- **Memory Used %**: Percentage of allocated memory currently consumed by this engine from within the JVM. Equal to the value of: (100*UsedBytes) divided by MaxBytes. NOTE: Percent used is Long.
- **Created Processes**: The total number of processes created.
- **Created / sec**: The number of processes created per second.
- **Running Processes**: The number of currently running processes.
- **Active**: The number of currently active processes.
- **Completed**: The total number of completed processes.
- **Aborted**: The total number of aborted processes.
- **Error Count**: The total number of errors.

Click on a node to drill down to the "Single Engine Summary" display to look at number of processes running, threads, history of memory utilization and other performance metrics for a specific engine. Mouse-over nodes to view details about engine performance and status.





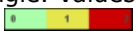
Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to show data for in the display.
Count:	The total number of engines in the display.
Active	Number of engines currently active.
Active Only	If selected, only engines with a status of ACTIVE are displayed. Otherwise, if deselected, all engines for the given Filter/Server selection are displayed.
Engine Names	Select this check box to display the names of the engines above their respective rectangles in the heatmap.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

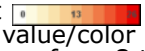
Metric Choose a metric to view in the display.

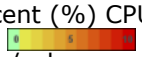
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

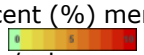
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

CPU Used% The percent (%) CPU used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Memory Used% The percent (%) memory used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Active Processes The number of currently active processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Running Processes The number of currently running processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

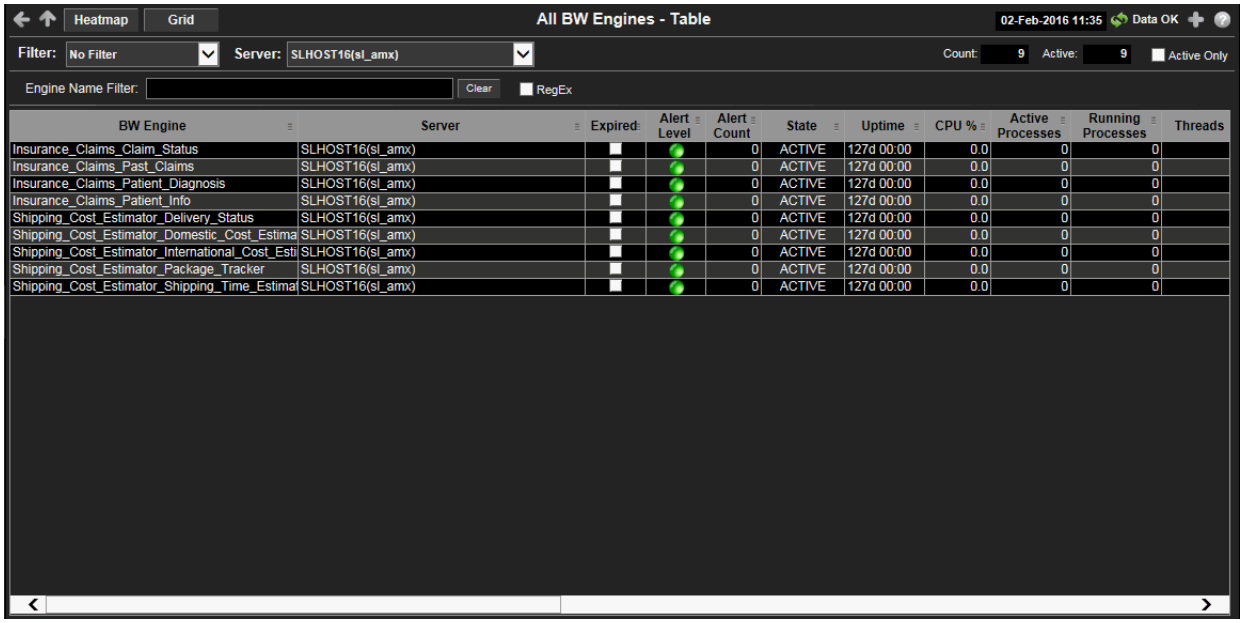
Created Processes The number of created processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Created/ sec The number of created processes in the heatmap rectangle, per second. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Error Count The total number of errors in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

All Engines Table

Each row in the table is an engine. Metrics are made available by the Hawk microagent for the engine (for details, refer to documentation for TIBCO ActiveMatrix Business Works Administration, Appendix A: TIBCO Hawk Microagent Methods). Click on an row to drill down to the "Single Engine Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Filter: Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.

Server: Choose a server to show data for in the display.

Count Number of engines currently being displayed.

Active Number of engines currently active.

Active Only If selected, only engines with a status of ACTIVE are displayed. Otherwise, if deselected, all engines for the given Filter/Server selection are displayed.

Engine Name Filter Enter all or part of engine name to view specific engines. NOTE: Wild card characters are supported.

Clear Removes Engine Name Filter and all engines for the given Filter/Server selection are displayed.

RegEx If selected, the specified Engine Name Filter will be interpreted as a full Regular Expression rather than a simple wildcard.

Table:

BW Engine BW Engine name.

Server Server agent name.

Expired When checked, data has not been received from this host in the specified amount of time.

Alert Level The most critical alert state for alerts in the row:
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
Green indicates that no metrics have exceeded their alert thresholds.

Alert Count Number of current alerts

State Engine status: ACTIVE, STOPPED, LIMITED, etc. (See **All Servers Grid**).

Uptime Uptime in milliseconds since the engine was started.

CPU % Percent of server CPU used by engine.

Active Processes Number of active processes calculated each update period using data returned by the Hawk method GetProcesses.
Note: This column will display **NaN** or **Not Available** for any engine whose status is **STOPPED**.

Running Processes Number of running processes.

Threads Number of threads used by the engine.

Memory Used% Percentage of allocated memory currently consumed by this engine from within the JVM. Equal to the value of: (100*UsedBytes) divided by MaxBytes. NOTE: Percent used is Long.

Max Heap Size Maximum heap allocated to this engine for the JVM.

Total Bytes Maximum heap memory this JVM has used.

Used Bytes Total bytes of memory within the JVM currently used by the engine. Equal to value of: MaxBytes minus FreeBytes.

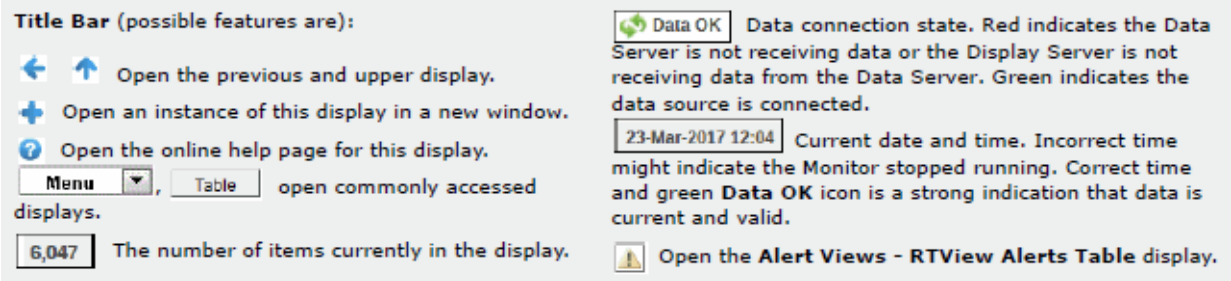
Free Bytes Amount of available memory from within the JVM.

Mem Usage KBytes Server memory in KB used by engine.

Errors	Total number of errors since the engine was started.
Delta Errors	Current number of new errors.
Errors/sec	Error rate per second.
Created Processes	The total number of processes that were created.
Completed Processes	The total number of processes that were completed.
Aborted Processes	The total number of processes that were aborted.
Process ID	Process ID of engine as recognized by the server.
Micro Agent Instance	Unique ID of the microagent reporting the metrics.
Deployment	Name of Deployment.
Domain	Name of Domain.
BW Version	The TIBCO BusinessWorks version currently in use on the server.
Source	Name of RTView Data Server sending this data (or localhost).
Time Stamp	Time of last update.
Process Name	Name of the BW Engine process on the server. Note: This information is not displayed in the table but is present in "raw" cache data.
Host	Host name of server. Note: This information is not displayed in the table but is present in "raw" cache data.
Adapter Name	Name of adapter. Note: This information is not displayed in the table but is present in "raw" cache data.
Instance ID	Instance ID name of the engine. Note: This information is not displayed in the table but is present in "raw" cache data.
Version	Engine project version number. Note: This information is not displayed in the table but is present in "raw" cache data.

All Engines Grid

Displays the main health metrics and a single trend graph per engine, summarizing the status of each BW5 Engine. Click on an engine icon to drill down to the "Single Engine Summary" display.



Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to show data for in the display.
Count	Number of engines currently being displayed.
Active	Number of engines currently active.
Active Only	Toggle this setting to display active servers or all servers.
Time Range	Choose a time range. Also sets range for the **Single Engine Summary** display. Options are: **All Data**, **2 Mins**, **5 Mins**, **20 Mins**, **1 Hour, 2 Hours**, **4 Hours**, **8 Hours**, **24 Hours**, **2 Days and 7 Days**.

Fields and Data

Engine Name Name of the engine.

Status Indicates the current state of the engine:

- **ACTIVE** Indicates the BW microagent is providing live data and the engine is assumed active.
- **SUSPENDED** This state is reported by the BW microagent.
- **STANDBY** This state is reported by the BW microagent.
- **STOPPING** This state is reported by the BW microagent.
- **STOPPED** This state is reported by the BW microagent.
- **LIMITED** Live data has been received from TIBCO, but deployment data from the custom RTView microagent has not been received.
- **EXPIRED** Indicates the server associated with the engine is unavailable or stopped sending data.

CPU Usage% Percent of server CPU in use.

Mem Usage% Available physical memory (MB) remaining.

Error Rate Number of errors accumulated per second.

Total Processes Number of process definitions for this engine.

Active Processes Number of process instances currently active.

Trend Graphs
Traces data for the server.

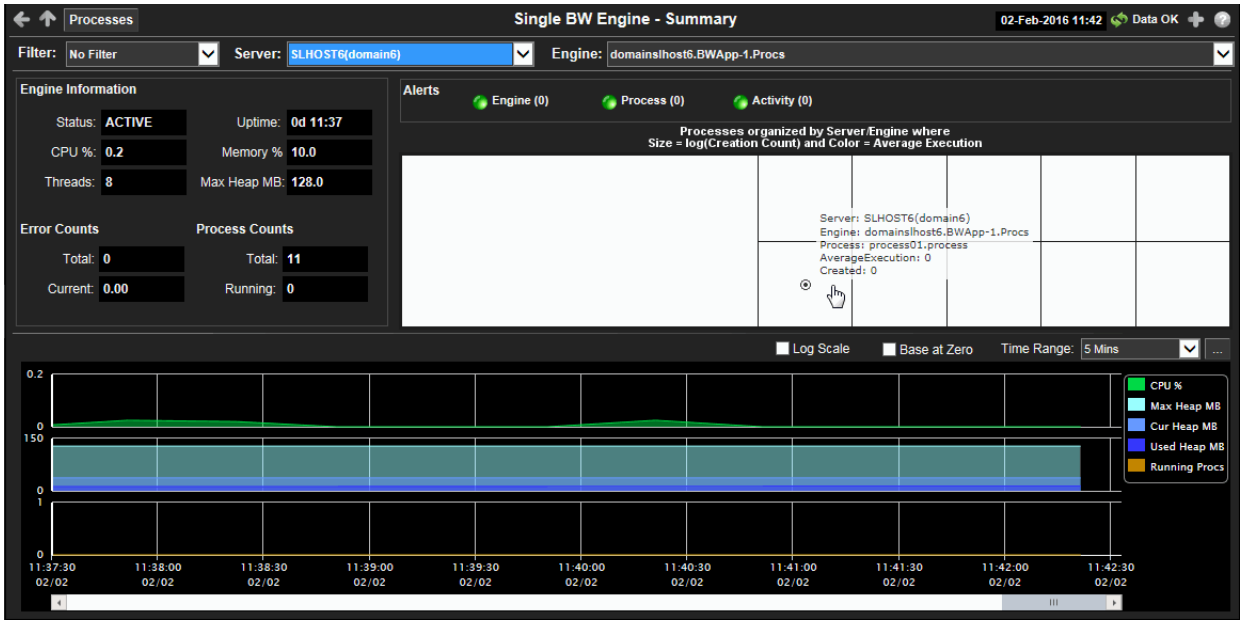
CPU Traces percent of server CPU in use.

MEM Traces available physical memory remaining.

PROCS Traces total number of active processes.

Single Engine Summary

Several views show historical and current performance metrics for a single engine, including the number of processes running, threads, history of memory utilization, and trend graphs of memory utilization. In this display, when an engine is **Stopped** the engine name is appended with **(X)**, the background color is light red and Uptime is zero.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking the **Processes** button in the Title Bar takes you to the "All Processes Heatmap". Clicking the **JVM** button, which is automatically enabled when a JMX connection is defined for the engine, takes you to the **JVM CPU/Mem Summary** display. See **Enable Monitoring Via JMX** for more information on enabling a JMX connection.

Filter By:
The display might include these filtering options:

Filter: Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.

Server: Choose a server to show data for in the display.

Engine: Choose an engine to show data for in the display. An engine is not running when the engine name is appended with **(X)**.

Fields and Data

Engine Information

Status	**ACTIVE**	The BW microagent is providing live data and the engine is assumed active.
	SUSPENDED	This state is reported by the BW microagent.
	STANDBY	This state is reported by the BW microagent.
	STOPPING	This state is reported by the BW microagent.
	STOPPED	This state is reported by the BW microagent.
	LIMITED	Live data has been received from TIBCO, but deployment data from the custom RTView MicroAgent has not been received.
	EXPIRED	The associated server for the engine is currently in an EXPIRED state and is unavailable or stopped sending data.
Uptime	Days hours and minutes since the engine was started.	
CPU%	Percent of server CPU used by engine.	
Memory %	Available physical memory remaining (in MB).	
Threads	Number of threads used by this engine	
Max Heap MB	Maximum heap allocated to this engine for the JVM.	

Error Counts

Total	Total errors accumulated by this engine.
Current	Number of errors accumulated this update cycle.

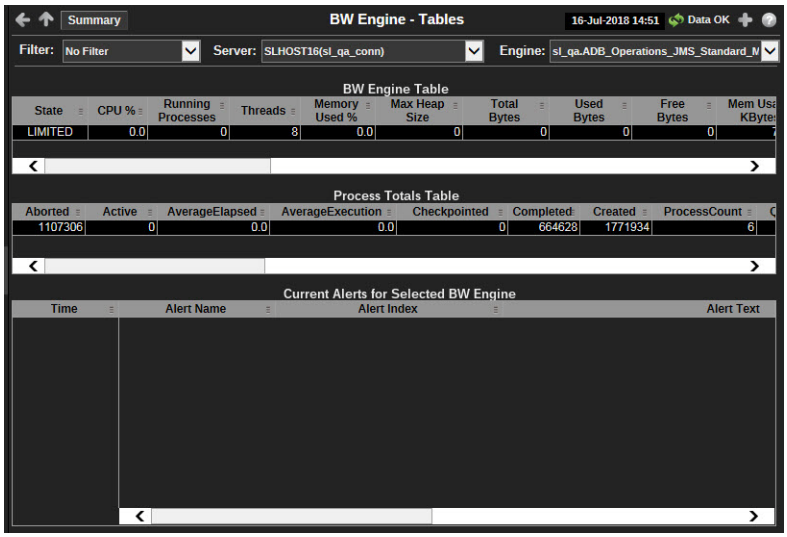
Process Counts

Total	A BW Engine runs processes by creating instances of process definitions and making them active. A given process instance has a lifetime during which it may be suspended, swapped, queued, etc. until it is either completed or aborted. The Total value is calculated using the Hawk method named GetProcessDefinitions that returns statistics about the instances of each process definition including cumulative counts of completed, aborted, suspended, etc.
Running	Total number of running process instances. This number is calculated using the Hawk method named GetProcessCount. It is displayed in the Monitor Engines Table as RunningProcesses. The trend below displays the same value over time as Running Procs.

Alerts
Indicates the greatest severity level and the number of open **Engine**, **Process**, and **Activity** alerts for the selected engine. Values range from **0** to **2**, where **2** is the greatest Severity:

- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Click on the alert indicator to display the **BW Engine - Tables** display, which contains a table listing the current alerts for the selected engine.



Engine Number of engine alerts and the most critical alert state for the engine:
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Process Number of process alerts and the most critical alert state for the engine:
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Activity Number of activity alerts and the most critical alert state for the engine:
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

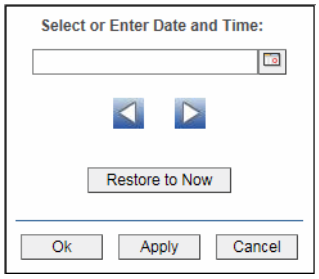
Heatmap
Shows processes organized by Server/Engine where Size = Creation Count and Color = Average Execution. Click on a node to drill down to a specific engine.

Trend Graphs

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW5 Processes

These displays present performance metrics for BW5 processes. Displays in this View are:

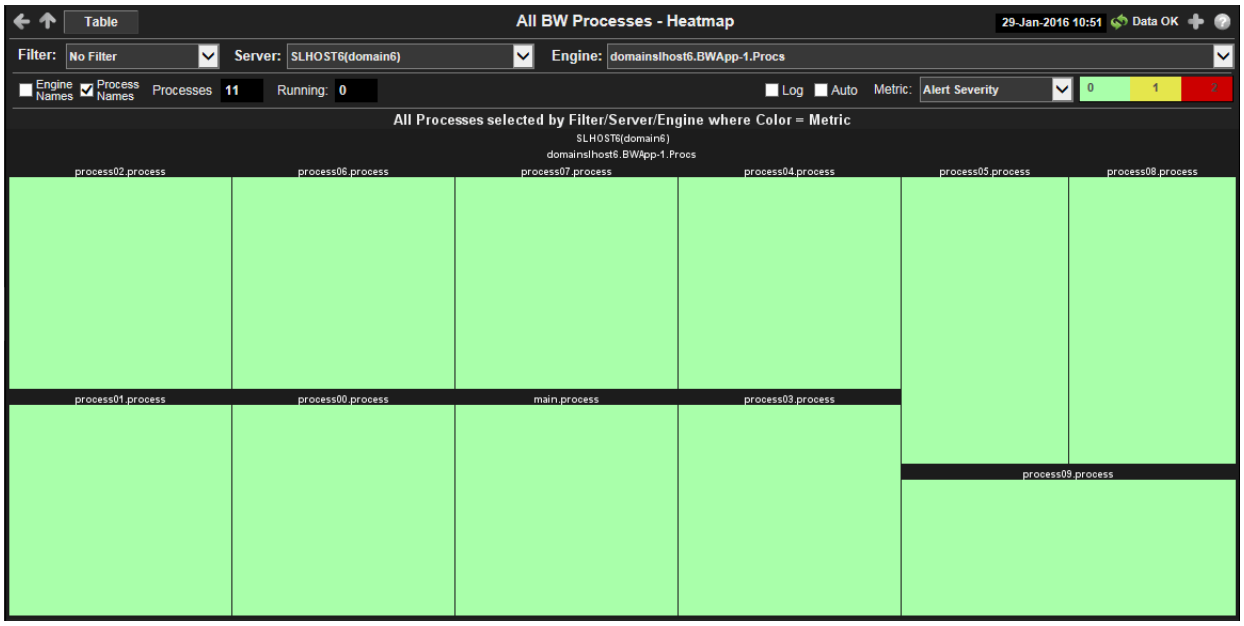
- "All Processes Heatmap" on page 1168: Displays process execution metrics for all BW Engines.
- "All Processes Table" on page 1172: Each row in the table displays all available metrics from the Hawk microagent for a process.
- "Single Process Summary" on page 1175: Several views show historical and current metrics for a single process, including average execution times and execution counts.

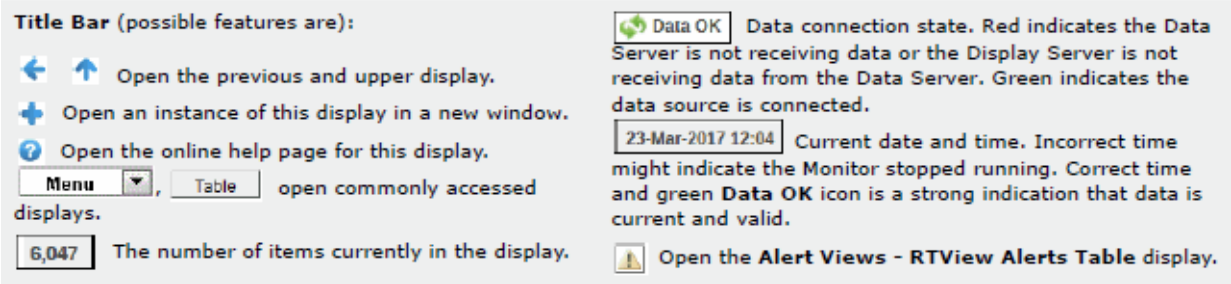
All Processes Heatmap

Summary view of processes can show the execution times for all processes on all engines or you can filter to look at specific servers or engines. Each rectangle (node) in the heatmap represents a process. Move your mouse over a node to display current metrics. Click on a node to drill-down to the "Single Process Summary" display to view specific metrics about process behavior over a specified period of time and determine which activity in the process may be causing the bottleneck.

An engine is not running when the engine name is appended with **(X)**.

Mouse-over any node to display the current values for the metric selected from the **Metric** drop-down menu.





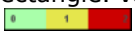
Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to show data for in the display.
Engine:	Choose an engine to show data for in the display. An engine is not running when the engine name is appended with **(X)**.
Engine Names	Select this check box to display the names of the engines above their respective rectangles in the heatmap.
Process Names	Select this check box to display the names of the processes above their respective rectangles in the heatmap.
Processes	The total number of processes in the display.
Running	Number of processes currently running.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

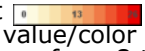
Metric Choose a metric to view in the display.

Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

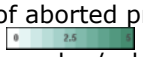
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

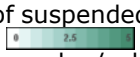
Green indicates that no metrics have exceeded their alert thresholds.

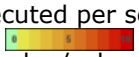
Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

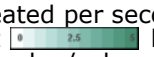
Completed Count The total number of completed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

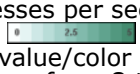
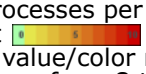
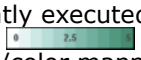
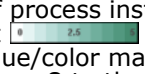
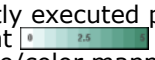
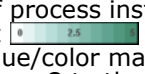
Active Count The total number of active processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Aborted Count The total number of aborted processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Suspended Count The total number of suspended processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Exec Time / sec The number of processes executed per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

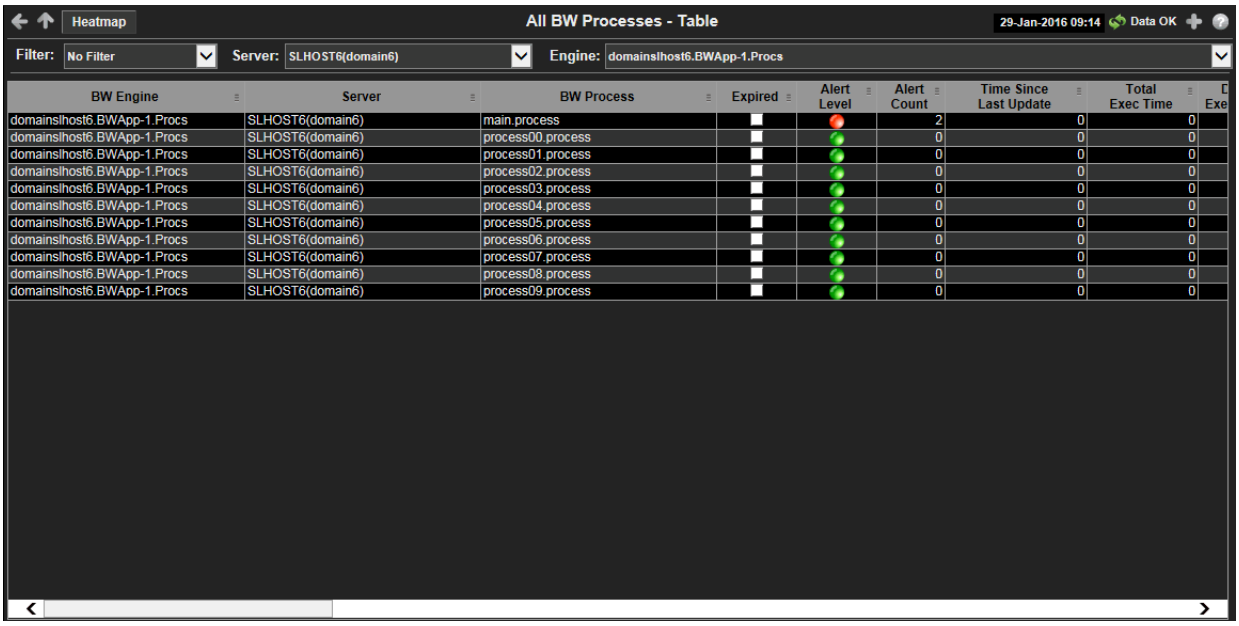
Created / sec The number of processes created per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

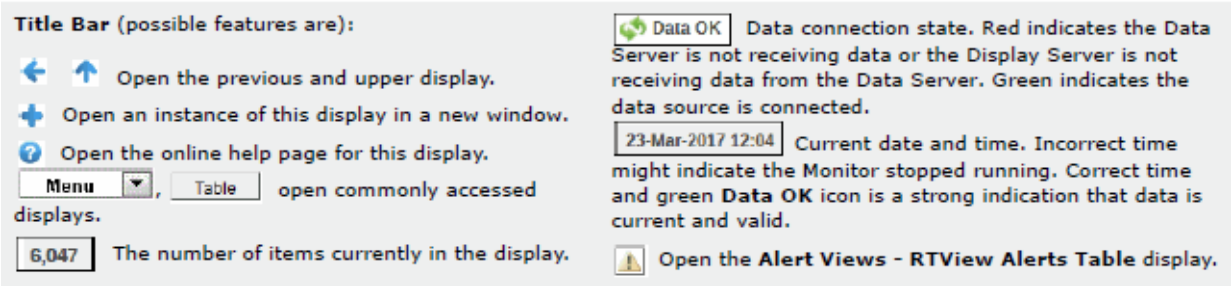
Aborted / sec	The number of aborted processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Suspended / sec	The number of suspended processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Most Recent Exec Time	The execution time for the most recently executed process in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Exec Time	The average execution time for all processes in the heatmap rectangle, calculated by dividing the delta execution time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Most Recent Elapsed Time	The elapsed time for the most recently executed process in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Average Elapsed Time	The average elapsed time for all processes in the heatmap rectangle, calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

All Processes Table

Select a server and engine from the drop-down menus. Each row in the table is a different engine. The table displays all metrics available from the Hawk microagent for an engine. (Refer to documentation for TIBCO ActiveMatrix Business Works Administration, see Appendix A: TIBCO Hawk Microagent Methods).

Click on a row in the table to drill down to the "Single Engine Summary" display.





Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Create Customized Filters** for more information.
Server:	Choose a server to show data for in the display.
Engine:	Choose an engine to show data for in the display. An engine is not running when the engine name is appended with **(X)**.

Table:

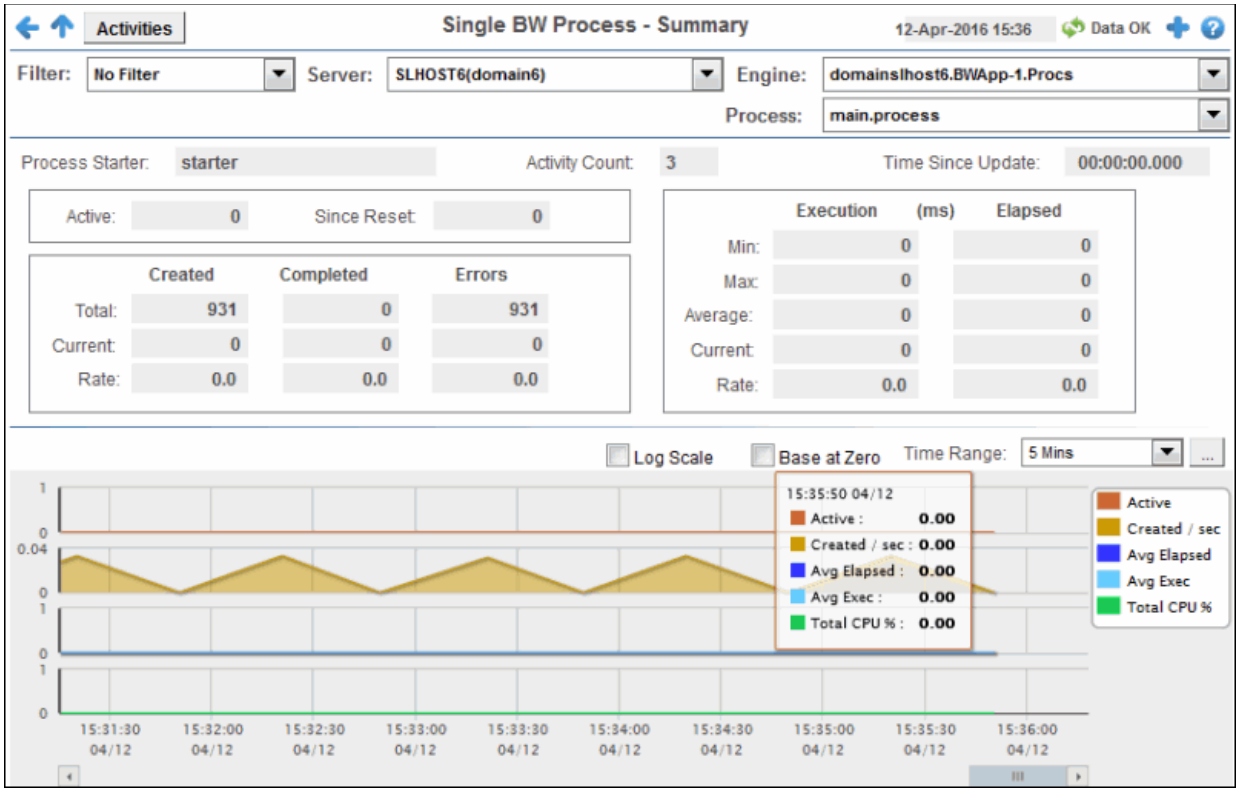
BW Engine	BW Engine name.
Server	Server agent name.

BW Process	The name of the process.
Expired	When checked, data has not been received from this host in the specified amount of time.
Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	Number of current alerts
Active	Number of active processes.
Total CPU	Total CPU usage in percent.
Created/sec	Change in Created per second.
Completed/sec	Change in Completed per second.
Delta Created	Change in Created this update.
Delta Completed	Change in Completed this update.
Created	Number of process instances created for this process definition.
Completed	Number of process instances successfully completed.
Total Exec Time	Total execution time (in milliseconds) for all successfully completed process instances.
Delta Exec Time	Execution time accumulated during the current polling period.
Exec Time/sec	Delta execution time per second.
Min Exec Time	Execution time (in milliseconds) of the process instance that has completed in the shortest amount of execution time.
Max Exec Time	Execution time (in milliseconds) of the process instance that has completed in the longest amount of execution time.
Average Exec Time	Average execution time (in milliseconds) for all successfully completed process instances.
Recent Exec Time	Execution time (in milliseconds) of the most recently completed process instance.
Total Elapsed Time	Total elapsed time (in milliseconds) for all successfully completed process instances.
Delta Elapsed Time	Elapsed time accumulated during the current polling period.
Elapsed Time/ sec	Delta elapsed time per second.
Min Elapsed Time	Elapsed clock time (in milliseconds) of the process instance that has completed in the shortest amount of elapsed time.
Max Elapsed Time	Elapsed clock time (in milliseconds) of the process instance that has completed in the longest amount of elapsed time.
Average Elapsed Time	Average elapsed clock time (in milliseconds) for all successfully completed process instances.

Recent Elapsed Time	Elapsed clock time (in milliseconds) of the most recently completed process instance.
Aborted	Number of times process instances have been aborted.
Delta Aborted	Change in Aborted this update.
Aborted/sec	Change in Aborted per second.
Queued	Number of times process instances have been queued for execution.
Delta Queued	Change in Queued this update.
Queued/sec	Change in Queued per second.
Suspended	Number of times process instances have been suspended.
Delta Suspended	Change in Suspended this update.
Suspended/sec	Change in Suspended per second.
Checkpointed	Number of times process instances have executed a checkpoint.
Delta Checkpointed	Change in Checkpointed this update.
Checkpointed/ sec	Change in Checkpointed per second.
Swapped	Number of times process instances have been swapped to disk.
Delta Swapped	Change in Swapped this update.
Swapped/sec	Change in Swapped per second.
Time Since Last Update	Time since the last update.
Domain	Name of TIBCO Domain.
Starter	Name of the process starter for the process.
MicroAgent Instance	Unique ID of the microagent reporting the metrics.
CountSince Reset	Number of process instances that have completed since the last reset of the statistics.
Source	Name of RTView Data Server sending this data (or localhost).
Time Stamp	Time of last update.

Single Process Summary

Detailed performance metrics and alert status for a single BW process. Select a server, engine and process from the drop-down menus. The background color of the display is red when the selected engine is stopped.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to see metrics for.
Engine:	Choose a server to see metrics for. An engine is not running when the engine name is appended with **(X)**.
Process:	Choose a process to see metrics for.

Process Starter	Name of the process starter for the process.
Activity Count	Number of activities defined for this process.
Time Since Update	Time since the last update to file of statistics.

Active	Number of active instances for this process definition. This number is calculated using the Hawk method named GetProcesses. This method returns information about process instances that are active at the time of update. The value here displays the current total count of all active instances discovered for this process definition. The trend below displays the same value over time.
Since Reset	Number of activity executions that have completed since the last reset of the statistics. This is the number retrieved from the Hawk method named GetProcessDefinition which returns ExecutionCountSinceReset.

Execution Counts
Most recent execution counts for this process.

Created	**Total**	Number of process instances created for this process definition.
	Current	Number of process instances created this update cycle.
	Rate	Number of process instances created per second.
Completed	**Total**	Number of process instances successfully completed.
	Current	Number of process instances successfully completed this update cycle.
	Rate	Number of process instances successfully completed per second.
Errors	**Total**	Number of errors accumulated by all process instances.
	Current	Number of errors accumulated this update cycle.
	Rate	Number of errors accumulated per second.

Execution (ms) Elapsed
Execution and elapsed times in milliseconds for this process.

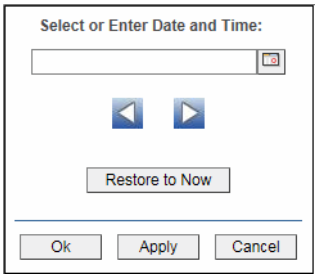
Min	Shortest time of any process instance.
Max	Longest time of any process instance.
Average	Average time across all successfully completed process instances.
Current	Time accumulated this update cycle.
Rate	Time accumulated per second.

Trend Graphs
- **Active**: Traces the number of currently active processes.
- **Created / sec**: Traces the number of created processes per second.
- **Avg Elapsed:** Traces the average number of elapsed processes. This value is calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval.
- **Avg Exec**: Traces the average number of executed processes. This value is calculated by dividing the delta executed time for the interval by the delta completed, or the number of process instances that completed in the interval.
- **Total CPU %**: Traces CPU utilization by processes, in percent.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW5 Activities

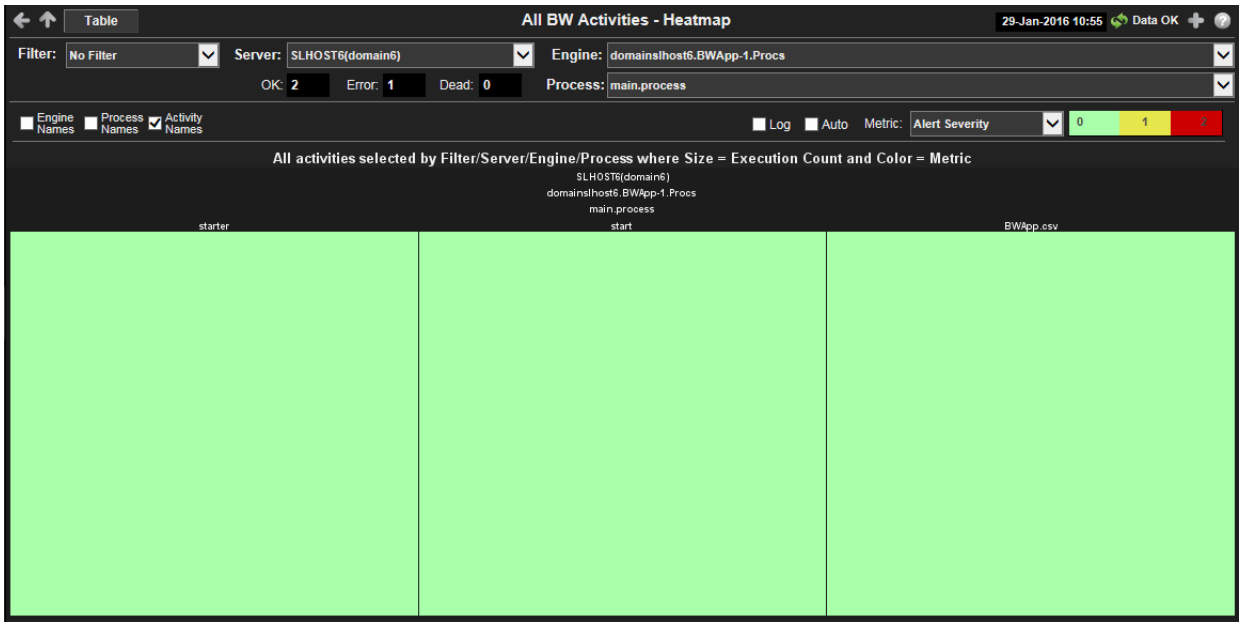
These displays present performance metrics for BW5 activities. Displays in this View are:

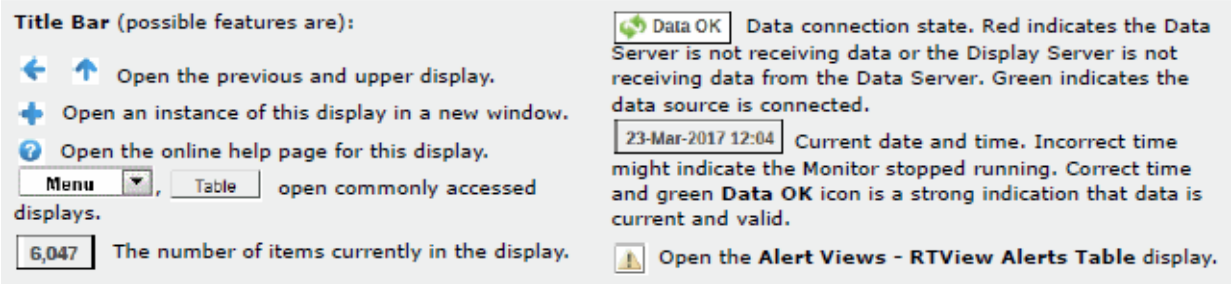
- "All Activities Heatmap" on page 1177: Displays execution performance metrics for all BW activities.
- "All Activities Table" on page 1180: Each row in the table displays all available metrics from the Hawk microagent for an activity.
- "Single Activity Summary" on page 1183: Historical and current performance metrics for a single activity, including average execution times and execution counts.

All Activities Heatmap

Summary view of activities shows the execution times for all activities on all engines, or you can filter to look at specific servers, engines or processes. An engine is not running when the engine name is appended with **(X)**.

Move your mouse over a node to display current metrics. Click on a node to drill down to the "Single Activity Summary" display to view specific metrics about activity behavior over a specified period of time.





Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to show data for in the display.
Engine:	Choose an engine to show data for in the display. An engine is not running when the engine name is appended with **(X)**.
Process	Select from the menu to view activities running on a specific process or all processes.
OK	Number of activities that reported their Last Return Code as **OK**.
Error	Number of activities that reported their Last Return Code as **Error**.
Dead	Number of activities that reported their Last Return Code as **Dead**.
Engine Names	Select this check box to display the names of the engines above their respective rectangles in the heatmap.

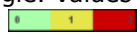
Process Names Select this check box to display the names of the processes above their respective rectangles in the heatmap.

Activity Names Select this check box to display the names of the activities above their respective rectangles in the heatmap.

Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.

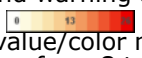
Metric Choose a metric to view in the display.

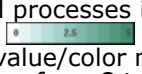
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

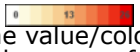
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

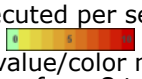
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Exec Count The total number of executed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Error Count The total number of errors in the heatmap rectangle. The color gradient  bar populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Exec Time / sec The number of processes executed per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Errors / sec The number of errors per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Most Recent Exec Time	The execution time for the most recently executed process in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Max Exec Time	The maximum execution time for executed processes in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

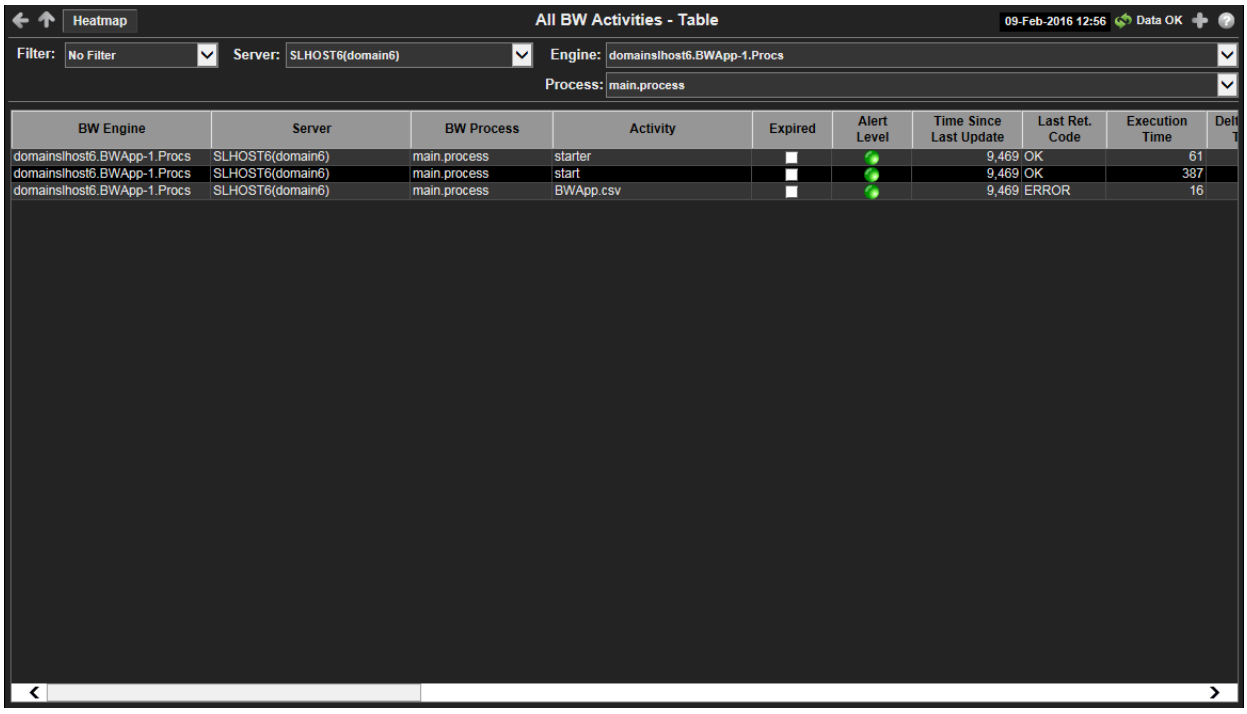
All Activities Table

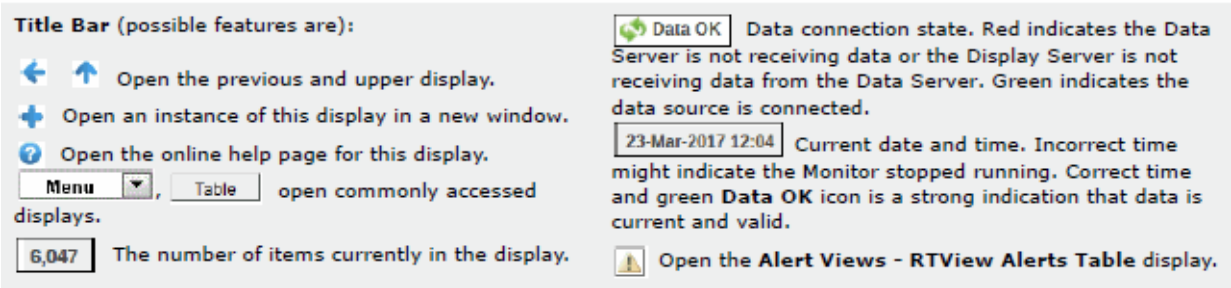
Select a server, engine and process from the drop-down menus. Each row in the table displays all metrics available from the Hawk microagent for an activity. (Refer to documentation for TIBCO ActiveMatrix Business Works Administration, see Appendix A: TIBCO Hawk Microagent Methods).

Click on a row in the table to drill down to the "Single Activity Summary" display to view specific metrics about activity behavior over a specified period of time.

When the background/foreground color of a row changes color, the associated engine for the activity is currently in an EXPIRED state. An engine is EXPIRED when the associated server is unavailable or stopped sending data.

An EXPIRED activity and the associated engine are deleted from displays when the associated server exceeds its specified threshold. Processes associated with the engine are also deleted from displays.





Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to show data for in the display.
Engine:	Select from the menu to view activities running on a specific engine or all engines. An engine is not running when the engine name is appended with **(X)**.
Process:	Select from the menu to view activities running on a specific process or all processes.

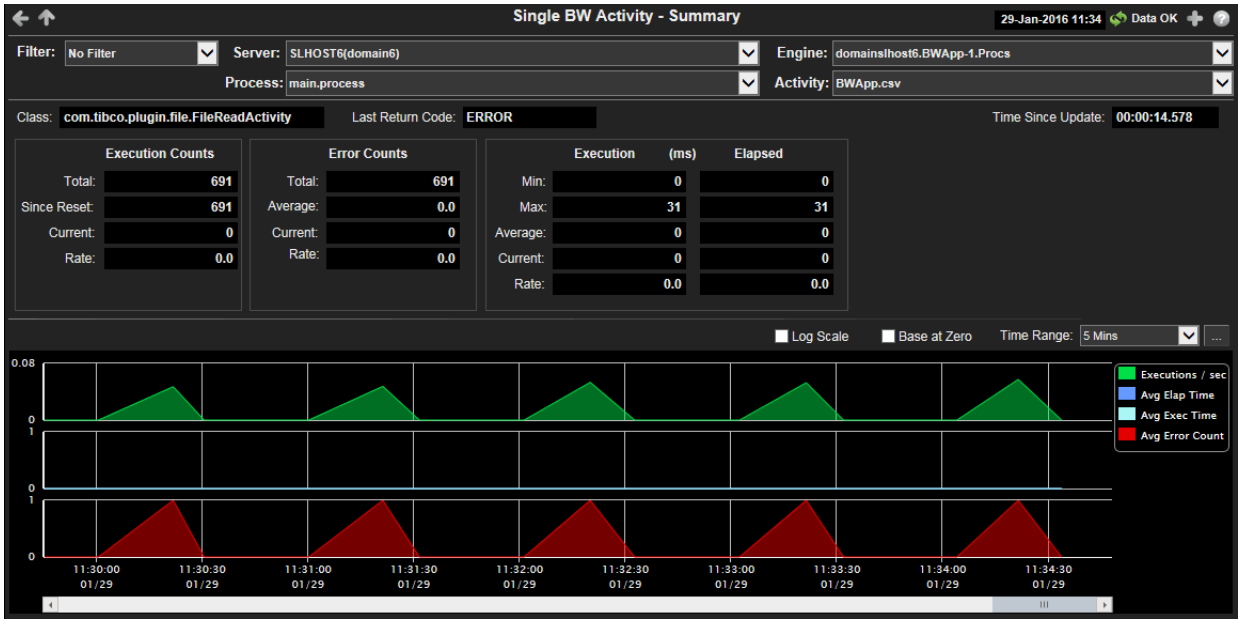
Table:

BW Engine	Name of BW Engine.
Server	Name of Server agent.
BW Process	Name of the BW engine Process on the Server.
Activity	Name of activity.
Expired	When checked, data has not been received from this host in the specified amount of time.
Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Time Since Last Update	Time since the last update.
Last Ret(urn) Code	Status code (OK DEAD ERROR) returned by most recent execution of this activity.
Execution Time	Time (in milliseconds) used by all executions of this activity. NOTE: This does not include wait time for Sleep, Call Process, and Wait For... activities.
Delta Exec(ution) Time	Execution time accumulated this update cycle.
Exec(ution) Time / sec	Execution time accumulated per second.

Min Exec(ution) Time	Time (in milliseconds) of the activity that has the shortest execution time.
Max Exec(ution) Time	Time (in milliseconds) of the activity that has the longest execution time.
Elapsed Time	Elapsed clock time (in milliseconds) used by all executions of this activity. NOTE: This does not include wait time for Sleep, Call Process, and Wait For... activities.
Delta Elapsed Time	Change in ElapsedTime this update.
Elapsed Time/sec	Change in ElapsedTime per second.
Min Elapsed Time	Elapsed clock time (in milliseconds) of the activity that has the shortest execution time.
Max Elapsed Time	Elapsed clock time (in milliseconds) of the activity that has the longest execution time.
Executions	Number of times the activity has been executed.
Delta Exec(ution)	Change in ExecutionCount this update.
Executions/sec	Change in ExecutionCount per second.
Errors	Total number of executions of the activity that have returned an error.
Delta Errors	Change in ErrorCount this update.
Errors/sec	Change in ErrorCount per second.
Domain	Name of TIBCO Domain.
ActivityClass	Name of the class that implements the activity.
CalledProcessDefs	A comma-separated list of definitions called by this activity.
Tracing	• **true** Tracing is enabled for this activity. • **false** Tracing is disabled for this activity.
MicroAgentInstance	Unique ID of the microagent reporting the metrics.
ExecutionCountSince Reset	Number of times the activity has been executed since the last reset of the statistics.
Source	Name of RTView Data Server sending this data (or localhost).
Time Stamp	Time of this update.

Single Activity Summary

Detailed performance metrics and alert status for a single BW activity. In this display, when an engine associated with the activity is **Stopped** the engine name is appended with **(X)** and the background color is light red.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Select from the menu to view processes running on a specific server.
Engine:	Select from the menu to view processes running on a specific engine. An engine is not running when the engine name is appended with **(X)**.
Process:	Select from the menu to view summary details for a specific process.
Activity	Select from the menu to view summary details for a specific activity.
Class	Name of the activity class.
Last Return Code	Last return code reported from this activity.

Time Since Update Time since the last update.

Execution Counts
Most recent execution counts for this activity.

Total Number of times the activity has been executed.

Since Reset Number of times the activity has been executed since the last Hawk reset of the statistics.

Current Change in ExecutionCount this update.

Rate Change in Execution Count per second.

Error Counts
Most recent error counts for this activity.

Total Number of errors accumulated by all activities.

Average Average number of errors accumulated by all activities.

Current Number of errors accumulated this update cycle.

Rate Number of errors accumulated per second.

Execution (ms) Elapsed
Execution and elapsed times in milliseconds for this activity.

Min Shortest time of any activity instance.

Max Longest time of any activity instance.

Average Average time across all successfully completed activity instance.

Current Time accumulated this update cycle.

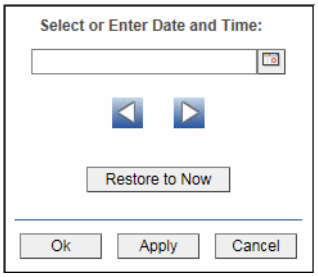
Rate Time accumulated per second.

Trend Graphs

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

BW5 Servers

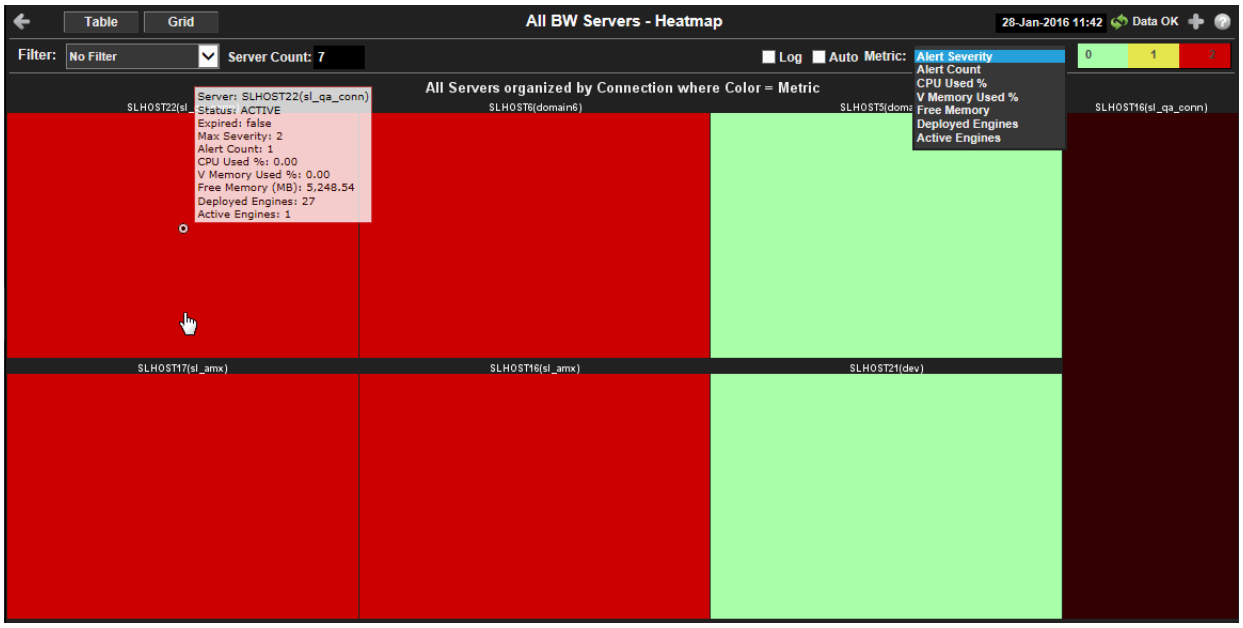
These displays present performance data for your BusinessWorks system. Displays in this View are:

- "All Servers Heatmap" on page 1185
- "All Servers Table" on page 1188
- "All Servers Grid" on page 1189
- "Single Server Summary" on page 1191
- "Server Processes" on page 1193
- "Single Server Process - Summary" on page 1194

All Servers Heatmap

Quick view of BW Servers status determined by selected Filter, organized by Connection (host) and where color equals the selected Metric. Each rectangle (node) in the heatmap represents a server.

Click on a node to drill down to the "Single Server Summary" display and view metrics for a particular server. Mouse-over any node to display the current values for the metric selected from the Metric drop-down menu.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

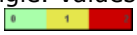
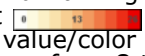
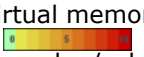
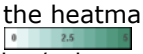
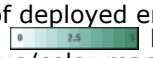
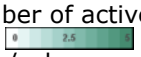
Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

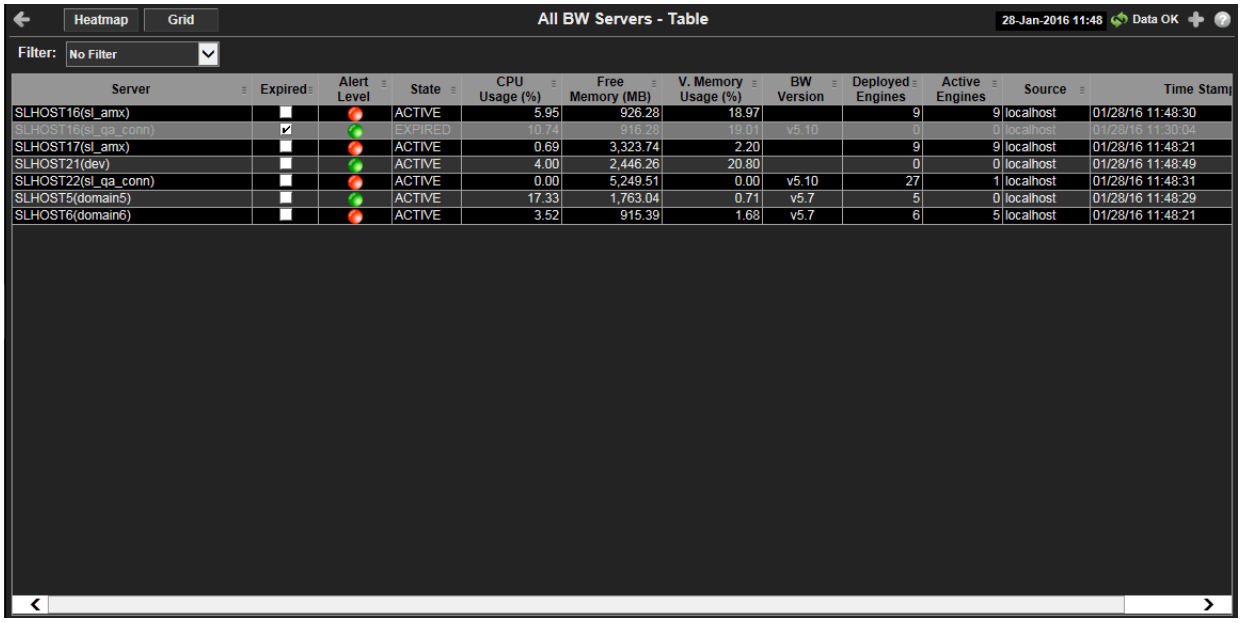
Filter By:
The display might include these filtering options:

Filter:	Choose a filter to limit data shown in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server Count:	The total number of servers in the display.
Log	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Auto	Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value. NOTE: Some metrics auto-scale automatically, even when **Auto** is not selected.
Metric	Choose a metric to view in the display.

Alert Severity	The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of critical and warning alerts in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.
CPU Used%	The percent (%) CPU used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
V(irtual) Memory Used%	The percent (%) virtual memory used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Free Memory	The amount of free memory in the heatmap rectangle, in megabytes. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Deployed Engines	The number of deployed engines in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
Active Engines	The number of active engines in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

All Servers Table

This table provides a list view of utilization metrics for all BW servers (represented in the All Servers Heatmap). Each row in the table contains data for a particular server. Click a column header to sort column data in numerical or alphabetical order. Click on a table row to drill down to the "Single Server Summary" display and view metrics for that particular server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Filter: Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.

Table:

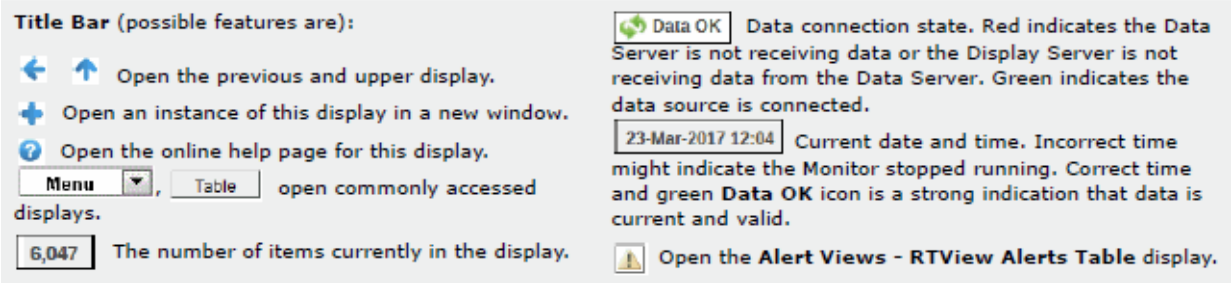
Server Name of Server Agent.

Expired When checked, data has not been received from this host in the specified amount of time.

Alert Level	The most critical alert state for alerts in the row: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
State	The current status of the application. Valid values are **Running** and **Stopped**.
CPU Usage (%)	Percent of server CPU in use.
Free Memory (MB)	Available physical memory (MB) remaining.
V. Memory Usage (%)	Percent of virtual memory used.
BW Version	The TIBCO BusinessWorks version currently in use on the server.
Deployed Engines	Total number of engines deployed on the server.
Active Engines	Number of engines currently active.
Source	Name of RTView Data Server sending this data (or localhost).
Time Stamp	Time this data was retrieved.

All Servers Grid

This grid provides a list view of utilization metrics for all BW servers (represented in the All Servers Heatmap). Track and view in parallel the general performance of all BW servers. Click on a node to drill down to the "Single Server Summary" display and view detailed metrics for that particular server.



Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Time Range	Choose a time range to show data for in the display. Options are: **All Data**, **2 Mins**, **5 Mins**, **20 Mins**, **1 Hour, 2 Hours**, **4 Hours**, **8 Hours**, **24 Hours**, **2 Days and 7 Days**.

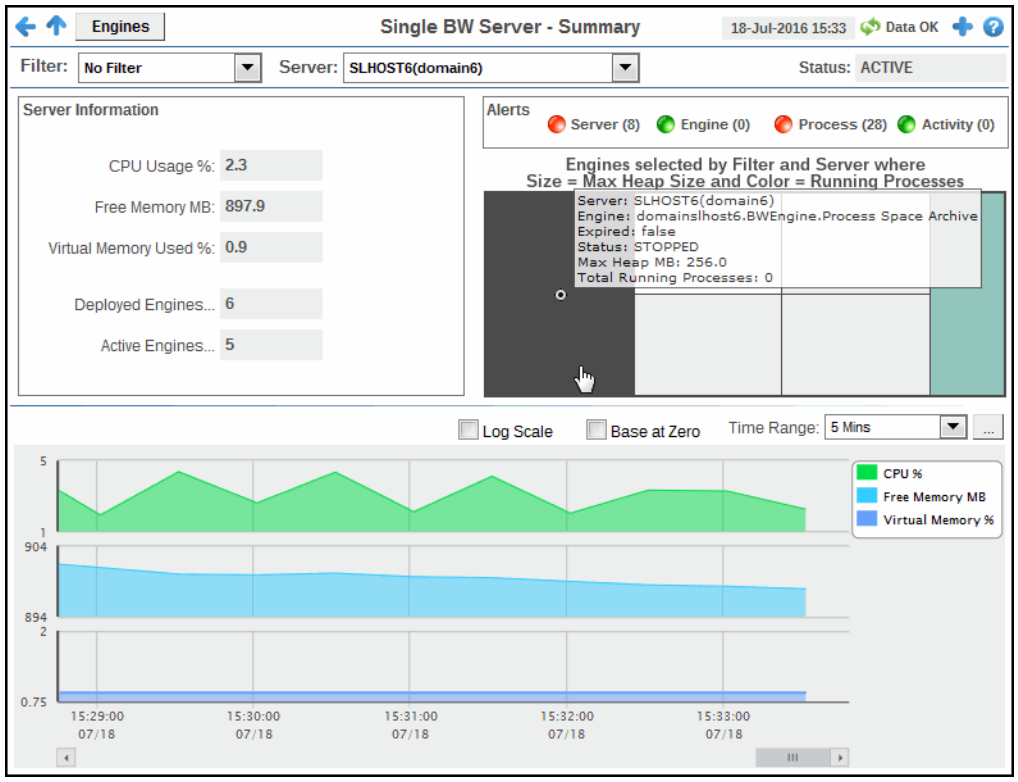
Fields and Data

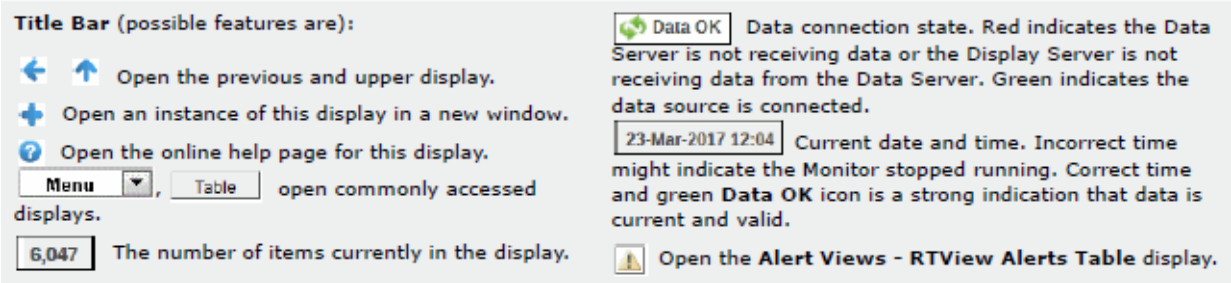
Server Name	Name of the server.
CPU Usage%	Percent of server CPU in use.
Free Memory	Available physical memory (MB) remaining.
Virtual Mem Used%	Percent of virtual memory used.
State	Server status: ACTIVE or EXPIRED.
Deployed Engines	Total number of engines deployed on the server.
Active Engines	Number of engines currently active.
Trend Graphs	Shows data for the server.

CPU	Traces percent of server CPU in use.
MEM	Traces available physical memory remaining.
VMEM	Traces the percent of virtual memory used.

Single Server Summary

Detailed performance metrics and alert status for a single BW server. Click on any alert indicator to drill down to the **BW Server - Tables** display to view current alerts for the selected server.





Filter By:
The display might include these filtering options:

Filter:	Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.
Server:	Choose a server to see metrics for.
Status	Server status: ACTIVE or EXPIRED.

Server Information

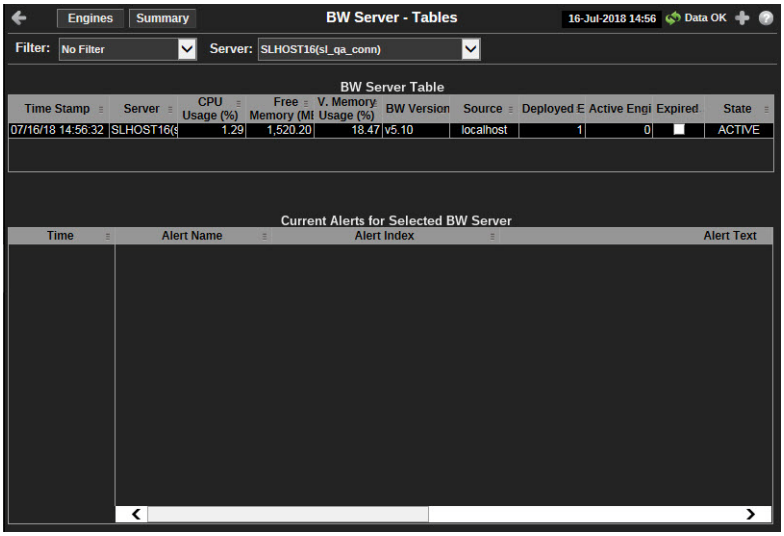
CPU Usage (%)	Percent of server CPU in use. Values are traced in trend graph (below).

Free Memory (MB)	Available physical memory remaining (in MB). Values are traced in trend graph (below).
V. Memory Usage (%)	Percent of virtual memory used. Values are traced in trend graph (below).
Deployed Engines	Number of engines currently active. Click to drill-down to details for deployed and active engines in the "All Engines Table" on page 1160 display.
Active Engines	Shows data for the server. Click to drill-down to details for active engines in the "All Engines Table" on page 1160 display.

Alerts
Indicates the greatest severity level and the number of open **Server**, **Engine**, **Process**, and **Activity** alerts for the selected server. Values range from **0** to **2**, where **2** is the greatest Severity:

- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Click on the alert indicator to display the **BW Server - Tables** display, which contains a table listing the current alerts for the selected engine.



Heatmap
Engines selected by Filter and Server, where the heatmap rectangle size = Max Heap Size and the heatmap rectangle color = Running Processes. Dark green is the highest value for the metric shown). Click on a node to drill down to a specific engine:

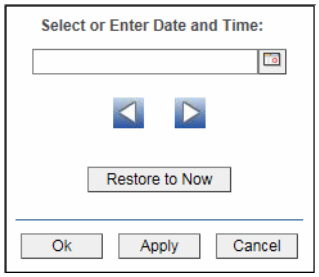
- Red indicates that the engine is expired.
- Gray indicates that the engine is stopped.

Trend Graphs
Traces **CPU %**, **Free Memory MB** and **Virtual Memory %**.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

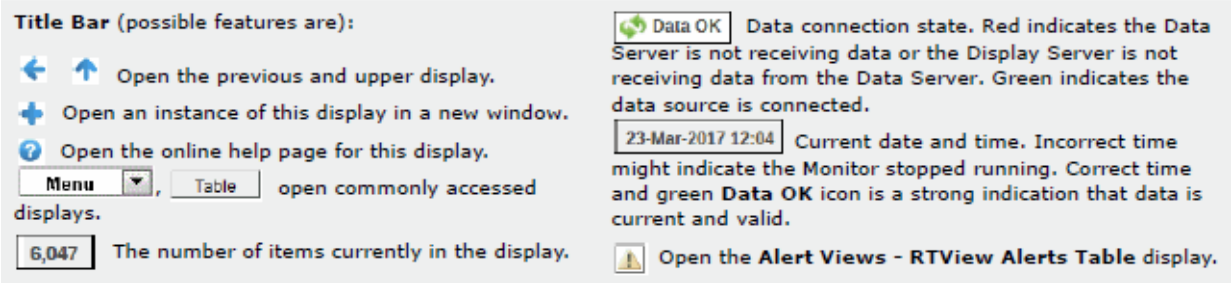
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Server Processes

Detailed information about operating system processes of a single BW Server. The heatmap shows server processes selected by Filter and Server, where the rectangle size equals memory usage and the rectangle color equals CPU percent usage.

NOTE: By default, this display is not enabled. For details, see **Enable BW Servers**.



Filter By:
The display might include these filtering options:

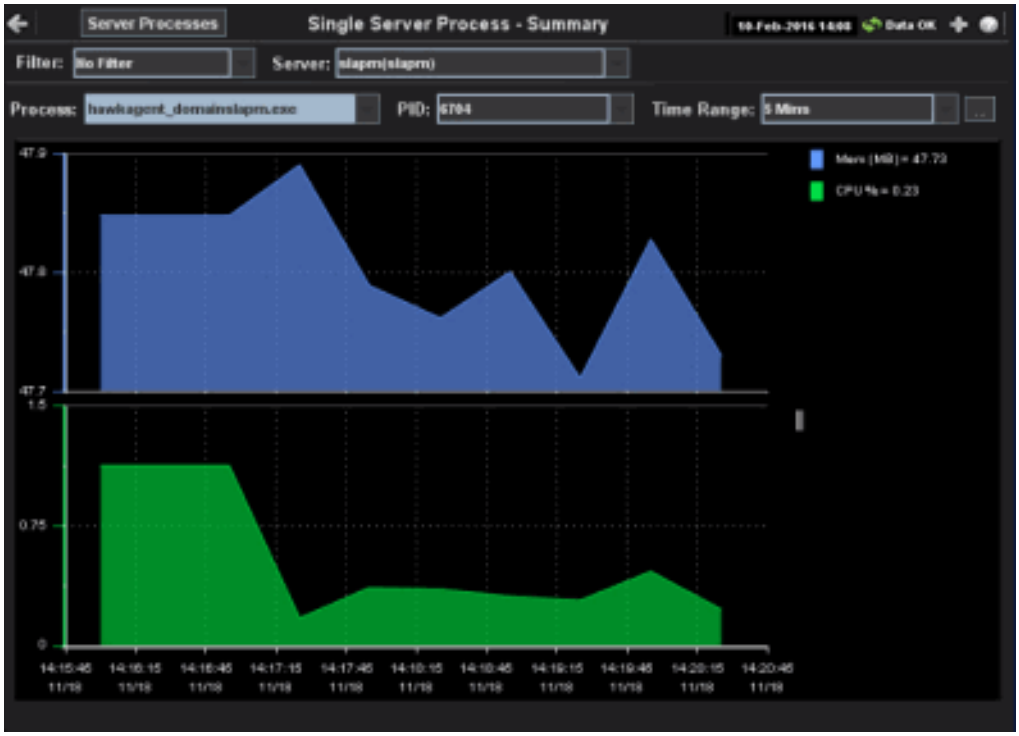
Filter: Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.

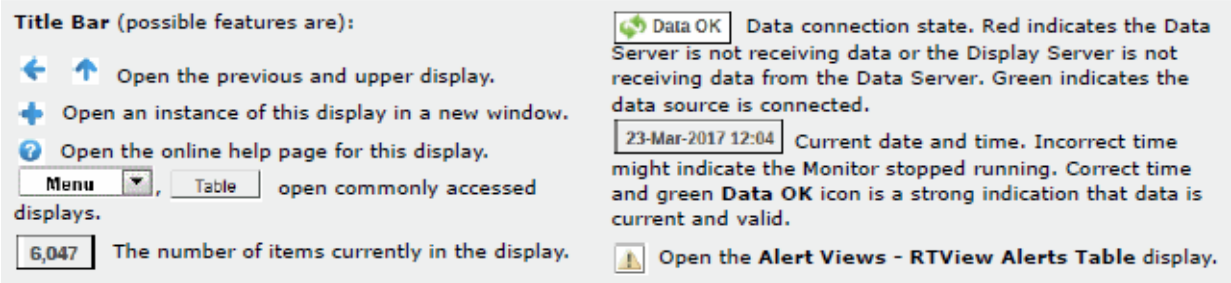
Server: Choose a server to see metrics for.

Single Server Process - Summary

Detailed information about a single operating system process running on a single BW Server.

NOTE: By default, this display is not enabled. For details, see **Enable BW Servers**.





Filter By:
The display might include these filtering options:

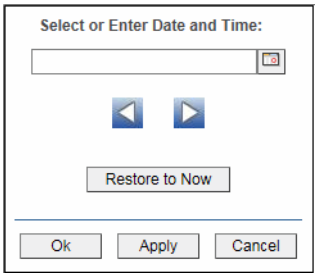
Filter: Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User's Guide.

Server: Choose a server to see metrics for.

Process: Choose a server process.

PID: Choose a server PID.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

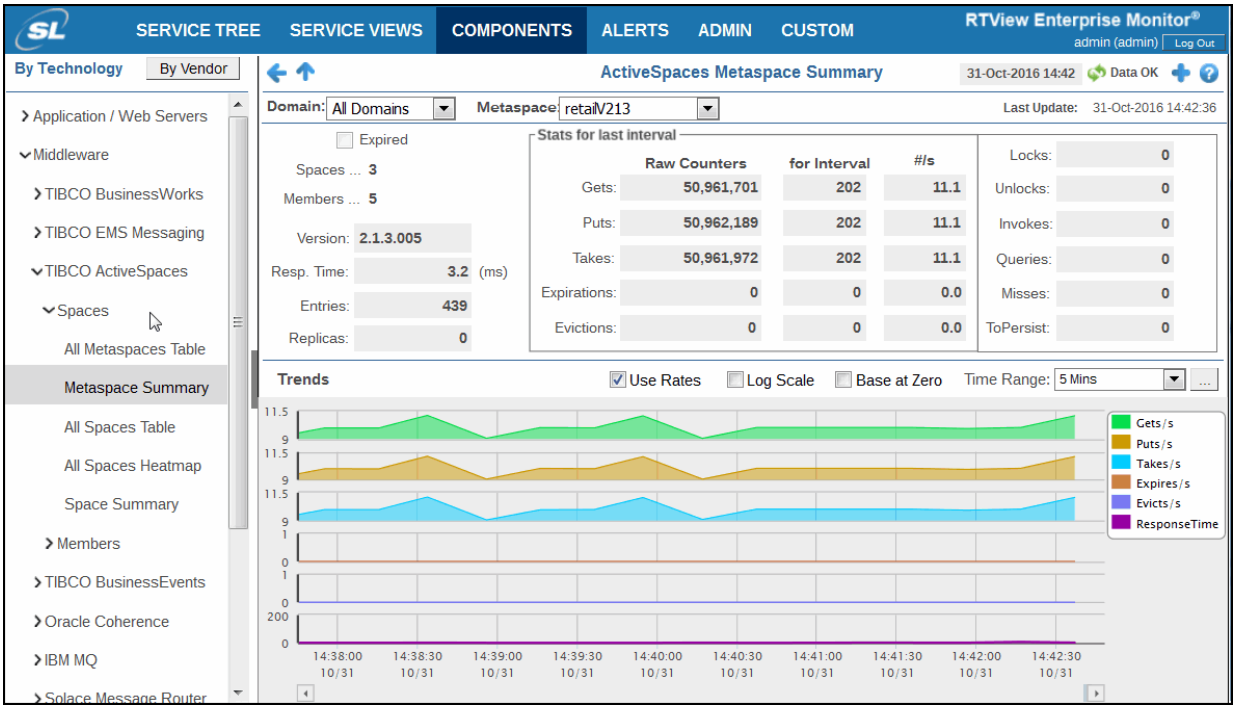
Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 26 Solution Package for TIBCO ActiveSpaces

The Solution Package for TIBCO ActiveSpaces™ is a plug-in application to RTView Enterprise Monitor® that allows you to monitor the health and performance of TIBCO ActiveSpaces instances and services in real-time.

TIBCO ActiveSpaces is a distributed in-memory data grid for building highly scalable, fault-tolerant applications. The distributed, highly-scalable nature of TIBCO ActiveSpaces often include 10s if not 100s of individual nodes which can be clustered locally or geographically across multiple datacenters which makes monitoring a distributed cluster quite a challenge. Often, performance issues on one node are negligible and are handled via fault tolerance but cluster wide problems can be catastrophic.

RTView Enterprise Monitor provides the visibility necessary to monitor such a highly distributed environment in the context of managing TIBCO Infrastructure components on up to the application layers that rely on TIBCO ActiveSpaces as a crucial caching mechanism.



This chapter includes:

Product Overview

- View Global Displays Showing Each Space within One or More Metaspaces

A global, consolidated view is especially important when it comes to in-memory data grids. Typically, data and activity (gets / puts) are not evenly distributed across a grid that contains multiple, independently typed spaces. Data spaces of disparate sizes can be instantiated on different subsets of members, some overlapping, some not. It is essential to be able to quickly determine and remedy those situations where individual spaces may be hogging resources and causing a performance bottleneck affecting users.

- View Performance and Utilization across All Members of a Cluster Hosting Each Space

When content size and activity metrics are not evenly distributed across all members within a single space, an individual member may become overloaded and cause a performance bottleneck affecting end users. TIBCO ActiveSpaces Monitor can visually identify where these "hotspots" are in each cluster. By knowing how space members interact with the space via their role and metrics, like data volume and gets/puts/takes per second, system administrators are enabled to dynamically manage the system resources in order to maintain high performance of a cluster.

- Monitor TIBCO ActiveSpaces at the Application Level

No matter whether you are responsible for just ActiveSpaces, or all the TIBCO middleware components within a given application or even the entire application platform including JVMs, virtual machines, physical machines and databases, TIBCO ActiveSpaces Monitor provides the visual context that allows you to view the overall health and stability of an application as an aggregate of the health of its individual infrastructure components. RTView allows the user to drill-down on alerts at the application level to see the status of all the infrastructure components, and down to the individual alerts within any given component to quickly identify the source of the problem without having to resort to multiple different native monitoring tools.

- Alerting in a Dynamic Data Grid

Though it is possible to use the TIBCO Hawk Console to define alerts on each member in the grid, one at a time, it becomes impractical when the grid gets larger (e.g. > 20 members), or when new members are being added dynamically. In this common scenario, an alert configuration mechanism that dynamically assigns alerts to each member and space as they come and go makes managing the system much easier as it undergoes change.

- TIBCO ActiveSpaces Monitor adds Historical Alerts to Aid in Problem Resolutions

Naturally, you need real-time metrics to ensure that you spot alerts that might help you to head off problems before they affect the end user but often we need to diagnose the root cause of failure AFTER we get our systems back up and running. RTView collects and displays those time-stamped snapshots of metrics to help you understand what went wrong as well as provide the context on whether a given spike is normal or whether it is an outlier that needs immediate attention.

- Perform Scalability and Capacity Analysis to Ensure Optimal Response Times

RTView Enterprise Monitor gives you visual confirmation of cluster-wide workloads so that you can ensure you have the optimum number of nodes required to support current and peak activity levels. Capacity analysis is also useful in determining whether you have enough compute capacity to add new applications to the ActiveSpaces cluster or whether you need to add nodes to support the additional workload. Historical data analysis also allows you to view capacity from day-to-day or minute-to-minute and is particularly useful in determining the impact of application changes and updates to system resources.

- Identify Potentially Abusive Usage Patterns that affect System Performance

What users are using my resources? Who is consuming the most capacity? Am I using my system resources efficiently? Am I dedicating enough capacity to my most valuable applications or am I wasting it on lower value services? These are all common questions when we run into unexpected capacity issues. RTView Enterprise Monitor helps you to answer these questions to ensure that your resources are used efficiently for the most mission critical applications.

- Cross-Correlation of ActiveSpaces Metrics with Hardware, Database and Network Metrics

So you see a backup within your ActiveSpaces environment. Is the problem in the ActiveSpaces cluster? Or is it in fact caused by excess latency within the network layer. You could take hours to track down the answer to these types of questions. Fortunately, RTView Enterprise Monitor is able to correlate events and metrics from different systems and aggregate them in a visually intuitive way so that you can instantly see the impact across multiple layers all at the same time.

See **README_sysreq.txt** for the full system requirements for RTView®.

Configuration Parameters You Need

To configure the Solution Package for TIBCO ActiveSpaces make a note of the following values:

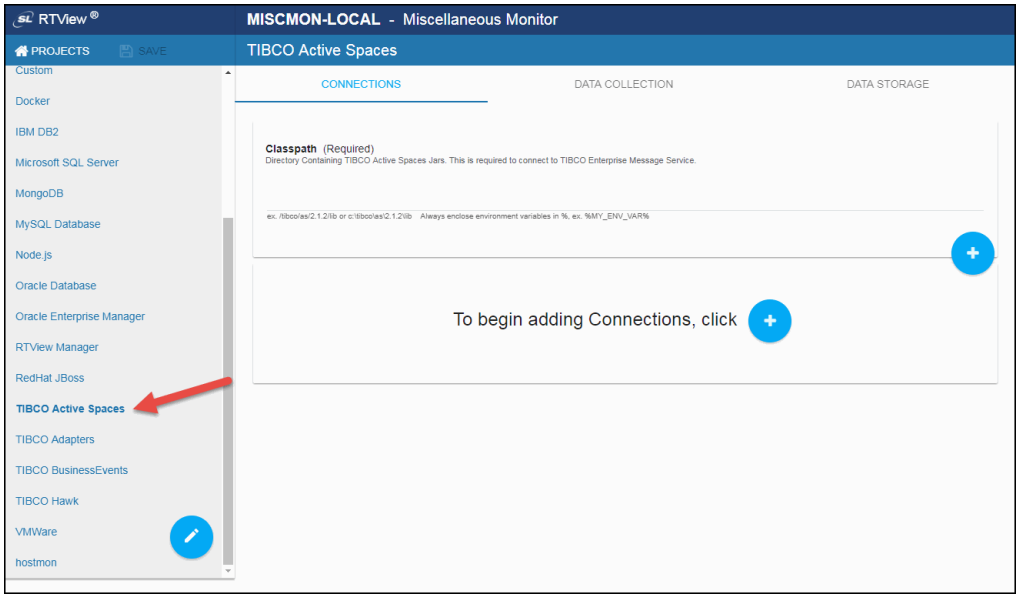
- **PackageName=tasmon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Tas**

Configure Data Collection

Perform the following to enable data collection:

Use the RTView Configuration Application to configure your data collection.

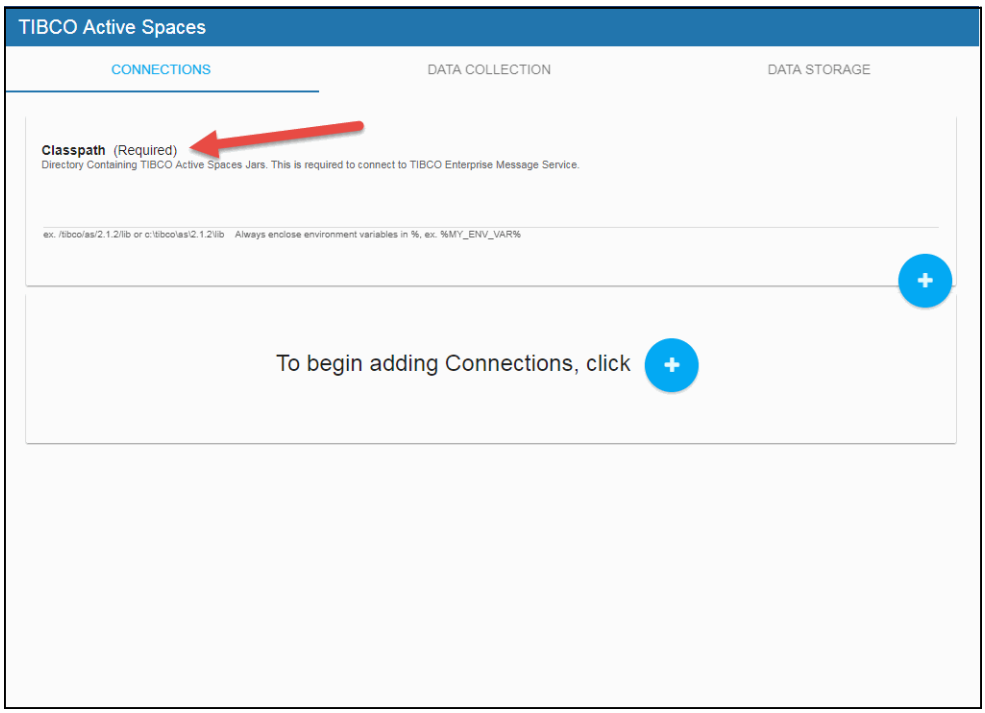
1. Navigate to RTView Configuration Application > (**MISCMON-LOCAL/Project Name**) > **Solution Package Configuration** > **TIBCO Active Spaces** > **CONNECTIONS** tab.



2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the TIBCO Active Spaces JDBC jar file in the **Classpath** field. For example:

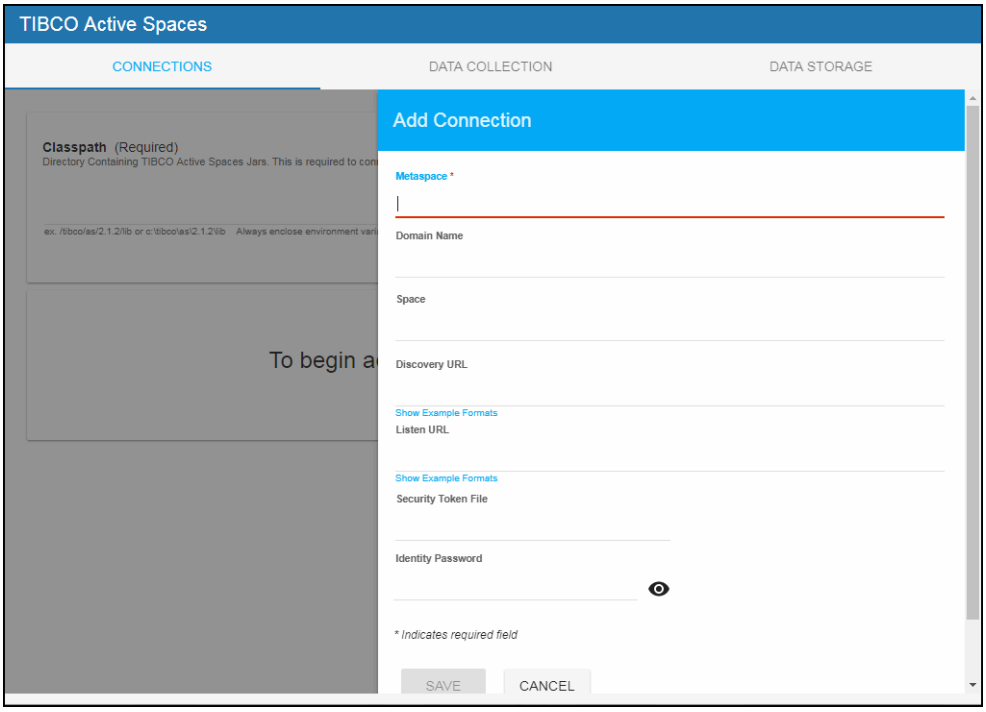
   %RTVAPM_HOME%/../ext/tibco/as/2.1.6/as-admin.jar

   %RTVAPM_HOME%/../ext/tibco/as/2.1.6/as-common.jar



3. In the **Connections** section, click the  icon.

   The **Add Connection** dialog displays.



4. Enter the metaspace name, the domain name(s), connection name(s), and space name(s) to which you want to view data and click **Save** to connect to your metaspace, where:

   Metaspace - the name of the metaspace to be monitored.

   Domain Name - arbitrary name that can be used to differentiate collectors when their results are aggregated into a common cache at the central rtview collection server.

   Space - a semi-colon separated list of space names to monitor. Typically, this should be set to "*" to monitor all spaces in the given metaspace.

   Discovery URL - If your dataserver is on the same subnet as your metaspace cluster (the recommended method), specify this field using the following format:

   ```
   tcp://interface:port;interface2:port2;interface3:port3 tibpgm://dport/
   interface;multicast/key1=value1;key2=value2;key3=value3 tibrv://service/network/
   daemon
   ```

   Set this field to "-" to accept the default "tibpgm".

   If your dataserver is a remote client and you set up an as-agent as follows:

   ```
   java -jar as-agent.jar -name as-agent0 -metaspace <metaspace> -remote_listen
   tcp://<agent-host-ip>:<agent-port>
   ```

   Then you would configure the Discovery URL as follows:

   ```
   Discovery URL=tcp://<agent-host-ip>:<agent-port>?remote|true listen=tcp://
   <dataserver-host-ip>:<dataserver-port>
   ```

   Note: Using the syntax "remote|true" instead of "remote=true" is a work-around for a limitation of the RTView connection property parser.

Listen URL - If your dataserver is on the same subnet as your metaspace cluster (the recommended method), specify this field using the following format:

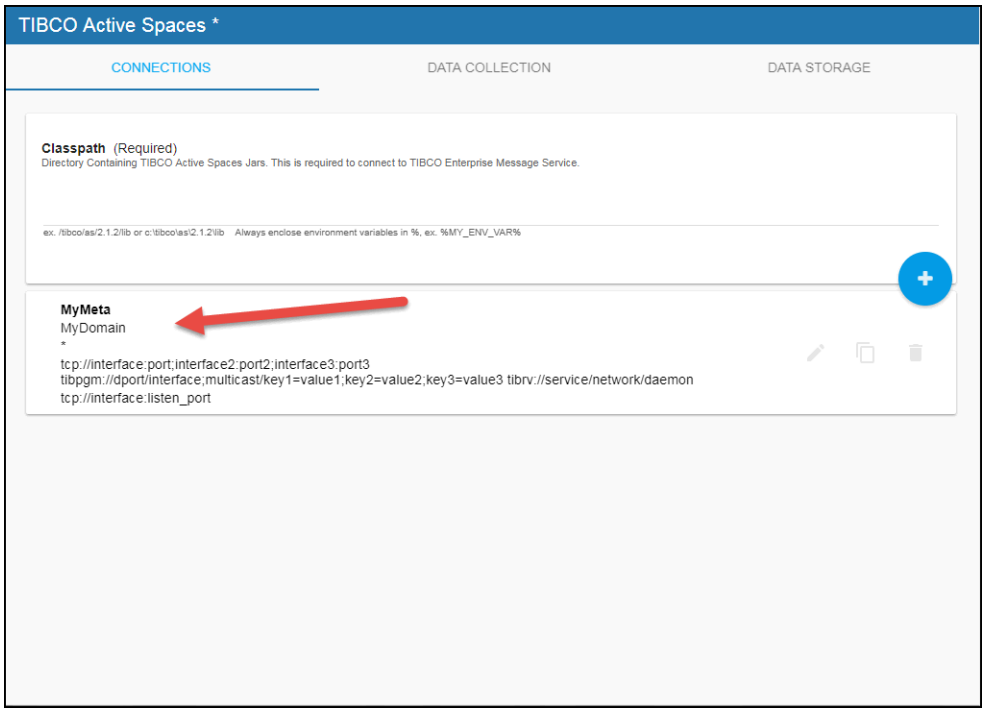
```
tcp://interface:listen_port
```

Set this field to "-" to accept the default. Since release 1.1.1 of ActiveSpaces, the listen URL port now defaults to 50,000, instead of randomly choosing a port above 30,000. If the port is already in use, the port number is automatically incremented to the first available port.

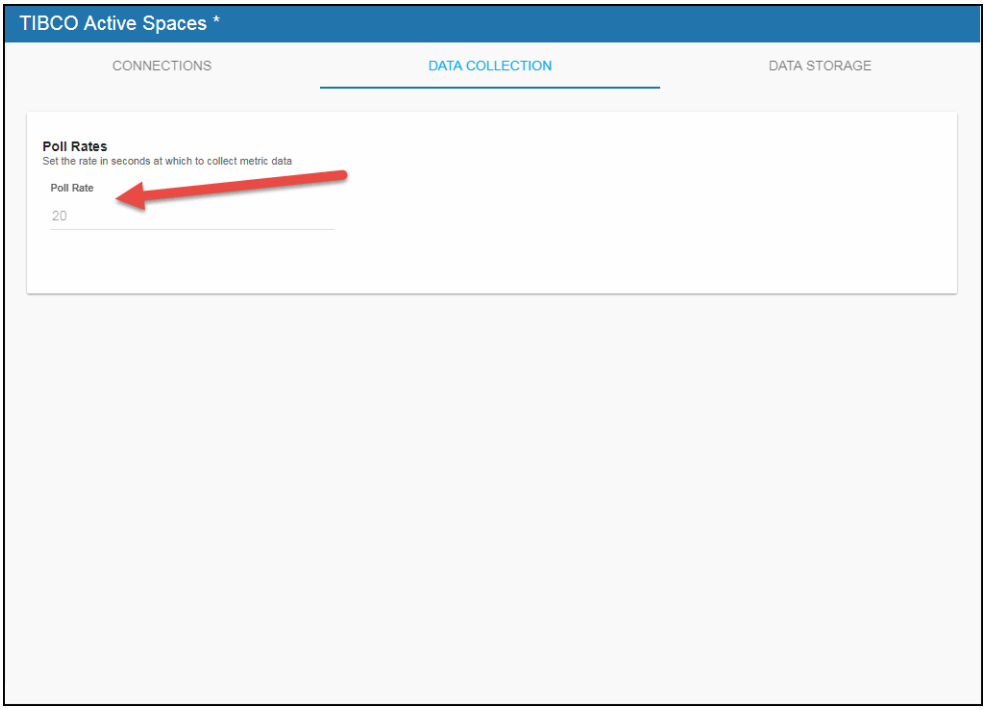
Security Token File - Enter the directory path to the security token file. If you copy the security token file to the current project directory, the path can be eliminated and just the name of the security token file can be entered. If you specify the security token, you should not use the discovery parameter since discovery values are defined in the security token file.

Identity Password - Enter the value of the password used to create the safe identity password required with the security token file.

The newly created connection displays in the **Connections** section.



5. You can specify the **Poll Rates** (query interval, in seconds) that will be used to collect the metric data for all caches by clicking on the **DATA COLLECTION** tab and entering the desired polling rate. The caches impacted by this field are: TasQueryStats, TasSpaceStatistics, TasMemberStatistics, TasMembers, TasMetaspaces, and TasSeeders.



Enabling & Disabling Archival of Historical Data

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application. This section contains the following:

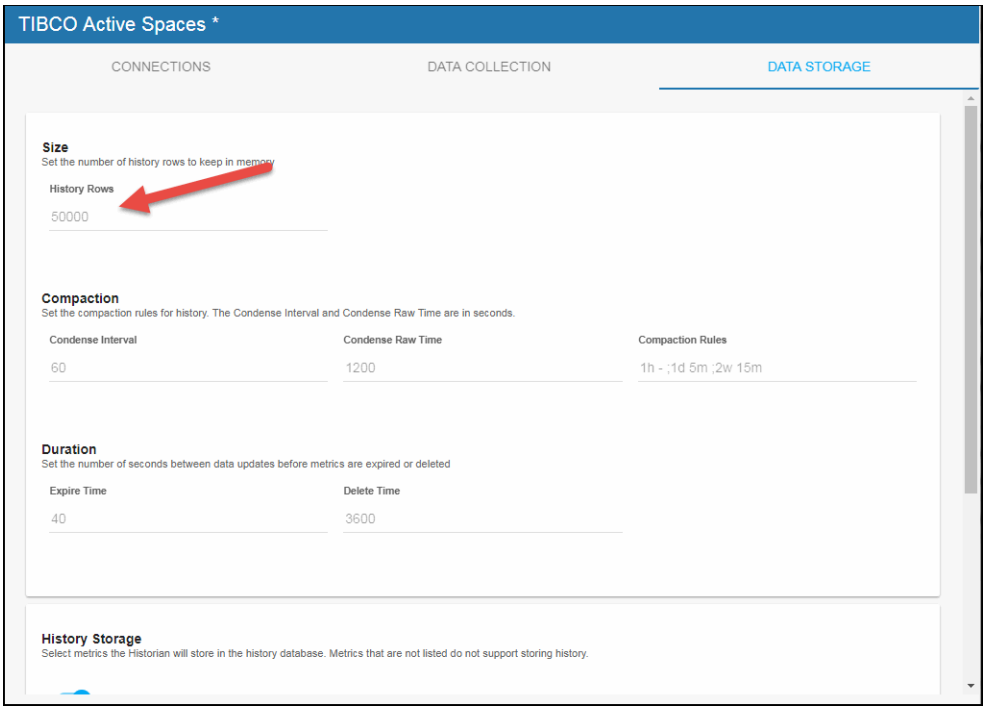
- "Defining the Storage of TASMON In Memory History"
- "Defining TASMON Compaction Rules"
- "Defining Expiration and Deletion Duration for TASMON Metrics"
- "Enabling/Disabling Storage of TASMON Historical Data"
- "Defining a Prefix for All History Table Names for TASMON Metrics"

Defining the Storage of TASMON In Memory History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the TasSpaceStatistics, TasMembers, TasMetaspaces, and TasSeeders caches. The default settings for **History Rows** is 50,000. To update the default setting:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL/Project Name**) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining TASMON Compaction Rules

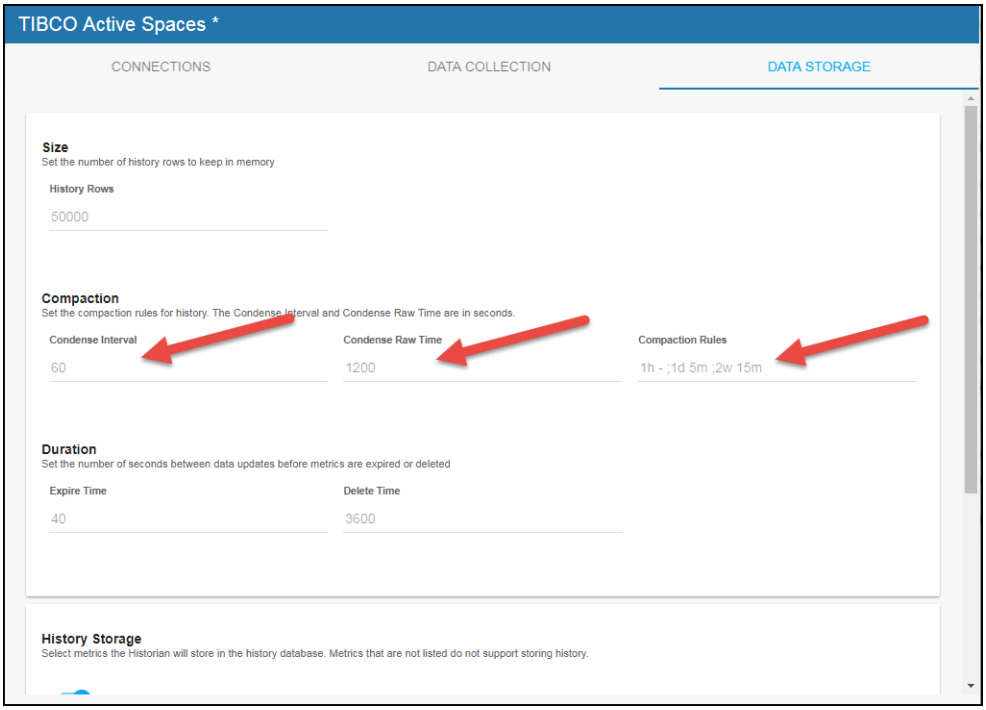
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The caches impacted by these fields are: TasSpaceStatistics, TasMembers, TasMetaspaces, and TasSeeders caches. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: TasSpaceStatistics, TasMembers, TasMetaspaces, and TasSeeders. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: TasSpaceStatistics, TasMembers, TasMetaspaces, and TasSeeders. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: TasSpaceStatistics, TasMembers, TasMetaspaces, and TasSeeders. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL/Project Name**) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



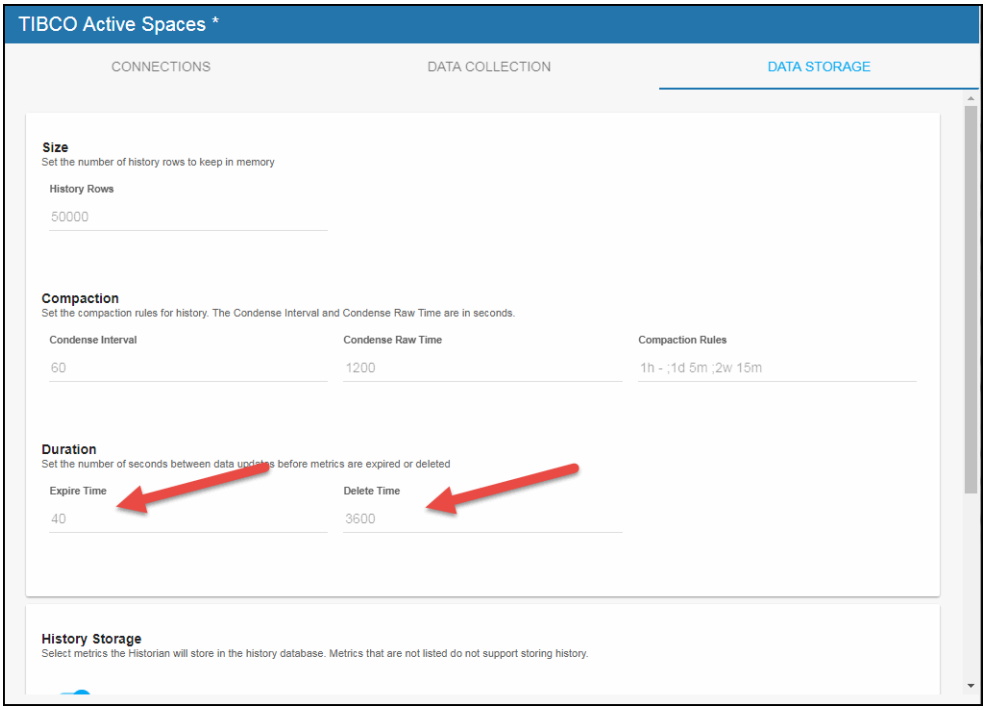
Defining Expiration and Deletion Duration for TASMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The caches impacted by these fields are: TasQueryStats, TasSpaceStatistics, TasMemberStatistics, TasMembers, TasMetaspaces, and TasSeeders. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL/Project Name**) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

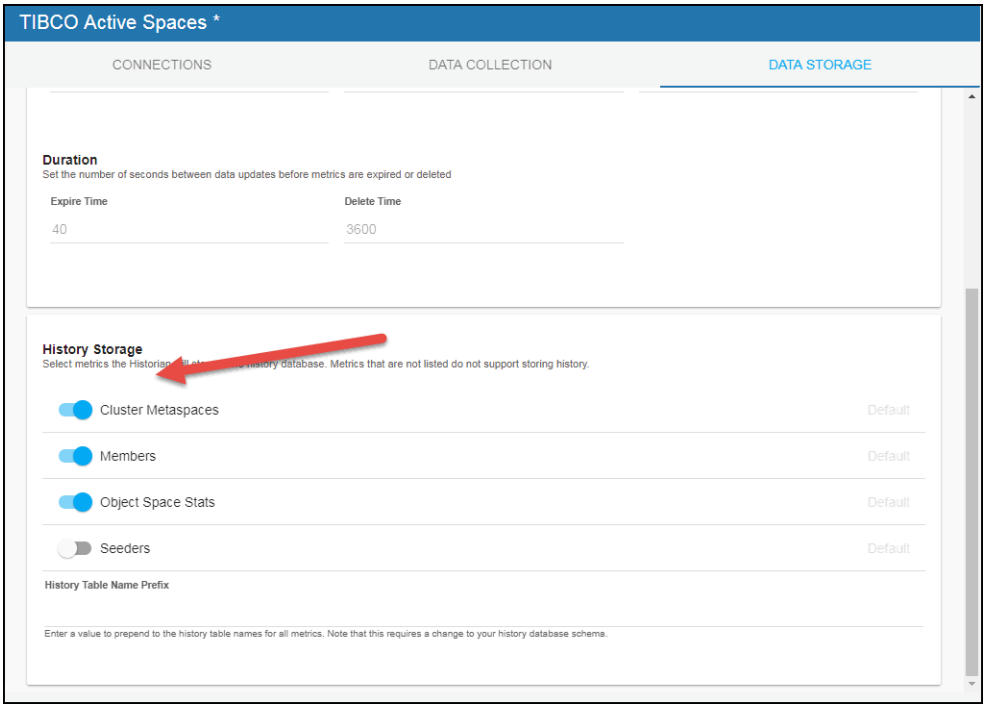


Enabling/Disabling Storage of TASMON Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical Cluster Metaspaces (TasMetaspaces cache), Members (TasMembers cache), and Object Space Stats (TasSpaceStatistics cache) are saved to the database. Seeders (TasSeeders cache) data is not saved by default. To enable/disable the collection of this historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL/Project Name**) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab.

2. In the **History Storage** region, (de)select the toggles for the metrics that you do/do not want to collect. Blue is enabled, gray is disabled.



Note: In some deployments, the data volume added by enabling these metrics can easily scale to levels exceeding the ability of RTView Enterprise Monitor to maintain this data in the cache and the history database. You should be certain that you really need this level of detail and that you have the available database capacity before enabling these tables.

Defining a Prefix for All History Table Names for TASMON Metrics

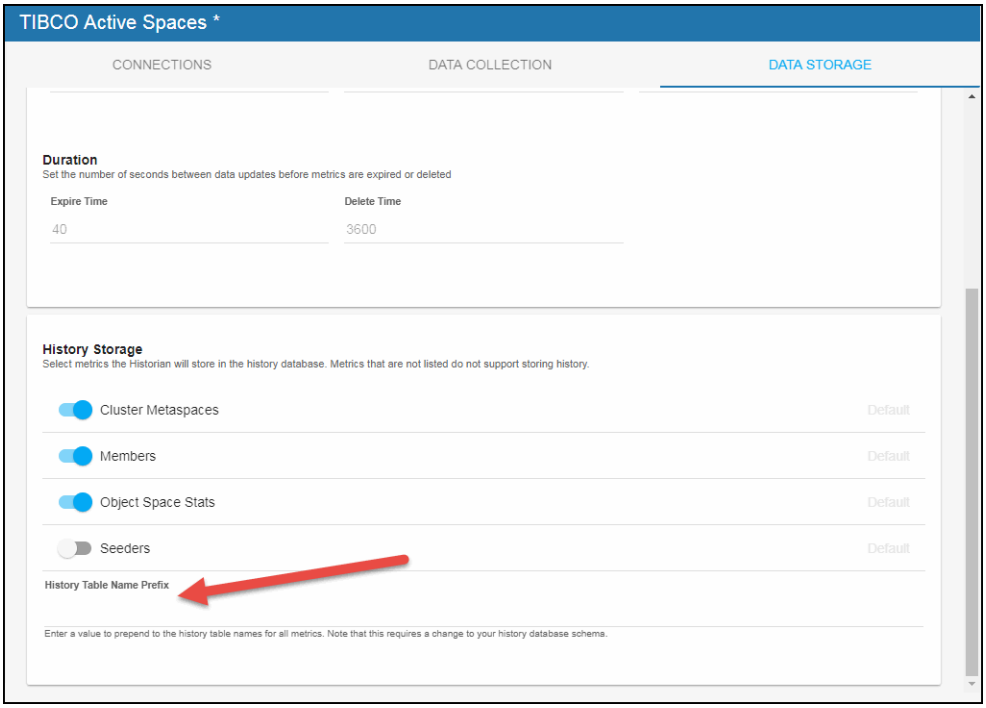
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**tasmon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.

Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to RTView Configuration Application > (**MISCMON-LOCAL/Project Name**) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab.
2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Tas." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Upgrading the Monitor

This section describes the steps necessary to upgrade existing versions of the monitor to the current version. To upgrade your application, follow the steps for each version between the version you are upgrading from and the version to which you are upgrading.

- "Version 4.0"
- "Version 3.8"

Version 4.0

Additional selected member resource metrics have been added to the history of the TasMembers cache.

The subset of additional columns used for history are listed in the "ALTER TABLE" commands, below.

You will need to update the table structure of the TAS_MEMBER historian table by executing the following alter table SQL sentences in your selected database administrative tool:

DB2:

```
ALTER TABLE "TAS_MEMBER" ADD "thread_count" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "res_mem_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "mem_load" FLOAT;
ALTER TABLE "TAS_MEMBER" ADD "peak_res_mem_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "page_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "peak_page_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "process_cpu_load" FLOAT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_max_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_used_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_max_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_used_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_finalizing_count" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "JvmMemoryUsedPercent" DOUBLE ;
```

SQL Server:

```
ALTER TABLE [TAS_MEMBER] ADD [thread_count] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [res_mem_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [mem_load] FLOAT;
ALTER TABLE [TAS_MEMBER] ADD [peak_res_mem_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [page_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [peak_page_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [process_cpu_load] FLOAT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_comm_heap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_max_heap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_used_heap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_comm_nonheap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_max_nonheap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_used_nonheap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_finalizing_count] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [JvmMemoryUsedPercent] FLOAT;
```

MySQL:

ALTER TABLE "TAS_MEMBER" ADD "thread_count" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "res_mem_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "mem_load" FLOAT;

ALTER TABLE "TAS_MEMBER" ADD "peak_res_mem_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "page_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "peak_page_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "process_cpu_load" FLOAT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_heap_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_max_heap_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_used_heap_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_nonheap_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_max_nonheap_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_used_nonheap_size" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "jvm_finalizing_count" BIGINT;

ALTER TABLE "TAS_MEMBER" ADD "JvmMemoryUsedPercent" DOUBLE;

Oracle:

ALTER TABLE "TAS_MEMBER" ADD ("thread_count" NUMBER, "res_mem_size" NUMBER, "mem_load" FLOAT, "peak_res_mem_size" NUMBER, "page_size" NUMBER, "peak_page_size" NUMBER, "process_cpu_load" FLOAT, "jvm_comm_heap_size" NUMBER, "jvm_max_heap_size" NUMBER, "jvm_used_heap_size" NUMBER, "jvm_comm_nonheap_size" NUMBER, "jvm_max_nonheap_size" NUMBER, "jvm_used_nonheap_size" NUMBER, "jvm_finalizing_count" NUMBER, "JvmMemoryUsedPercent" REAL);

SyBase:

ALTER TABLE "TAS_MEMBER" ADD "thread_count" BIGINT NULL, "res_mem_size" BIGINT NULL, "mem_load" FLOAT NULL, "peak_res_mem_size" BIGINT NULL, "page_size" BIGINT NULL, "peak_page_size" BIGINT NULL, "process_cpu_load" FLOAT NULL, "jvm_comm_heap_size" BIGINT NULL, "jvm_max_heap_size" BIGINT NULL, "jvm_used_heap_size" BIGINT NULL, "jvm_comm_nonheap_size" BIGINT NULL, "jvm_max_nonheap_size" BIGINT NULL, "jvm_used_nonheap_size" BIGINT NULL, "jvm_finalizing_count" BIGINT NULL, "JvmMemoryUsedPercent" FLOAT NULL;

Version 3.8

Additional selected member resource metrics have been added to the history of the **TasMembers** cache. The subset of additional columns used for history are listed in the "ALTER TABLE" commands. You must update the table structure of the TAS_MEMBER historian table by executing the following alter table SQL sentences in your selected database administrative tool:

DB2:

```
ALTER TABLE "TAS_MEMBER" ADD "thread_count" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "res_mem_size" BIGINT;
```

```
ALTER TABLE "TAS_MEMBER" ADD "mem_load" FLOAT;
ALTER TABLE "TAS_MEMBER" ADD "peak_res_mem_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "page_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "peak_page_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "process_cpu_load" FLOAT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_max_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_used_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_max_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_used_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_finalizing_count" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "JvmMemoryUsedPercent" DOUBLE ;
```

SQL Server:

```
ALTER TABLE [TAS_MEMBER] ADD [thread_count] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [res_mem_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [mem_load] FLOAT;
ALTER TABLE [TAS_MEMBER] ADD [peak_res_mem_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [page_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [peak_page_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [process_cpu_load] FLOAT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_comm_heap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_max_heap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_used_heap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_comm_nonheap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_max_nonheap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_used_nonheap_size] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [jvm_finalizing_count] BIGINT;
ALTER TABLE [TAS_MEMBER] ADD [JvmMemoryUsedPercent] FLOAT;
```

MySQL:

```
ALTER TABLE "TAS_MEMBER" ADD "thread_count" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "res_mem_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "mem_load" FLOAT;
ALTER TABLE "TAS_MEMBER" ADD "peak_res_mem_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "page_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "peak_page_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "process_cpu_load" FLOAT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_max_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_used_heap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_comm_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_max_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_used_nonheap_size" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "jvm_finalizing_count" BIGINT;
ALTER TABLE "TAS_MEMBER" ADD "JvmMemoryUsedPercent" DOUBLE;
```

Oracle:

```
ALTER TABLE "TAS_MEMBER" ADD ("thread_count" NUMBER, "res_mem_size" NUMBER, "mem_load"
FLOAT, "peak_res_mem_size" NUMBER, "page_size" NUMBER, "peak_page_size" NUMBER,
"process_cpu_load" FLOAT, "jvm_comm_heap_size" NUMBER, "jvm_max_heap_size" NUMBER,
"jvm_used_heap_size" NUMBER, "jvm_comm_nonheap_size" NUMBER, "jvm_max_nonheap_size"
NUMBER, "jvm_used_nonheap_size" NUMBER, "jvm_finalizing_count" NUMBER,
"JvmMemoryUsedPercent" REAL);
```

SyBase:

```
ALTER TABLE "TAS_MEMBER" ADD "thread_count" BIGINT NULL, "res_mem_size" BIGINT NULL,
"mem_load" FLOAT NULL, "peak_res_mem_size" BIGINT NULL, "page_size" BIGINT NULL,
```

```
"peak_page_size" BIGINT NULL, "process_cpu_load" FLOAT NULL, "jvm_comm_heap_size" BIGINT
NULL, "jvm_max_heap_size" BIGINT NULL, "jvm_used_heap_size" BIGINT NULL,
"jvm_comm_nonheap_size" BIGINT NULL, "jvm_max_nonheap_size" BIGINT NULL,
"jvm_used_nonheap_size" BIGINT NULL, "jvm_finalizing_count" BIGINT NULL,
"JvmMemoryUsedPercent" FLOAT NULL;
```

TIBCO ActiveSpaces Monitor Views/Displays

This section contains the following:

- "Spaces View": The displays in this View allow you to view the current and historical metrics for all metaspaces and spaces in a heatmap, tabular, or summary format.
- "Members View": The displays in this View allow you to view the current and historical metrics for all members in a particular metaspace, view data for members within a particular space, and view data for all spaces for a particular member.

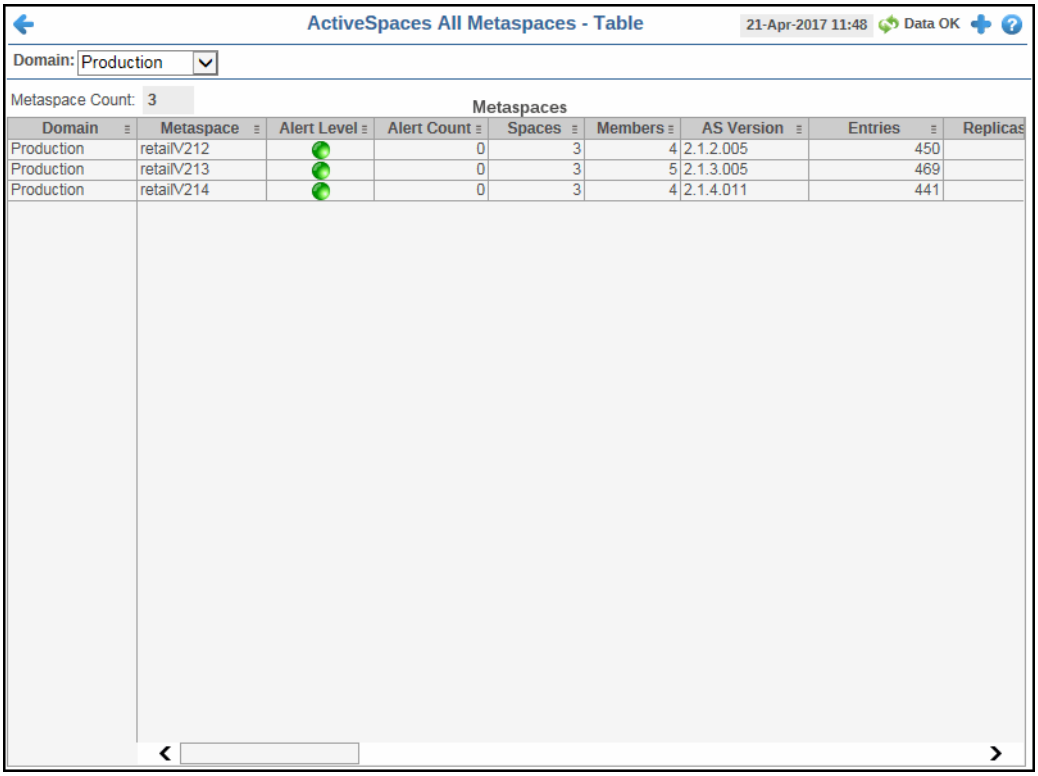
Spaces View

These displays provide detailed data for all metaspaces and spaces in a heatmap, tabular, or summary format. Displays in this View are:

- "All Metaspaces Table": A tabular view of your metaspaces and their associated metrics.
- "Metaspace Summary": This display allows you to view metrics and trend data for a particular metaspace.
- "All Spaces Table": A tabular view of all spaces contained within a particular metaspace.
- "All Spaces Heatmap": A heatmap view of all spaces contained within a particular metaspace.
- "Space Summary": This display allows you to view metrics and trend data for a particular space.
- "All Queries Table": This display allows you to view queries by domain, metaspace, and space and view the performance metrics for the queries.
- "Query Summary": This display allows you to view performance metrics for a particular query, as well as to view any related queries.

All Metaspaces Table

The table in this display provides a view of all of your metaspaces and their associated metric data including domain, metaspace, alert level, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected metaspace in the "Metaspace Summary" display



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

Domain	Select the domain for which you want to view data.
Metaspace Count	The total number of metaspaces found for the domain selected in the **Domain** dropdown, which are displayed in the **Metaspaces** table.

Metaspaces Table

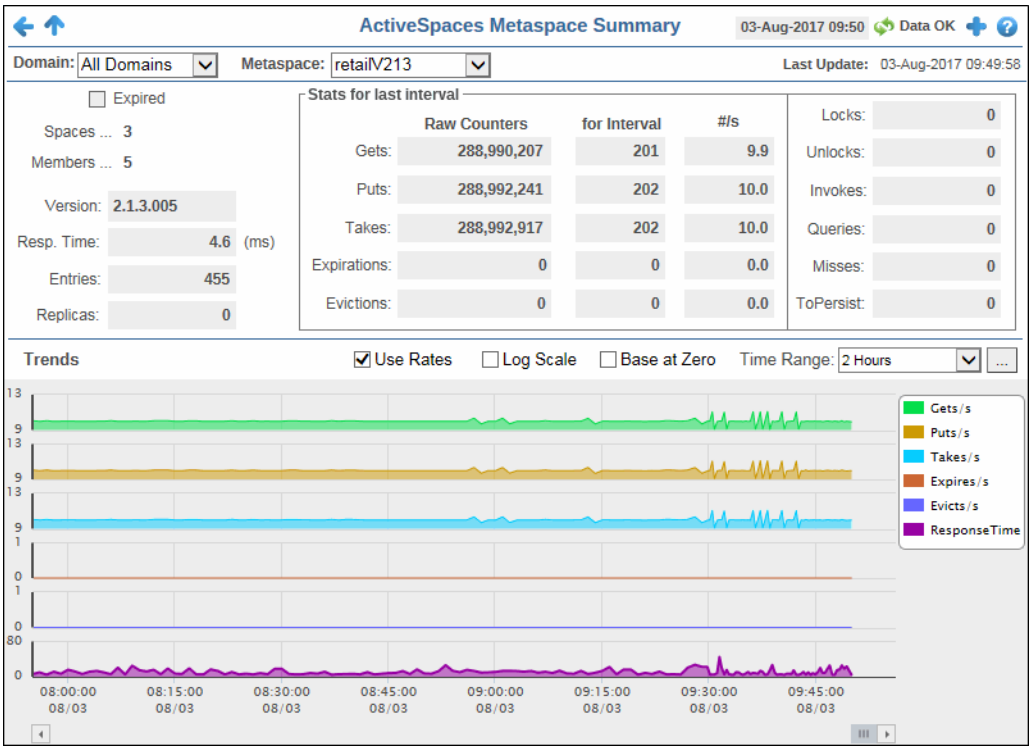
Domain	The name of the domain.

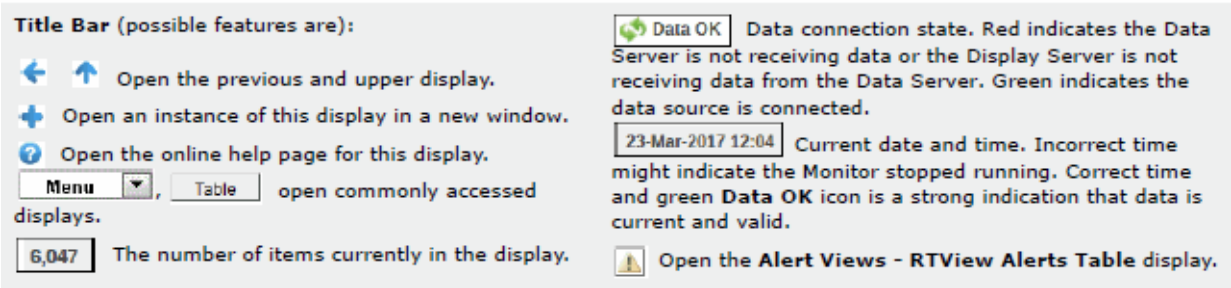
Metaspace	The name of the metaspace.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Spaces	The number of user spaces defined in the metaspace.*
Members	The number of members (clients and servers) associated with the metaspace.*
AS Version	The metaspace's current version of TIBCO ActiveSpaces.*
Entries	The total number of entries stored in the metaspace.*
Replicas	The total number of replicas stored in the metaspace.*
Response Time	The average response time for the metaspace.*
Gets	The total number of "get" operations performed on the user-spaces defined on the metaspace.*
Gets/interval	The number of "get" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Gets/sec	The rate of "get" operations (per second) performed on the user-spaces defined for the metaspace.*
Puts	The total number of "put" operations performed on the user-spaces defined on the metaspace.*
Puts/interval	The number of "put" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Puts/sec	The rate of "put" operations (per second) performed on the user-spaces defined for the metaspace.*
Takes	The total number of "take" operations performed on the user-spaces defined on the metaspace.*
Takes/interval	The number of "take" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Takes/sec	The rate of "take" operations (per second) performed on the user-spaces defined for the metaspace.*
Expires	The total number of entries in the user-spaces defined on the metaspace that have expired.*
Expires/ interval	The number of entries in the user-spaces defined for the metaspace that expired during the current polling interval.*
Expires/sec	The rate of entries in the user-spaces defined for the metaspace that expired (per second).*
Evicts	The total number of entries in the user-spaces defined on the metaspace that have been evicted.*
Evicts/interval	The number of entries performed in the user-spaces defined for the metaspace that were evicted during the current polling interval.*
Evicts/sec	The rate of entries in the user-spaces defined for the metaspace that were evicted (per second).*
Locks	The total number of locks in the user-spaces defined for the metaspace.*
Unlocks	The total number of unlocks in the user-spaces defined for the metaspace.*

Invokes	The remote invocation count.*
Queries	The browser queries count in the user-spaces defined for the metaspace.*
Misses	The total number of misses on the user-spaces defined for the metaspace.*
ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Metaspace Summary

This display provides a view of the current and historical metrics for a single metaspace. The trend graph in the bottom half of the display traces the current and historical total number of or rate data for gets, puts, takes, expires, and evictions, and also traces the average response time.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain Select the domain for which you want to show data in the display.

Metaspace Select the metaspace for which you want to show data in the display.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Spaces The number of user spaces defined in the metaspace.*

Members The number of members (clients and servers) associated with the metaspace.*

Version The metaspace's current version of TIBCO ActiveSpaces.

Resp. Time The average response time for the metaspace.*

Entries The total number of entries stored in the metaspace.*

Replicas The total number of replicas stored in the metaspace.*

Stats for last interval

Gets **Raw Counters**-- The total number of gets for the metaspace.
for interval-- The number of gets for the current interval.
#/s -- The number of gets per second.

Puts **Raw Counters**-- The total number of puts for the metaspace.
for interval-- The number of puts for the current interval.
#/s -- The number of puts per second.

Takes **Raw Counters**-- The total number of takes for the metaspace.
for interval-- The number of takes for the current interval.
#/s -- The number of takes per second.

Expirations	**Raw Counters**-- The total number of expirations for the metaspace. **for interval**-- The number of expirations for the current interval. **#/s** -- The number of expirations per second.
Evictions	**Raw Counters**-- The total number of evictions for the metaspace. **for interval**-- The number of evictions for the current interval. **#/s** -- The number of evictions per second.
Locks	The total number of locks in the user-spaces defined for the metaspace.*
Unlocks	The total number of unlocks in the user-spaces defined for the metaspace.*
Invokes	The remote invocation count.*
Queries	The browser queries count in the user-spaces defined for the metaspace.*
Misses	The total number of misses in the user-spaces defined for the metaspace.*
ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*

Trends Traces the following:

Gets(/s) -- traces the total number of gets, or the number of gets per second with **Use Rates** selected.

Puts(/s)-- traces the total number of puts, or the number of puts per second with **Use Rates** selected.

Takes(/s) -- traces the total number of takes, or the number of takes per second with **Use Rates** selected.

Expires(/s) -- traces the total number of expires, or the number of expires per second with **Use Rates** selected.

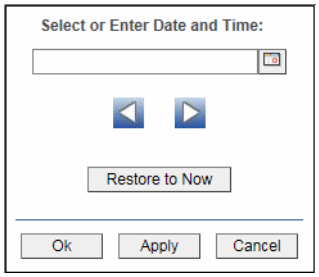
Evicts(/s) -- traces the total number of evicts, or the number of evicts per second with **Use Rates** selected.

Response Time -- traces the average response time.

Use Rates	Select this check box to trace the rates (**Gets/s**, **Puts/s, Takes/s, Expires/s, Evicts/s**) instead of the total numbers (**Gets**, **Puts, Takes, Expires, Evicts**).
Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



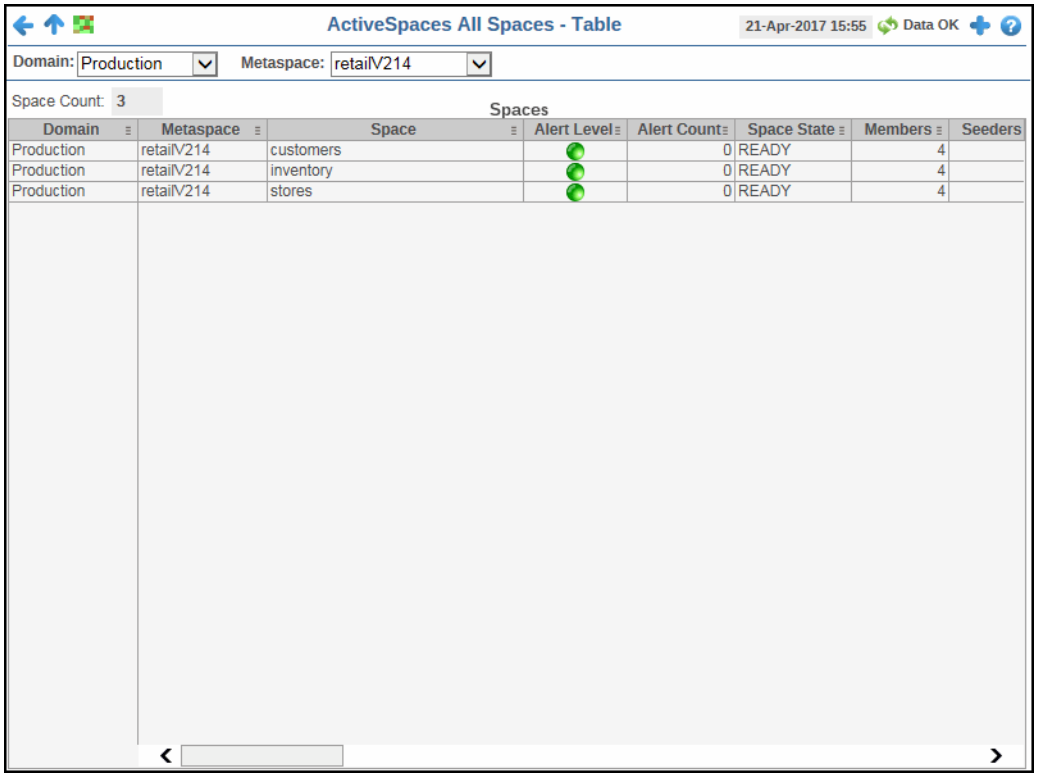
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

All Spaces Table

The table in this display provides a view of all of your spaces and their associated metric data including domain, metaspace, space, alert level, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected adapter in the "Space Summary" display.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

Domain	Select the domain for which you want to view data.
Metaspace	Select the metaspace for which you want to view data.

Spaces Table:

Domain	The name of the domain.
Metaspace	The name of the metaspace.

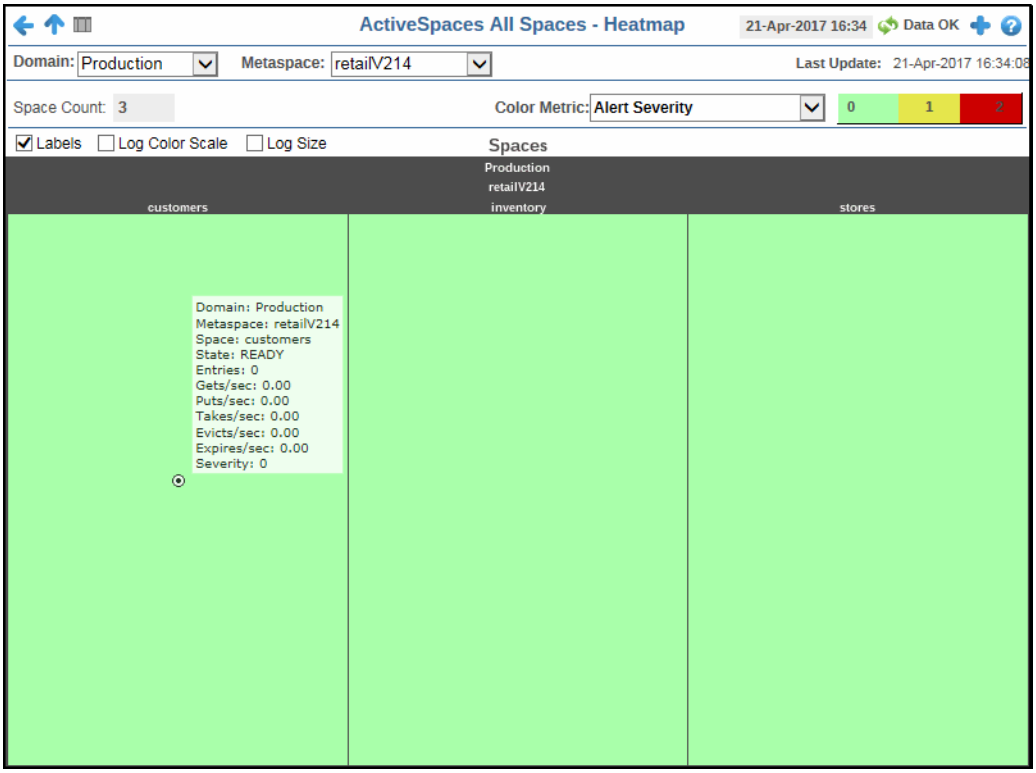
Space	The name of the space.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Space State	The current state of the space.*
Members	The total number of members in the space.*
Seeders	The number of seeders in the space.*
Min Seeder Count	The defined minimum seeder count (minimum number of seeders that need to be joined to the space before the space becomes ready).*
CapacityPerSeeder	The capacity value for the space in number of entries per seeder.*
Entries	The total number of entries stored in the space.*
Replicas	The total number of replicas stored in the space.*
Gets	The total number of "get" operations performed on the user-spaces defined on the space.*
Gets/interval	The number of "get" operations performed on the user-spaces defined for the space during the current polling interval.*
Gets/sec	The rate of "get" operations (per second) performed on the user-spaces defined for the space.*
Puts	The total number of "put" operations performed on the user-spaces defined on the space.*
Puts/interval	The number of "put" operations performed on the user-spaces defined for the space during the current polling interval.*
Puts/sec	The rate of "put" operations (per second) performed on the user-spaces defined for the space.*
Takes	The total number of "take" operations performed on the user-spaces defined on the space.*
Takes/interval	The number of "take" operations performed on the user-spaces defined for the space during the current polling interval.*
Takes/sec	The rate of "take" operations (per second) performed on the user-spaces defined for the space.*
Expires	The total number of entries in the user-spaces defined on the space that have expired.*
Expires/interval	The number of entries in the user-spaces defined for the space that expired during the current polling interval.*
Expires/sec	The rate of entries in the user-spaces defined for the space that expired (per second).*
Evicts	The total number of entries in the user-spaces defined on the space that have been evicted.*
Evicts/interval	The number of entries performed on the user-spaces defined for the space that were evicted during the current polling interval.*
Evicts/sec	The rate of entries in the user-spaces defined for the space that were evicted (per second).*
Locks	The total number of locks in the user-spaces defined for the space.*

Unlocks	The total number of unlocks in the user-spaces defined for the space.*
Invokes	The remote invocation count.*
Queries	The total number of queries in the user-spaces defined for the space.*
Misses	The total number of misses in the user-spaces defined for the space.*
ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

All Spaces Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your spaces for each available metric. You can view the spaces in the heatmap based on the following metrics: current alert severity, entries, gets per second, puts per second, takes per second, expires per second, and evicts per second. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Labels** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for an space. Clicking one of the rectangles in the heatmap opens the "Space Summary" display, which allows you to see additional details for the selected space.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Domain Select the domain for which you want to see data.

Metaspace Select the metaspace for which you want to see data.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Space Count The total number of spaces found for the selected Domain/Metaspace combination.

Labels Select this check box to display the names of the adapters at the top of each rectangle in the heatmap.

Log Color Scale Select this check box to use a logarithmic scale, rather than a linear scale, to map from the selected metric value for a cell to the color for the cell. **Log Scale** provides another way to distribute and differentiate values that you might not be able to see on a linear scale due to the dominant nature of large values in a linear scale.

Log Size Select this check box to use a logarithmic scale, rather than a linear scale, to map from the selected metric value for a cell to the size for the cell. **Log Scale** provides another way to distribute and differentiate values that you might not be able to see on a linear scale due to the dominant nature of large values in a linear scale.

Color Metric Choose a metric to view in the display.

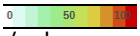
Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

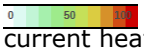
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

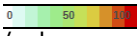
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

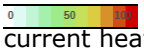
Green indicates that no metrics have exceeded their alert thresholds.

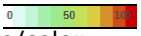
Entries The total number of entries in the space. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasSpaceEntriesHigh**. The middle value in the gradient bar indicates the middle value of the range.

Gets/sec The number of gets per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasSpaceGetRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Puts/sec The number of message sent per second. The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasSpacePutRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

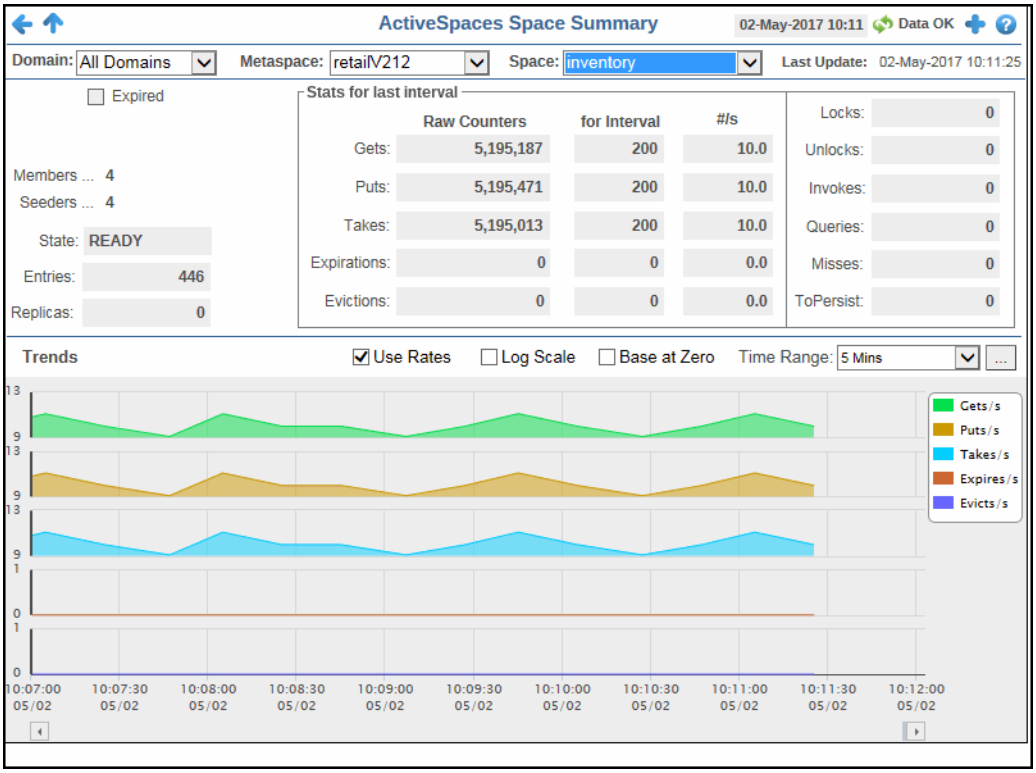
Takes/sec The number of takes per second.The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasSpaceTakeRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Expires/sec The number of expires per second. The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasSpaceExpireRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Evicts/sec The number of evictions per second.The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasSpaceEvictsRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Space Summary

This display provides a view of the current and historical metrics for a single space. The trend graph in the bottom half of the display traces the current and historical total number of or rate data for gets, puts, takes, expires, and evictions.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain	Select the domain for which you want to show data in the display.
Metaspace	Select the metaspace for which you want to show data in the display.
Space	Select the space for which you want to show data in the display.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Members The total number of members associated with the space.*

Note: You can click on this field to open the "Members by Space Table".

Seeders The number of seeders in the space.*

Note: You can click on this field to open the "Members by Space Table".

State The current state of the space.*

Entries The total number of entries stored in the space.*

Replicas The total number of replicated entries in the space.*

Stats for last interval

Gets **Raw Counters**-- The total number of gets for the space.
for interval-- The number of gets for the current interval.
#/s -- The number of gets received per second.

Puts **Raw Counters**-- The total number of puts for the space.
for interval-- The number of puts for the current interval.
#/s -- The number of puts received per second.

Takes **Raw Counters**-- The total number of takes for the space.
for interval-- The number of takes for the current interval.
#/s -- The number of takes received per second.

Expirations **Raw Counters**-- The total number of expirations for the space.
for interval-- The number of expirations for the current interval.
#/s -- The number of expirations received per second.

Evictions **Raw Counters**-- The total number of evictions for the space.
for interval-- The number of evictions for the current interval.
#/s -- The number of evictions received per second.

Locks The total number of locks in the user-spaces defined for the space.*

Unlocks The total number of unlocks in the user-spaces defined for the space.*

Invokes The remote invocation count.*

Queries The total number of queries in the user-spaces defined for the space.*

Misses The total number of misses on the user-spaces defined for the space.*

ToPersist The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*

Trends Traces the following:

Gets(/s) -- traces the total number of gets, or the number of gets per second with **Use Rates** selected.

Puts(/s)-- traces the total number of puts, or the number of puts per second with **Use Rates** selected.

Takes(/s) -- traces the total number of takes, or the number of takes per second with **Use Rates** selected.

Expires(/s) -- traces the total number of expires, or the number of expires per second with **Use Rates** selected.

Evicts(/s) -- traces the total number of evicts, or the number of evicts per second with **Use Rates** selected.

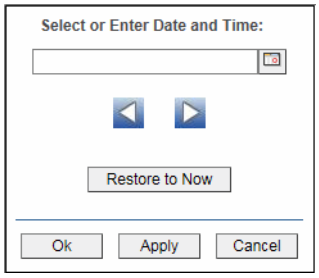
Response Time -- traces the average response time.

Use Rates Select this check box to trace the rates (**Gets/s**, **Puts/s, Takes/s, Expires/s, Evicts/s**) instead of the total numbers (**Gets**, **Puts, Takes, Expires, Evicts**).

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



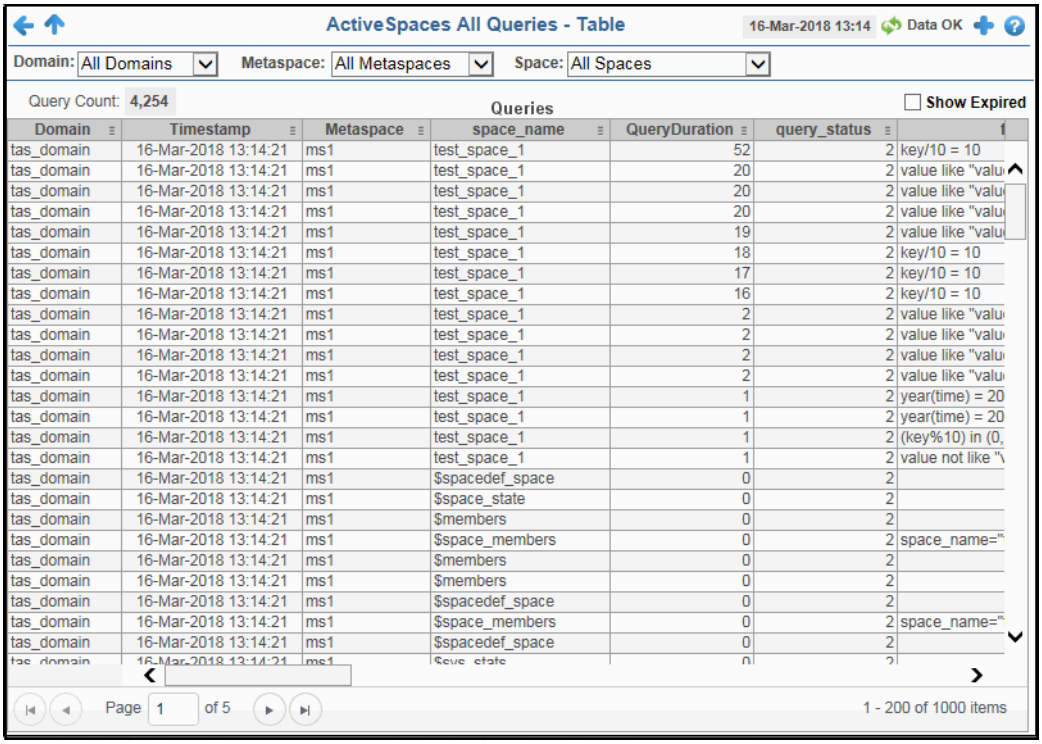
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

All Queries Table

This display allows you to view queries by domain, metaspace, and space and view the performance metrics for the queries. Clicking on a query in the table opens the "Query Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain	Select the domain for which you want to show data in the display.
Metaspace	Select the metaspace for which you want to show data in the display.
Space	Select the space for which you want to show data in the display.

Fields and Data:

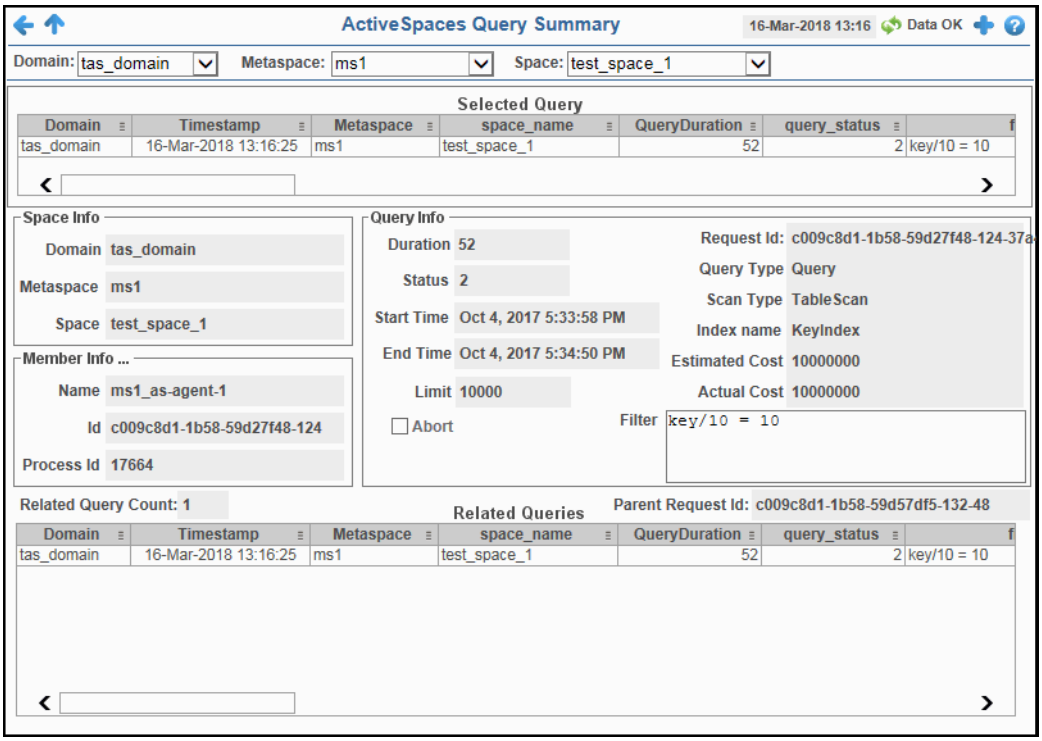
Query Count	The total number of queries listed in the table.
Show Expired	Select this toggle to display expired queries in the table.

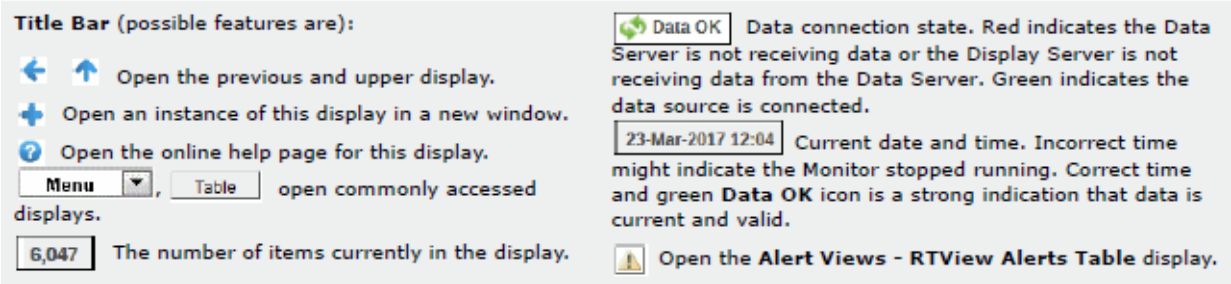
Queries Table

Domain	The name of the domain containing the query.
Timestamp	The date and time that the row in the table was last updated.
Metaspace	The name of the metaspace containing the query.
space_name	The name of the space containing the query.
Query Duration	The duration, in seconds, of the query.*
query_status	The status of the query.* **0** - Failed **1** - In progress **2** - Completed
filter	The filter used in the query.*
query_type	The type of query.*
scan_type	Lists whether the query used a table scan or an index scan.*
index_name	The name of the index being used in the query.*
limit	Lists the maximum number of entries that can be returned when executing a query.*
estimated_cost	The estimated execution time of the query.*
actual_cost	The actual execution time of the query.*
abort	When checked, denotes that the query was aborted.*
StartTime	Start time of the query.
EndTime	End time of the query.
start_time	Internal start time of the query.*
end_time	Internal end time of the query.*
request_id	The request id of the query.*
parent_request_id	The request id of the query's parent.*
member_name	The name of the member node.*
member_id	The id of the member node.*
process_id	The process ID of the member node processing the query.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Query Summary

This display allows you to view performance metrics for a particular query, as well as to view any related queries. Data only appears in this display when you select a query from the "All Queries Table".





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain Select the domain for which you want to show data in the display.

Metaspace	Select the metaspace for which you want to show data in the display.
Space	Select the space for which you want to show data in the display.
Fields and Data:	
Selected Query	Lists the details of the query selected from the "All Queries Table".
Space Info	
Domain	The name of the domain in which the query resides.
Metaspace	The name of the metaspace in which the query resides.
Space	The name of the space in which the query resides.
Member Info	**Note:** You can click this region to open the "Member Summary" display.
Name	The name of the member node.*
Id	The id of the member node.*
Process ID	The process ID of the member node processing the query.*
Query Info	
Duration	The duration, in seconds, of the query.*
Status	The status of the query.* **0** - Failed **1** - In progress **2** - Completed
Start Time	Start time of the query.
End Time	End time of the query.
Limit	Lists the maximum number of entries that can be returned when executing a query.*
Abort	When checked, denotes that the query was aborted.*
Request Id	The request id of the query.*
Query Type	The type of query.*
Scan Type	Lists whether the query used a table scan or an index scan.*
Index Name	The name of the index being used in the query.*
Estimated Cost	The estimated execution time of the query.*
Actual Cost	The actual execution time of the query.*
Filter	The filter used in the query.*
Related Query Count	The number of queries related to the selected query.
Parent Request Id	The request ID of the query's parent.
Related Queries	Lists the details of any related ("sibling") queries.

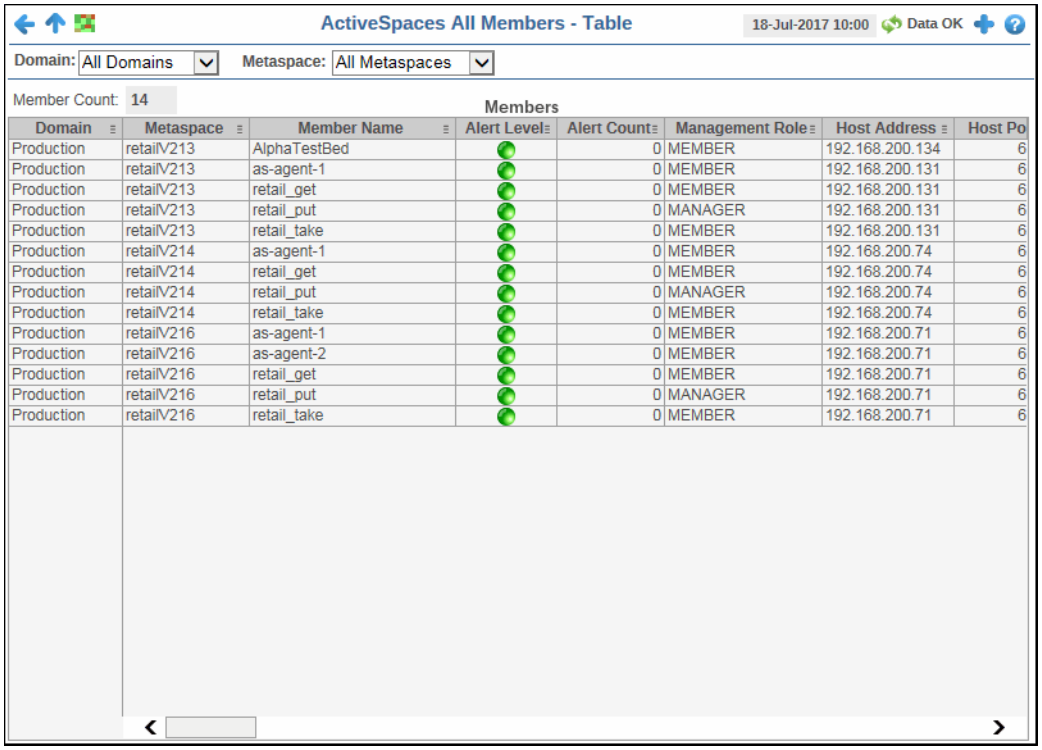
Members View

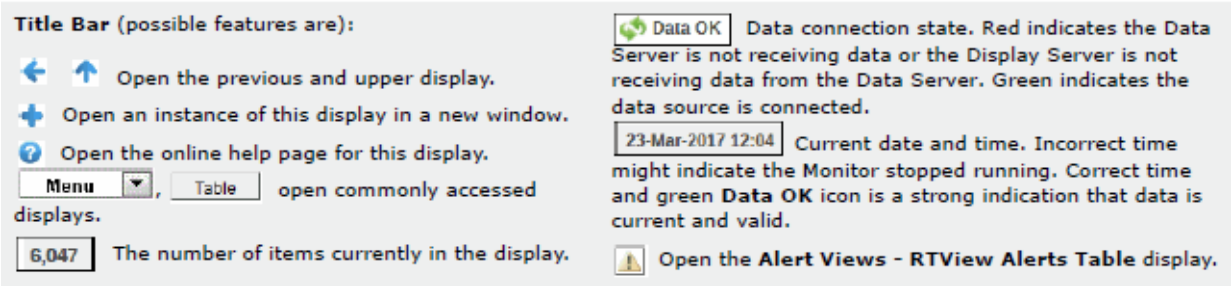
The displays in this view allow you to view the current and historical metrics for all members in a particular metaspace, view data for members within a particular space, and view data for all spaces for a particular member. The available displays in this View are:

- "All Members Table": A tabular view of all members in a particular metaspace.
- "All Members Heatmap": A heatmap view of all members in a particular metaspace.
- "Member Summary": This display allows you to view current and trending data for a single member for a particular metaspace.
- "Member Summary - Process": This display allows you to view current and trending process statistics for a single member for a particular metaspace.
- "Member Summary -JVM": This display allows you to view current and trending JVM statistics for a single member for a particular metaspace.
- "Members by Space Table": A tabular view of all members in a particular space.
- "Members by Space Heatmap": A heatmap view of all members in a particular space.
- "Spaces by Member Table": A tabular view of all spaces for a particular member.
- "Member by Space Summary": This display allows you to view data for a selected member for a particular space.

All Members Table

The table in this display provides a view of all of the members in a particular metaspace and their associated metric data including domain, metaspace, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected member in the "Member Summary" display





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

Domain	Select the domain for which you want to view data.
Metaspace	Select the metaspace for which you want to view data.
Member Count	The resulting total number of members found in the filtered query, and listed in the **Members** table.

Members Table

Domain	The name of the domain.

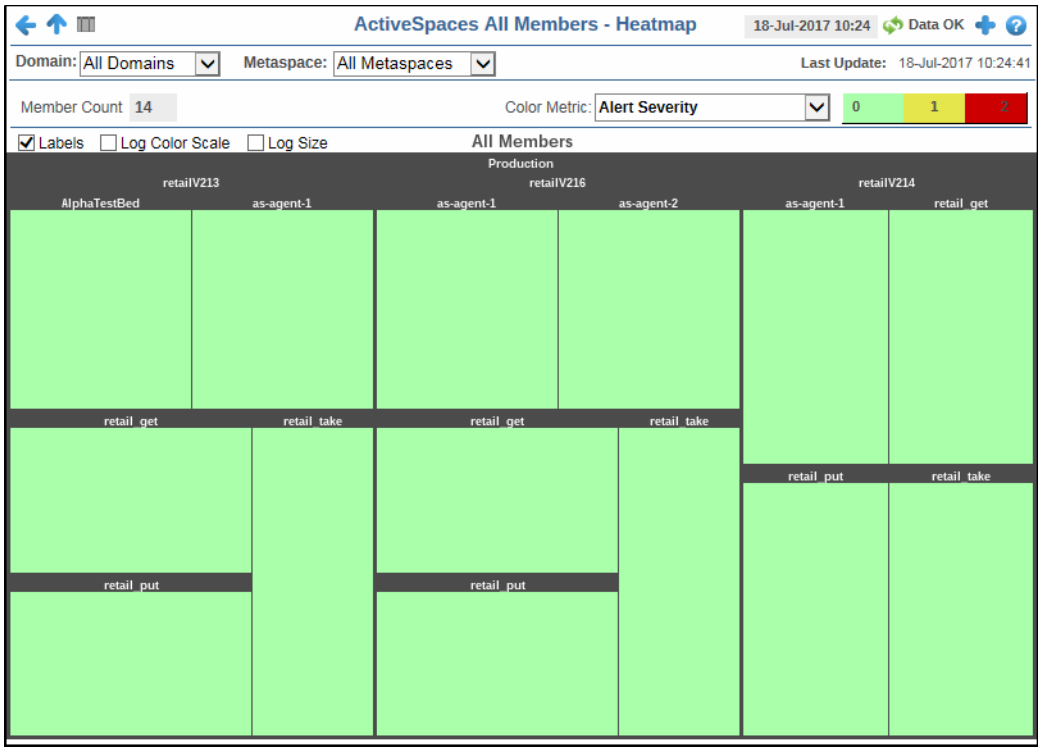
Metaspace	The name of the metaspace.
Member Name	The name of the member.
Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Management Role	The member's role within the metaspace.
Host Address	The IP address of the host.*
Host Port	The port of the host.*
ProcessID	The process ID of the process being monitored.*
Process Name	The name of the process.*
NumSpaces	The number of spaces in which the metaspace member is a member.*
Entries	The number of entries associated with the member.*
Replicas	The number of replicas.*
Gets	The total number of "get" operations performed on the user-spaces defined on the metaspace.*
Gets/interval	The number of "get" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Gets/sec	The rate of "get" operations (per second) performed on the user-spaces defined for the metaspace.*
Puts	The total number of "put" operations performed on the user-spaces defined on the metaspace.*
Puts/interval	The number of "put" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Puts/sec	The rate of "put" operations (per second) performed on the user-spaces defined for the metaspace.*
Takes	The total number of "take" operations performed on the user-spaces defined on the metaspace.*
Takes/interval	The number of "take" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Takes/sec	The rate of "take" operations (per second) performed on the user-spaces defined for the metaspace.*
Expires	The total number of entries in the user-spaces defined on the metaspace that have expired.*
Expires/interval	The number of entries performed in the user-spaces defined for the metaspace that expired during the current polling interval.*
Expires/sec	The rate of entries in the user-spaces defined for the metaspace that expired (per second).*
Evicts	The total number of entries in the user-spaces defined on the metaspace that have been evicted.*
Evicts/interval	The number of entries performed in the user-spaces defined for the metaspace that were evicted during the current polling interval.*

Evicts/sec	The rate of entries in the user-spaces defined for the metaspace that were evicted (per second).*
Locks	The total number of locks in the user-spaces defined for the metaspace.*
Unlocks	The total number of unlocks in the user-spaces defined for the metaspace.*
Invokes	The remote invocation count.*
Queries	The total number of queries in the user-spaces defined for the metaspace.*
Misses	The total number of misses in the user-spaces defined for the metaspace.*
ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Join Time	The time that the member joined the space.
Timestamp	The date and time the row data was last updated.
sys_name	The operating system on which the member is running.*
cmd_name	Indicates the command used to start **as-admin**.*
user_name	The name of the user running the process.*
thread_count	The number of threads running for the process.*
res_mem_size	Indicates the amount of physical memory currently allocated to the member.*
mem_load	The percentage of memory being used.*
peak_res_mem_size	Indicates the peak size of the system resident memory allocated by the system.*
page_size	Indicates the current size of the system pagefiles allocated by the system.*
peak_page_size	Indicates the maximum size of the system pagefiles allowed by the system.*
process_cpu_load	Indicates the load on the CPU (CPU percentage).*
cpu_count	The number of CPUs running on the system.*
jvm_comm_heap_size	The committed JVM heap usage, in megabytes.*
jvm_max_heap_size	The maximum JVM heap usage, in megabytes.*
jvm_used_heap_size	The used JVM heap, in megabytes.*
jvm_comm_nonheap_size	The committed JVM non-heap memory usage, in megabytes.*
jvm_max_nonheap_size	The maximum JVM non-heap memory usage, in megabytes.*
jvm_used_nonheap_size	The used JVM non-heap memory, in megabytes.*
jvm_finalizing_count	The amount of memory freed by the finalize operation on the JVM.*
as_version	The current ActiveSpaces version running.*
JVMMemoryUsedPercent	The percentage of memory used by the JVM.*

All Members Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your members for each available metric. You can view the members in the heatmap based on the following metrics: the current alert severity, the number of entries, the number of gets per second, the number of puts per second, the number of takes per second, the number of expires per second, the number of evictions per second, the percentage of CPU used, the percentage of memory used, and the percentage of JVM memory used. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Labels** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a particular member. Clicking one of the rectangles in the heatmap opens the "Member Summary" display, which allows you to see additional details for the selected member.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

Domain Select the Domain for which you want to view data.

Metaspace Select the metaspace for which you want to view data.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Member Count The number of members found for the selected **Domain**/**Metaspace** combination.

Labels Select this check box to display the names of the adapters at the top of each rectangle in the heatmap.

Log Color Scale Select this check box to use a logarithmic scale, rather than a linear scale, to map from the selected metric value for a cell to the color for the cell. **Log Scale** provides another way to distribute and differentiate values that you might not be able to see on a linear scale due to the dominant nature of large values in a linear scale.

Log Size Select this check box to use a logarithmic scale, rather than a linear scale, to map from the selected metric value for a cell to the size for the cell. **Log Scale** provides another way to distribute and differentiate values that you might not be able to see on a linear scale due to the dominant nature of large values in a linear scale.

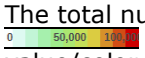
Color Metric Choose a metric to view in the display.

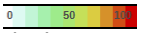
Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

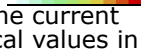
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

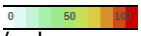
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

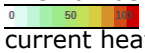
Green indicates that no metrics have exceeded their alert thresholds.

Entries The total number of entries in the adapters. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberEntriesHigh**. The middle value in the gradient bar indicates the middle value of the range.

Gets/sec The number of gets per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberGetRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Puts/sec The number of puts per second. The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberPutRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

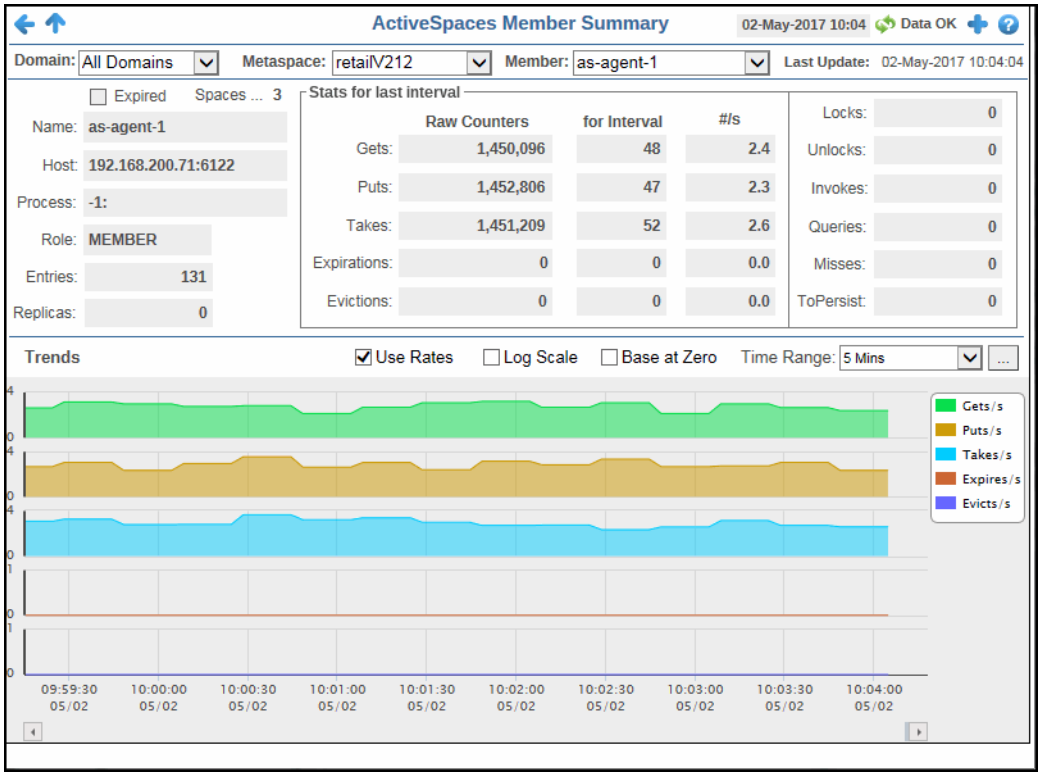
Takes/sec The number of takes per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberTakeRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

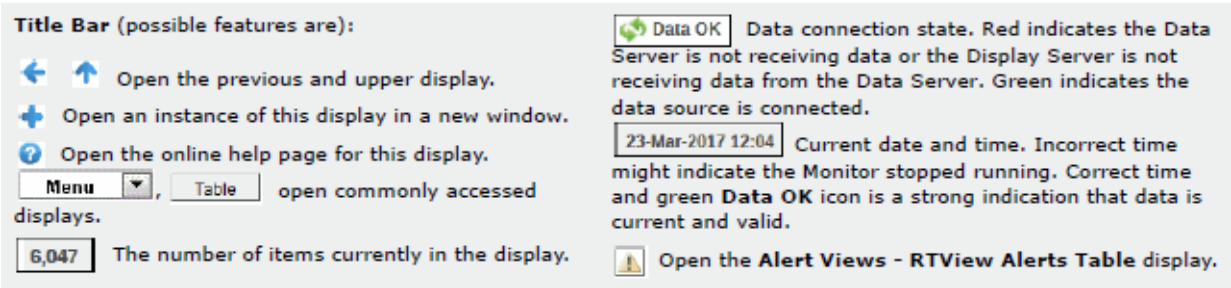
Expires/sec The number of expires per second. The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberExpireRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Evicts/sec	The number of evictions per second. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberEvictsRateHigh**. The middle value in the gradient bar indicates the middle value of the range.
CPU %	The percentage of CPU used. The color gradient bar shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberCpuHigh**. The middle value in the gradient bar indicates the middle value of the range.
Memory %	The percentage of memory used. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberMemoryUsedHigh**. The middle value in the gradient bar indicates the middle value of the range.
JVM Memory %	The percentage of JVM memory used. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberJvmMemoryUsedHigh**. The middle value in the gradient bar indicates the middle value of the range.

Member Summary

This display provides a view of the current and historical metrics for a single member. The trend graph in the bottom half of the display traces the current and historical total number of or rate data for gets, puts, takes, expires, and evictions.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain Select the domain for which you want to show data in the display.

Metaspace Select the metaspace for which you want to show data in the display.

Member Select the space for which you want to show data in the display.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Spaces The total number of spaces in which the member is a member.*

Note: Clicking on this field opens the "Spaces by Member Table" display.

Name The name of the member.

Host The IP address of the host.

Process The process ID and process name (ProcessID:ProcessName).*

Role The role of the member.

Entries The number of entries for the member.*

Replicas The number of replicas for the member.*

Stats for last interval

Gets

Raw Counters-- The total number of "get" operations performed on the user-spaces defined on the metaspace.*

for Interval-- The number of "get" operations performed on the user-spaces defined for the metaspace during the current polling interval.*

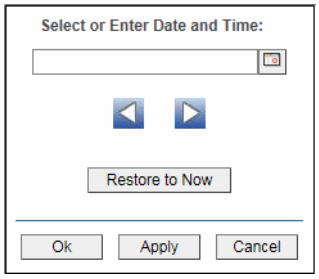
#/s -- The rate of "get" operations (per second) performed on the user-spaces defined for the metaspace.*

	Puts	**Raw Counters**-- The total number of "put" operations performed on the user-spaces defined on the metaspace.* **for Interval**-- The number of "put" operations performed on the user-spaces defined for the metaspace during the current polling interval.* **#/s** -- The rate of "put" operations (per second) performed on the user-spaces defined for the metaspace.*
	Takes	**Raw Counters**-- The total number of "take" operations performed on the user-spaces defined on the metaspace.* **for Interval**-- The number of "take" operations performed on the user-spaces defined for the metaspace during the current polling interval.* **#/s** -- The rate of "take" operations (per second) performed on the user-spaces defined for the metaspace.*
	Expirations	**Raw Counters**-- The total number of entries in the user-spaces defined on the metaspace that have expired.* **for Interval**-- The number of entries performed in the user-spaces defined for the metaspace that expired during the current polling interval.* **#/s** -- The rate of entries in the user-spaces defined for the metaspace that expired (per second).*
	Evictions	**Raw Counters**-- The total number of entries in the user-spaces defined on the metaspace that have been evicted.* **for Interval**-- The number of entries performed in the user-spaces defined for the metaspace that were evicted during the current polling interval.* **#/s** -- The rate of entries in the user-spaces defined for the metaspace that were evicted (per second).*
	Locks	The total number of locks in the user-spaces defined for the metaspace.*
	Unlocks	The total number of unlocks in the user-spaces defined for the metaspace.*
	Invokes	The remote invocation count.*
	Queries	The total number of queries in the user-spaces defined for the metaspace.*
	Misses	The total number of misses in the user-spaces defined for the metaspace.*
	ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*
Trends	Traces the following: **Gets(/s)** -- traces the total number of gets, or the number of gets per second with **Use Rates** selected. **Puts(/s)**-- traces the total number of puts, or the number of puts per second with **Use Rates** selected. **Takes(/s)** -- traces the total number of takes, or the number of takes per second with **Use Rates** selected. **Expires(/s)** -- traces the total number of expires, or the number of expires per second with **Use Rates** selected. **Evicts(/s)** -- traces the total number of evicts, or the number of evicts per second with **Use Rates** selected.	
	Use Rates	Select this check box to trace the rates (**Gets/s**, **Puts/s, Takes/s, Expires/s, Evicts/s**) instead of the total numbers (**Gets**, **Puts, Takes, Expires, Evicts**).

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

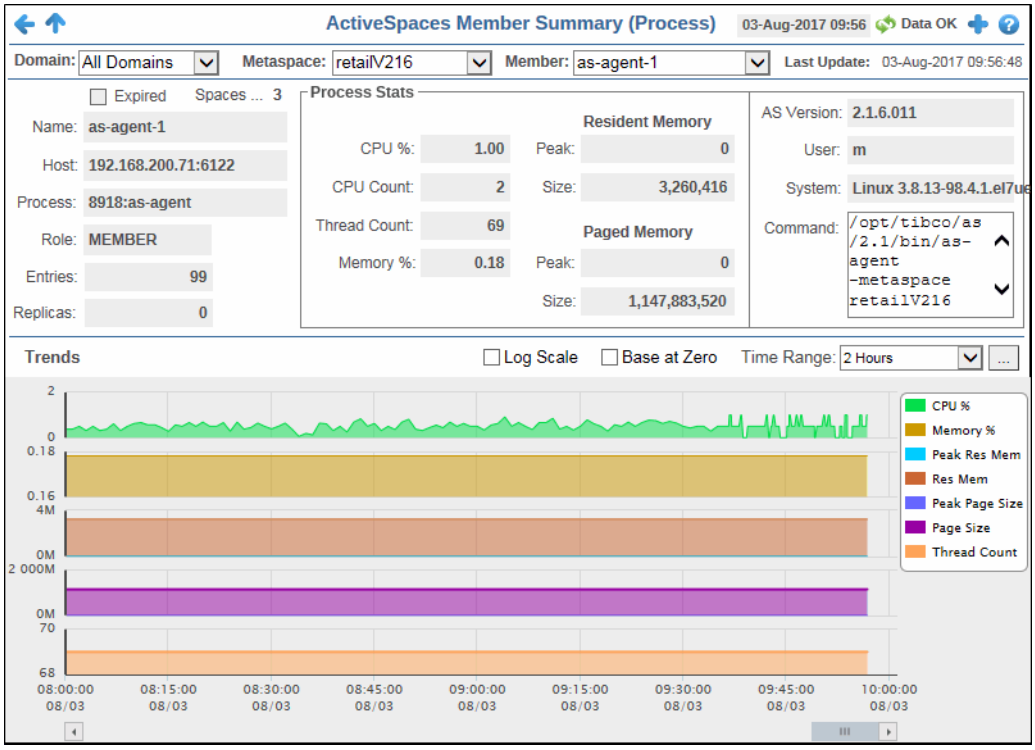
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Member Summary - Process

This display provides a view of the current and historical process metrics for a single member. The trend graph in the bottom half of the display traces the current and historical process statistics for the selected member.

Note: These metrics are only available for members where system monitoring is enabled.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain	Select the domain for which you want to show data in the display.
Metaspace	Select the metaspace for which you want to show data in the display.
Member	Select the space for which you want to show data in the display.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Spaces The total number of spaces in which the member is a member.

Note: Clicking on this field opens the "Spaces by Member Table" display.

Name The name of the member.

Host The IP address of the host.*

Process The process ID and process name (ProcessID:ProcessName).*

Role The role of the member.

Entries The number of entries for the member.*

Replicas The number of replicas for the member.*

Process Stats

CPU %	Indicates the load on the CPU (CPU percentage).*
CPU Count	The number of CPUs running on the system.*
Thread Count	The number of threads running for the process.*
Memory %	The percentage of memory being used.*
Resident Memory	**Peak**-- Indicates the peak size of the system resident memory allocated by the system.* **Size**-- Indicates the amount of physical memory currently allocated to the member.*
Paged Memory	**Peak**-- Indicates the maximum size of the system pagefiles allowed by the system.* **Size**-- Indicates the current size of the system pagefiles allocated by the system.*
AS Version	The current ActiveSpaces version running.*
User	The name of the user running the process.*
System	The operating system on which the member is running.*
Command	Indicates the command used to start the member process.*

Trends Traces the following:

CPU %-- traces the percentage of CPU being used.

Memory %-- traces the percentage of memory being used.*

Peak Res Mem-- traces the peak size of the system resident memory allocated by the system.*

Res Mem-- traces the amount of physical memory currently allocated to the member.*

Peak Page Size-- traces the maximum size of the system pagefiles allowed by the system.*

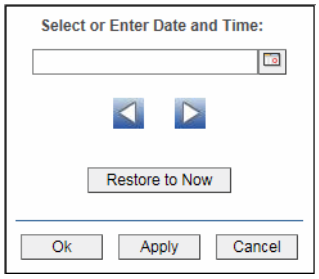
Page Size-- traces the current size of the system pagefiles allocated by the system.*

Thread Count-- traces the number of threads running for the process.*

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

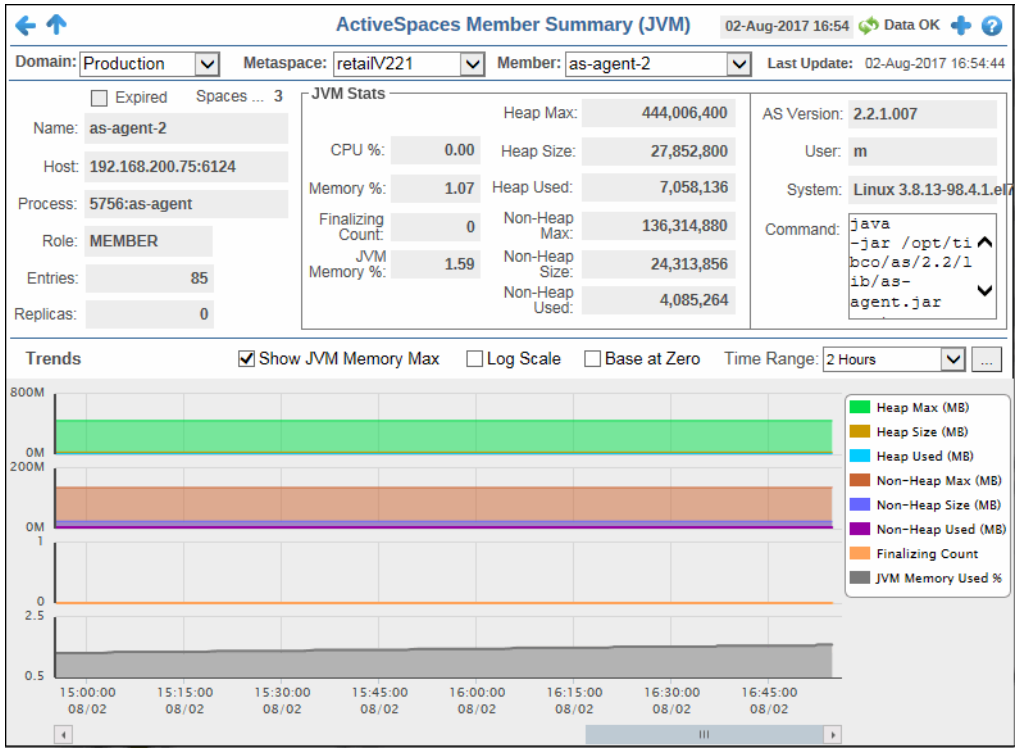
Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Member Summary -JVM

This display provides a view of the current and historical JVM statistics for a single member. The trend graph in the bottom half of the display traces the current and historical JVM metrics for the selected member.

Note: These metrics are only available for Java members where system monitoring is enabled.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain	Select the domain for which you want to show data in the display.
Metaspace	Select the metaspace for which you want to show data in the display.
Member	Select the space for which you want to show data in the display.

Fields and Data:

Last Update	The date and time in which the data in the display was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Spaces	The total number of spaces in which the member is a member.* **Note:** Clicking on this field opens the "Spaces by Member Table" display.
Name	The name of the member.
Host	The IP address of the host.*
Process	The process ID and process name (ProcessID:ProcessName).*
Role	The role of the member.
Entries	The number of entries for the member.*
Replicas	The number of replicas for the member.*
JVM Stats	

CPU %	The load on the CPU (CPU percentage).*
Memory %	The percentage of memory being used.*
Finalizing Count	The amount of memory freed by the finalize operation on the JVM.*
JVM Memory %	The percentage of Java memory used by the JVM.*
Heap Max	The maximum JVM heap memory that can be used, in megabytes.*
Heap Size	The committed JVM heap size, in megabytes.*
Heap Used	The JVM heap memory currently being used, in megabytes.*
Non-Heap Max	The maximum JVM non-heap memory that can be used, in megabytes.*
Non-Heap Size	The committed JVM non-heap size, in megabytes.*
Non-Heap Used	The JVM non-heap memory currently being used, in megabytes.*
AS Version	The current ActiveSpaces version running.*
User	The name of the user running the process.*
System	The operating system on which the member is running.*
Command	Indicates the commans used to start the member process.*

Trends Traces the following:

Heap Max (MB)- traces the maximum JVM heap memory that can be used, in megabytes.*

Heap Size (MB)-- traces the maximum JVM heap usage, in megabytes.*

Heap Used (MB)-- traces the committed JVM heap size, in megabytes.*

Non-Heap Max (MB)-- traces the maximum JVM non-heap memory that can be used, in megabytes.*

Non-Heap Size (MB)-- traces the committed JVM non-heap size, in megabytes.*

Non-Heap Used (MB)-- traces the JVM non-heap memory currently being used, in megabytes.*

Finalizing Count-- traces the amount of memory freed by the finalize operation on the JVM.*

JVM Memory Used %-- traces the percentage of Java memory used by the JVM.*

Show JVM Memory Max When selected, enables the Heap Max (MB) and Non-Heap Max (MB) metrics in the trend graph, which might be useful for removing the maximum metrics from the plot when they differ significantly from the used and committed values.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

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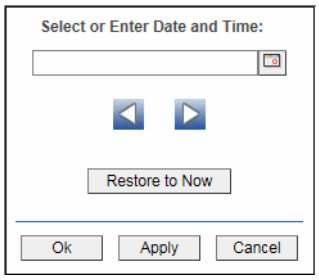


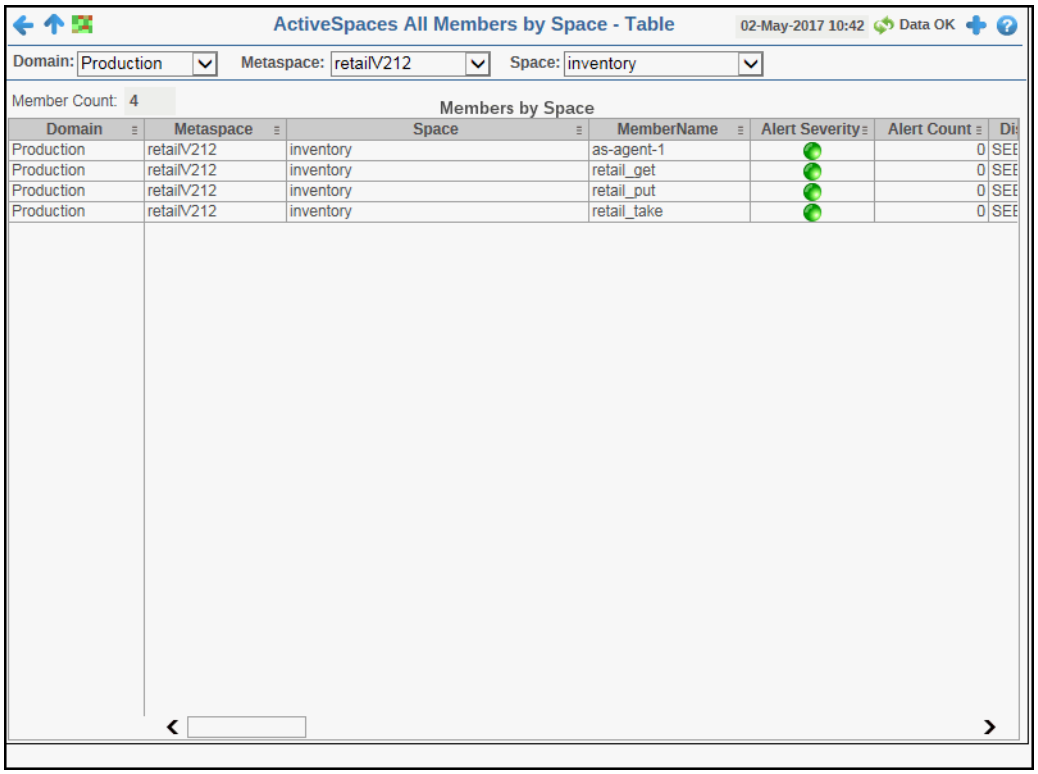
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Members by Space Table

The table in this display provides a view of all of your members and their associated metric data including domain, metaspace, space, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected member in the "Member by Space Summary" display.



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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

Domain	Select the domain for which you want to view data.
Metaspace	Select the metaspace for which you want to view data.
Space	Select the space for which you want to view data.
Member Count	The resulting total number of members found in the filtered query, which are listed in the **Members by Space** table.

Members by Space Table

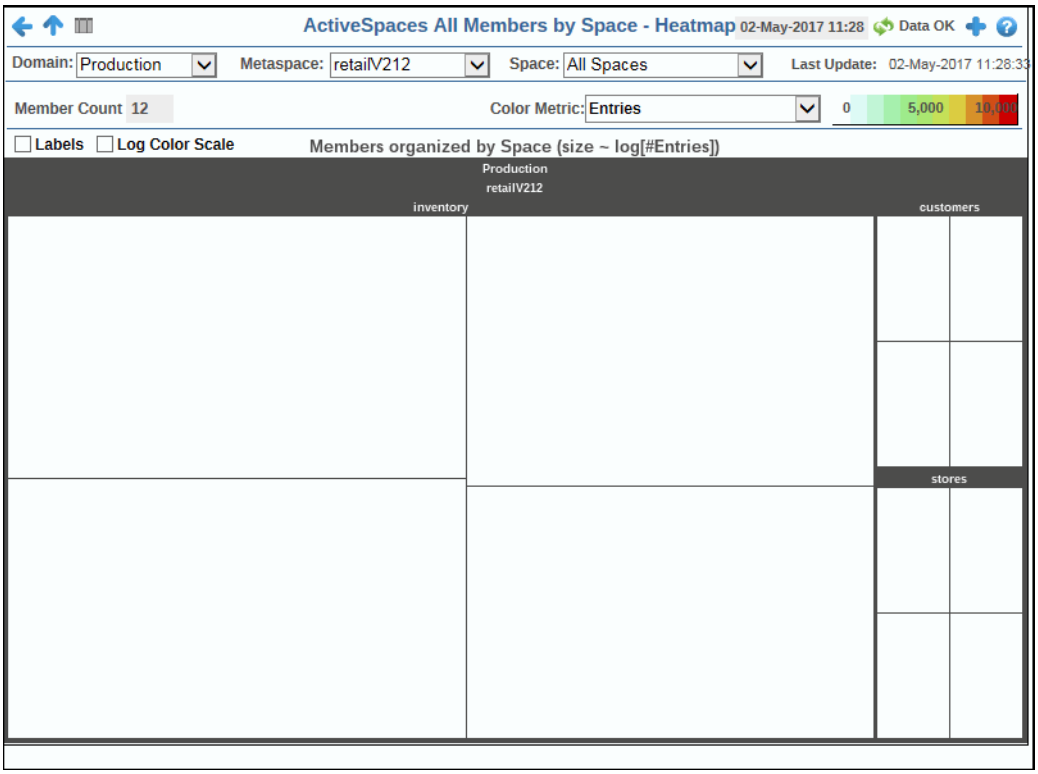
Domain	The name of the domain.
Metaspace	The name of the metaspace.
Space	The name of the space.
Member Name	The name of the member.
Alert Severity	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Distribution Role	The member's role within the space.*
Entries	The number of entries.*
% Capacity	The percentage of available entries used for the space.
Replicas	The number of replicas.*
Gets	The total number of "get" operations performed on the user-spaces defined on the metaspace.*
Gets/interval	The number of "get" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Gets/sec	The rate of "get" operations (per second) performed on the user-spaces defined for the metaspace.*
Puts	The total number of "put" operations performed on the user-spaces defined on the metaspace.*
Puts/interval	The number of "put" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Puts/sec	The rate of "put" operations (per second) performed on the user-spaces defined for the metaspace.*
Takes	The total number of "take" operations performed on the user-spaces defined on the metaspace.*
Takes/interval	The number of "take" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Takes/sec	The rate of "take" operations (per second) performed on the user-spaces defined for the metaspace.*
Expires	The total number of entries in the user-spaces defined on the metaspace that have expired.*
Expires/interval	The number of entries performed in the user-spaces defined for the metaspace that expired during the current polling interval.*

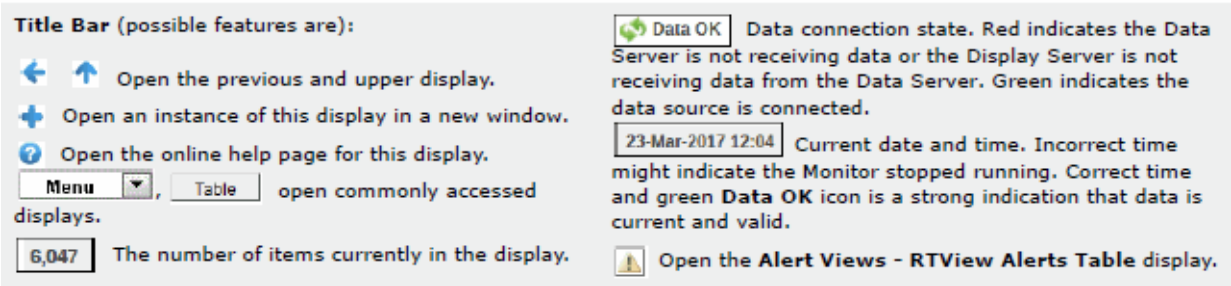
Expires/sec	The rate of entries in the user-spaces defined for the metaspace that expired (per second).*
Evicts	The total number of entries in the user-spaces defined on the metaspace that have been evicted.*
Evicts/interval	The number of entries performed in the user-spaces defined for the metaspace that were evicted during the current polling interval.*
Evicts/sec	The rate of entries in the user-spaces defined for the metaspace that were evicted (per second).*
Locks	The total number of locks in the user-spaces defined for the metaspace.*
Unlocks	The total number of unlocks in the user-spaces defined for the metaspace.*
Invokes	The remote invocation count.*
Queries	The total number of queries in the user-spaces defined for the metaspace.*
Misses	The total number of misses in the user-spaces defined for the metaspace.*
ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*
ClientAvgGetMicros	The client's average "get" latency in microseconds.*
ClientAvgPutMicros	The client's average "put" latency in microseconds.*
ClientAvgTakeMicros	The client's average "take" latency in microseconds.*
ClientMaxGetMicros	The client's highest "get" latency in microseconds.*
ClientMaxPutMicros	The client's highest "put" latency in microseconds.*
ClientMaxTakeMicros	The client's highest "take" latency in microseconds.*
ClientTotalGetMillis	The client's cumulative total "get" latency in milliseconds for the current polling period.*
ClientTotalPutMillis	The client's cumulative total "put" latency in milliseconds for the current polling period.*
ClientTotalTakeMillis	The client's cumulative total "take" latency in milliseconds for the current polling period.*
ClientTotalMissMillis	The client's cumulative total "miss" latency in milliseconds for the current polling period.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Members by Space Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your members for each available metric. You can view the members in the heatmap based on the following metrics: the number of entries, the number of gets per second, the number of puts per second, the number of takes per second, and the number of expires per second, and the number of evictions per second. By default, this display shows the heatmap based on the **Entries** metric.

You can use the **Labels** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for a member. Clicking one of the rectangles in the heatmap opens the "Member Summary" display, which allows you to see additional details for the selected member.





Filter By:

Domain Select the Domain for which you want to view data.

Metaspace Select the metaspace for which you want to view data.

Space Select the space for which you want to view data.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Member Count The number of members found for the selected **Domain**/**Metaspace** combination.

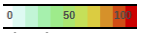
Labels Select this check box to display the names of the adapters at the top of each rectangle in the heatmap.

Log Color Scale Select this check box to use a logarithmic scale, rather than a linear scale, to map from the selected metric value for a cell to the color for the cell. **Log Scale** provides another way to distribute and differentiate values that you might not be able to see on a linear scale due to the dominant nature of large values in a linear scale.

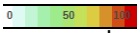
Color Metric Choose a metric to view in the display.

Entries The total number of entries in the adapters. The color gradient 

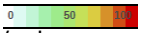
bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberEntriesHigh**. The middle value in the gradient bar indicates the middle value of the range.

Gets/sec The number of gets per second. The color gradient 

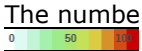
bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberGetRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Puts/sec The number of puts per second. The color gradient bar 

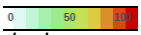
shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberPutRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Takes/sec The number of takes per second. The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberTakeRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Expires/sec The number of expires per second. The color gradient bar 

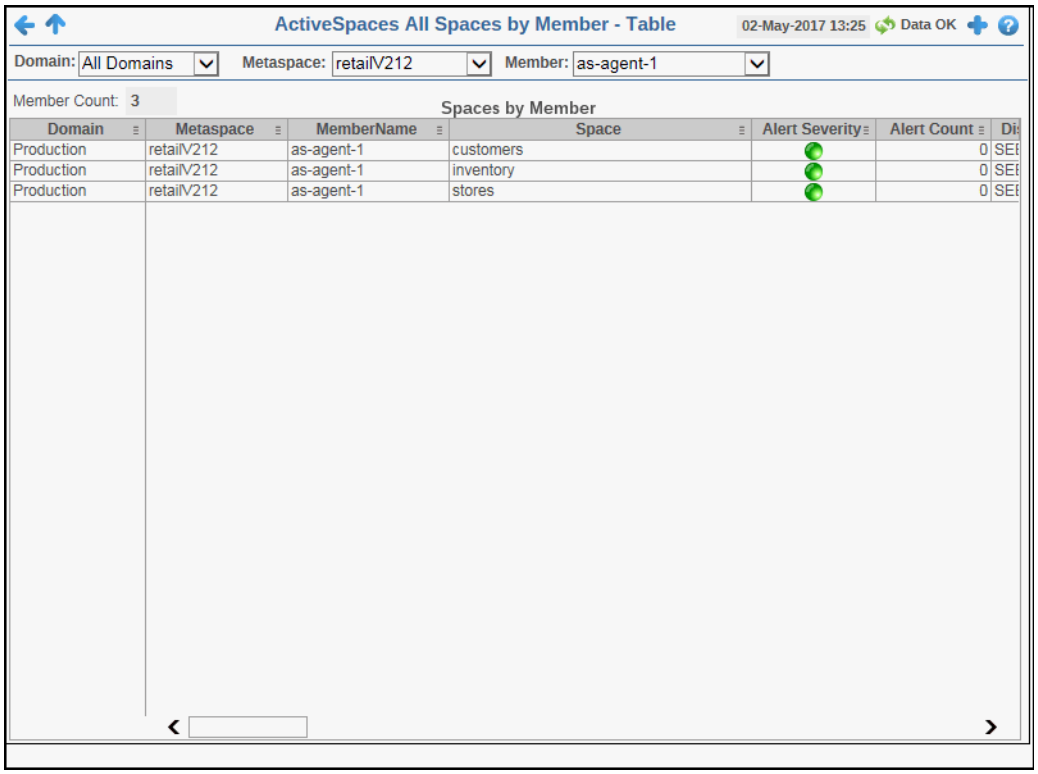
shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberExpireRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Evicts/sec The number of evictions per second. The color gradient 

bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TasMemberEvictsRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Spaces by Member Table

The table in this display provides a view of all of your spaces (by member name) and the their associated metric data including domain, metaspace, space, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected member in the "Member by Space Summary" display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

Domain	Select the domain for which you want to view data.
Metaspace	Select the metaspace for which you want to view data.
Member	Select the space for which you want to view data.
Member Count	The resulting total number of members found in the filtered query, which are listed in the **Spaces by Members** table.

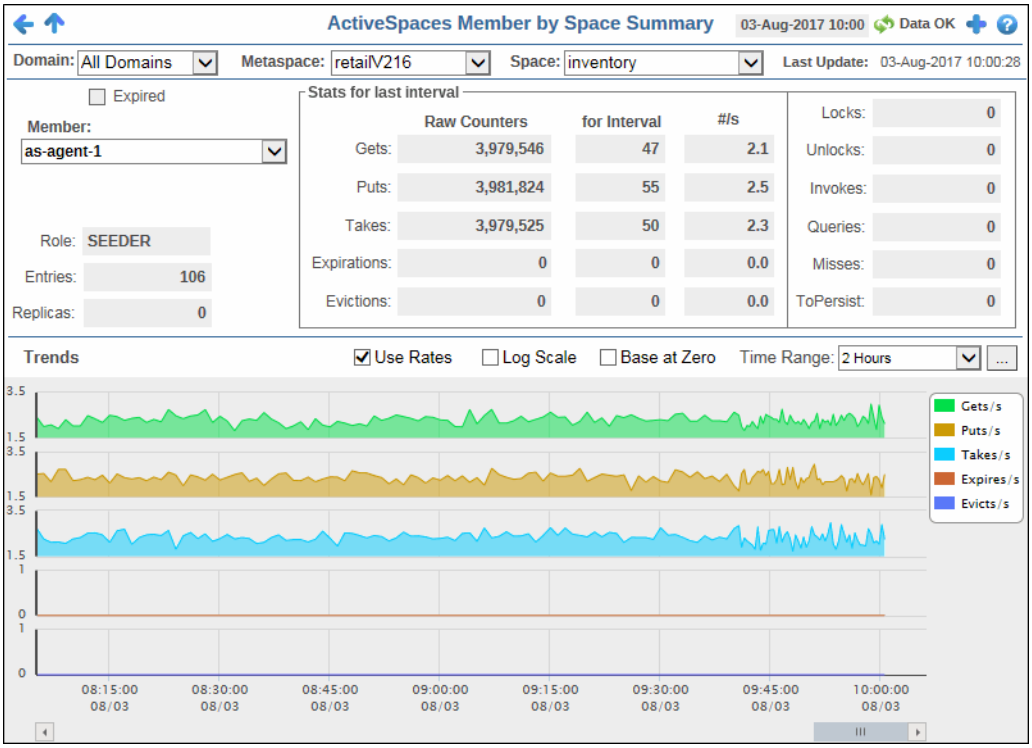
Spaces by Member Table

Domain	The name of the domain.
Metaspace	The name of the metaspace.
Member Name	The name of the member.
Space	The name of the space.
Alert Severity	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Distribution Role	The member's role within the space.
Entries	The number of entries.*
% Capacity	The percentage of available entries used for the space.
Replicas	The number of replicas.*
Gets	The total number of "get" operations performed on the user-spaces defined on the metaspace.*
Gets/interval	The number of "get" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Gets/sec	The rate of "get" operations (per second) performed on the user-spaces defined for the metaspace.*
Puts	The total number of "put" operations performed on the user-spaces defined on the metaspace.*
Puts/interval	The number of "put" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Puts/sec	The rate of "put" operations (per second) performed on the user-spaces defined for the metaspace.*
Takes	The total number of "take" operations performed on the user-spaces defined on the metaspace.*
Takes/interval	The number of "take" operations performed on the user-spaces defined for the metaspace during the current polling interval.*
Takes/sec	The rate of "take" operations (per second) performed on the user-spaces defined for the metaspace.*
Expires	The total number of entries in the user-spaces defined on the metaspace that have expired.*
Expires/interval	The number of entries performed in the user-spaces defined for the metaspace that expired during the current polling interval.*

Expires/sec	The rate of entries in the user-spaces defined for the metaspace that expired (per second).*
Evicts	The total number of entries in the user-spaces defined on the metaspace that have been evicted.*
Evicts/interval	The number of entries performed in the user-spaces defined for the metaspace that were evicted during the current polling interval.*
Evicts/sec	The rate of entries in the user-spaces defined for the metaspace that were evicted (per second).*
Locks	The total number of locks in the user-spaces defined for the metaspace.*
Unlocks	The total number of unlocks in the user-spaces defined for the metaspace.*
Invokes	The remote invocation count.*
Queries	The total number of queries in the user-spaces defined for the metaspace.*
Misses	The total number of misses in the user-spaces defined for the metaspace.*
ToPersist	The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*
ClientAvgGetMicros	The client's average "get" latency in microseconds.*
ClientAvgPutMicros	The client's average "put" latency in microseconds.*
ClientAvgTakeMicros	The client's average "take" latency in microseconds.*
ClientMaxGetMicros	The client's highest "get" latency in microseconds.*
ClientMaxPutMicros	The client's highest "put" latency in microseconds.*
ClientMaxTakeMicros	The client's highest "take" latency in microseconds.*
ClientTotalGetMillis	The client's cumulative total "get" latency in milliseconds for the current polling period.*
ClientTotalPutMillis	The client's cumulative total "put" latency in milliseconds for the current polling period.*
ClientTotalTakeMillis	The client's cumulative total "take" latency in milliseconds for the current polling period.*
ClientTotalMissMillis	The client's cumulative total "miss" latency in milliseconds for the current polling period.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Member by Space Summary

This display provides a view of the current and historical metrics for a single member in a particular space. The trend graph in the bottom half of the display traces the current and historical total number of or rate data for gets, puts, takes, expires, and evictions.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected domain. Refer to TIBCO ActiveSpaces documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Domain	Select the domain for which you want to show data in the display.
Metaspace	Select the metaspace for which you want to show data in the display.
Space	Select the space for which you want to show data in the display.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (Project Name) > **Solution Package Configuration** > **TIBCO Active Spaces** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Member Select the member for which you want to see data.*

Role The member's role within the space.*

Entries The number of entries.*

Replicas The number of replicas.*

Stats for last interval

Gets **Raw Counters**-- The total number of gets for the space.
for interval-- The number of gets for the current interval.
#/s -- The number of gets received per second.

Puts **Raw Counters**-- The total number of puts for the space.
for interval-- The number of puts for the current interval.
#/s -- The number of puts received per second.

Takes **Raw Counters**-- The total number of takes for the space.
for interval-- The number of takes for the current interval.
#/s -- The number of takes received per second.

Expirations **Raw Counters**-- The total number of expirations for the space.
for interval-- The number of expirations for the current interval.
#/s -- The number of expirations received per second.

Evictions **Raw Counters**-- The total number of evictions for the space.
for interval-- The number of evictions for the current interval.
#/s -- The number of evictions received per second.

Locks The total number of locks in the user-spaces defined for the space.*

Unlocks The total number of unlocks in the user-spaces defined for the space.*

Invokes The remote invocation count.*

Queries The total number of queries in the user-spaces defined for the space.*

Misses The total number of misses in the user-spaces defined for the space.*

ToPersist The ToPersist count, which indicates how many tuples are required to be persisted to the database if the write-behind feature is configured.*

Trends Traces the following:

Gets(/s) -- traces the total number of gets, or the number of gets per second with **Use Rates** selected.

Puts(/s)-- traces the total number of puts, or the number of puts per second with **Use Rates** selected.

Takes(/s) -- traces the total number of takes, or the number of takes per second with **Use Rates** selected.

Expires(/s) -- traces the total number of expires, or the number of expires per second with **Use Rates** selected.

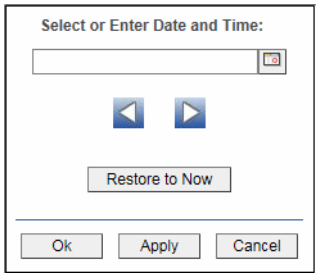
Evicts(/s) -- traces the total number of evicts, or the number of evicts per second with **Use Rates** selected.

Use Rates Select this check box to trace the rates (**Gets/s**, **Puts/s, Takes/s, Expires/s, Evicts/s**) instead of the total numbers (**Gets**, **Puts, Takes, Expires, Evicts**).

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 27 Solution Package for TIBCO Adapters

The Solution Package for TIBCO Adapters™ is an easy to configure and use monitoring system that gives you extensive visibility into the health and performance of your TIBCO Adapters and the applications that rely on them.

The Monitor enables TIBCO Adapters users to continually assess and analyze the health and performance of their infrastructure and gain early warning of issues with historical context. It does so by aggregating and analyzing key performance metrics across all adapters and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from predefined dashboards and alerts that pin-point critical areas to monitor in most environments, and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

This section includes:

Configuration Parameters You Need

To configure the Solution Package for TIBCO Adapters™ make a note of the following values:

- **PackageName=tadmon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Tad**

Configure Data Collection

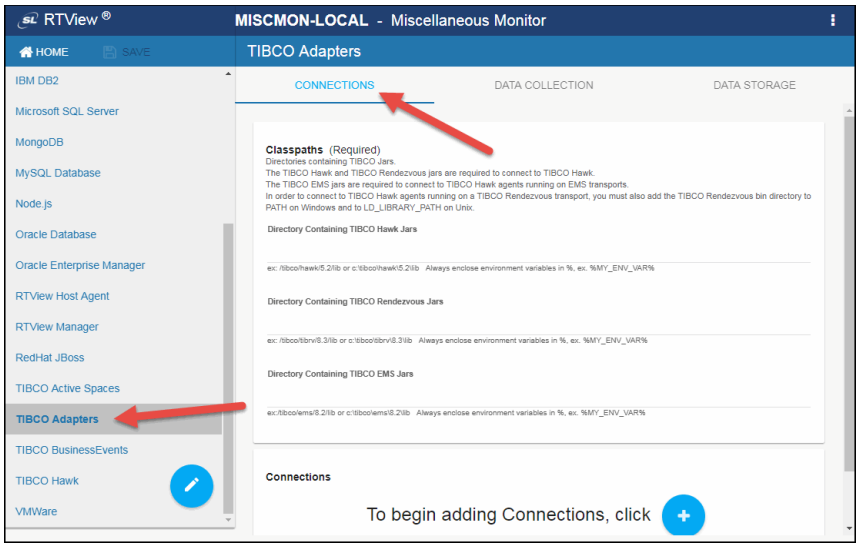
The Monitor uses TIBCO Hawk to monitor TIBCO Adapters by connecting to Adapter MicroAgents. You need to define a connection to Hawk in the RTView Configuration Application for each Hawk domain containing the adapter you want to monitor. You also need to define the names of the systems hosting the adapters that you want to monitor and add a cache configuration for each adapter that you want to monitor.

You will need the following information for each adapter in order to create the data connection:

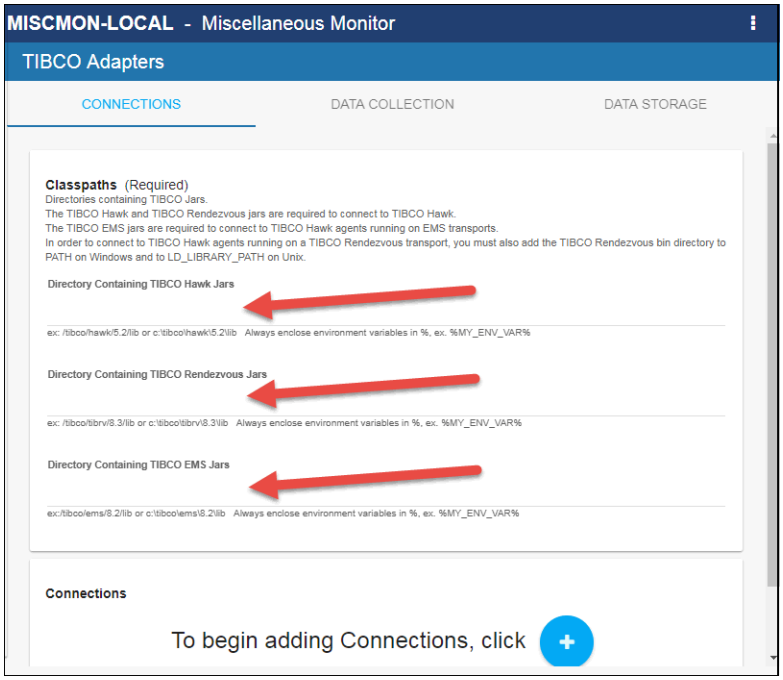
- Domain: name of the domain.
- Agent Name: name of the agent defined when the adapter is set up.
- Method of Transport (**Rendezvous** (**rvd**) or **EMS**): RTView supports two types of connections to Hawk, **Rendezvous** (**rvd**) and **EMS**, which are defined when the adapter is set up.

To create the data connection, perform the following steps:

1. Navigate to the RTView Configuration Application > (**Project Name**/**MISCMON-LOCAL**) > **Solution Package Configuration** > **TIBCO Adapter** > **CONNECTIONS** tab.

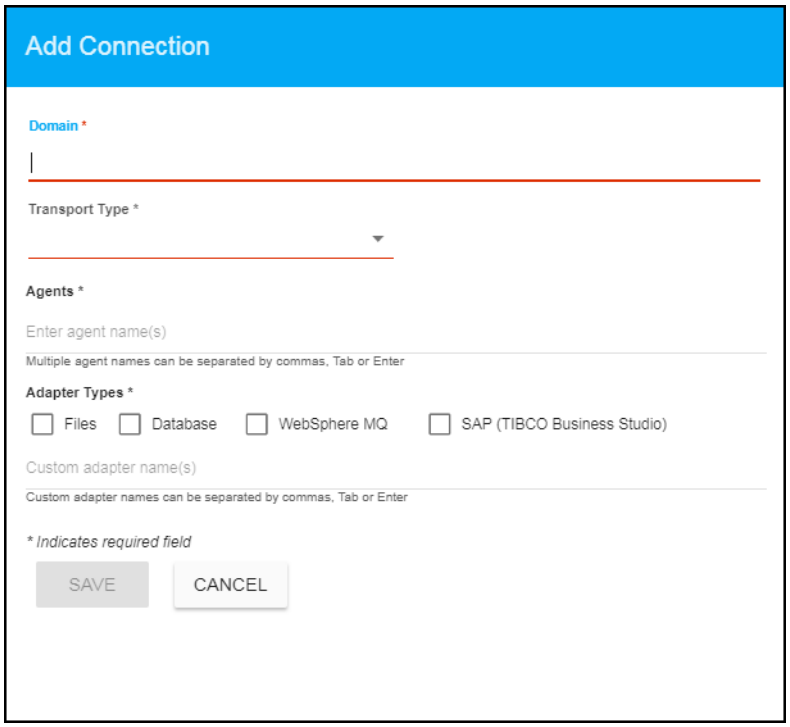


2. In the **CONNECTIONS** tab, specify the **Classpaths** for the TIBCO Hawk jar files, the TIBCO Rendezvous jar files, and the TIBCO EMS jar files.

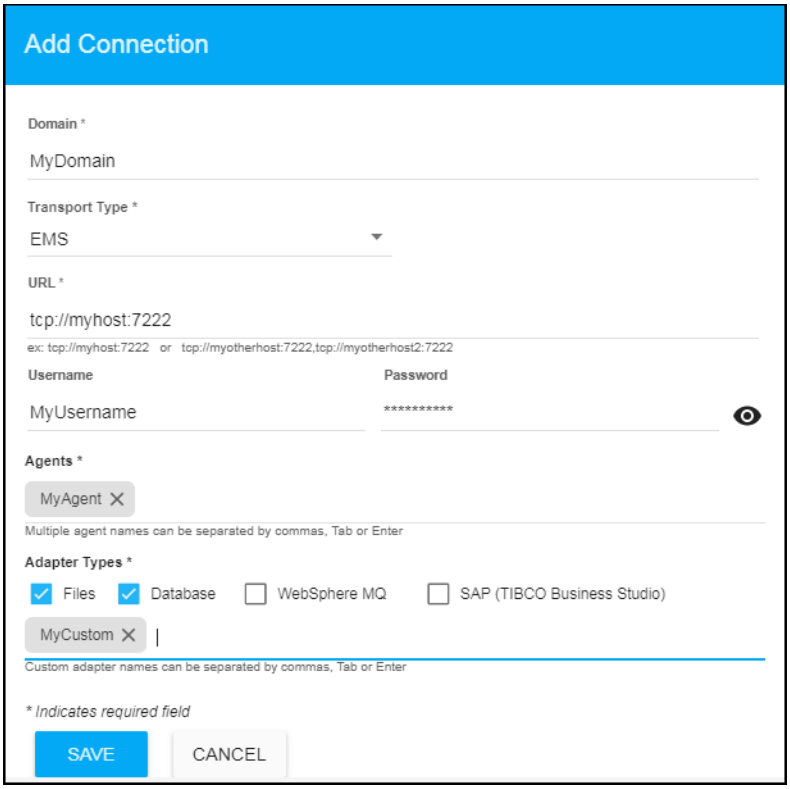


3. Click the + icon.

The **Add Connection** dialog displays.



4. For TIBCO Hawk domains running on **EMS** transports, specify the connection information and click **Save** where:



Domain: Enter the name of the domain.

Transport Type: Select **EMS** from this drop down list.

URL: Enter the complete URL for the EMS connection.

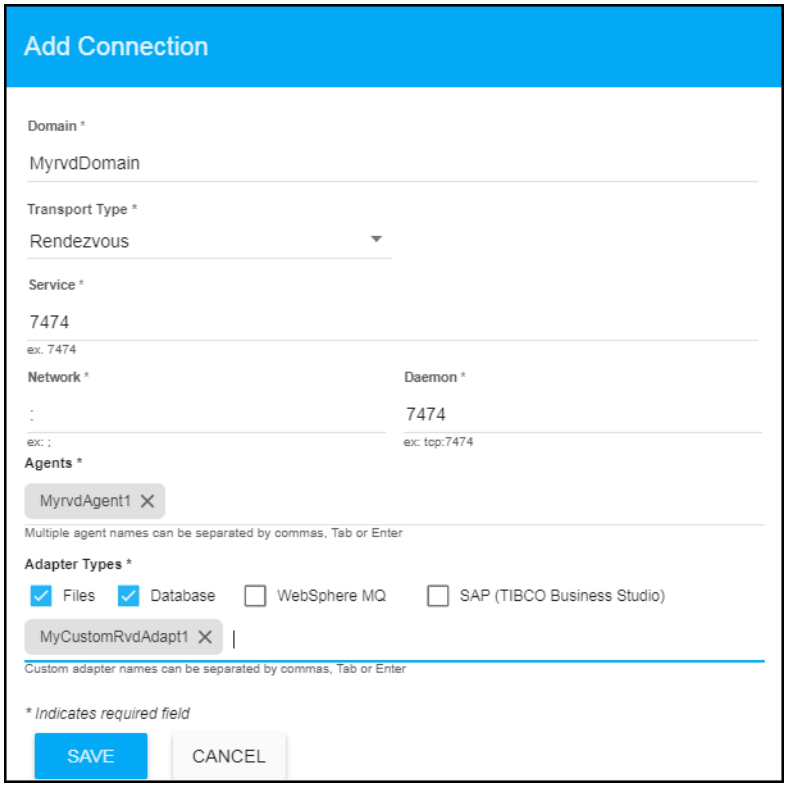
Username: The username is used when creating the EMS connection. This field is optional.

Password: This password is used when creating the EMS connection. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

Agents: Enter the associated agents. The agent name displays in the field after entering the name and typing a comma or by clicking the Tab or Enter key. You can enter more than one agent in the field. Once the agent is specified, you can delete the agent by clicking the **X** next to their name.

Adapter Types: Select the type of adapter or enter a custom adapter name. You can specify any custom adapter types using the associated field. The custom adapter name displays in the field after entering the name and typing a comma or by clicking the **Tab** or **Enter** key. You can enter more than one custom adapter in the field. Once the adapter is specified, you can delete the adapter by clicking the **X** next to their name.

For TIBCO Hawk domains running on **Rendezvous** transports, specify the connection information and click **Save** where:



Domain: Enter the name of the domain.

Transport Type: Select **Rendezvous** from this drop down list.

Service: Enter the Service for the Rendezvous connection.

Network: Enter the Network for the Rendezvous connection.

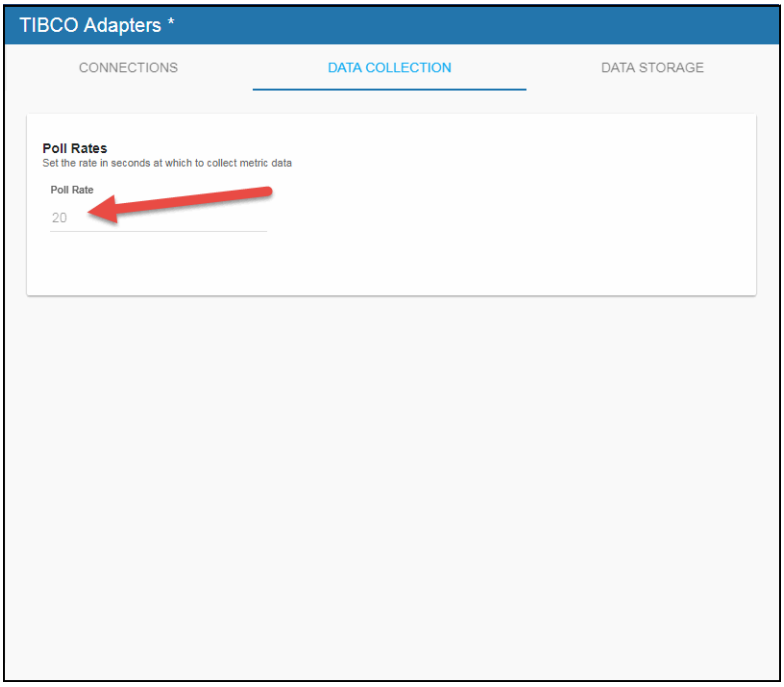
Daemon: Enter the Daemon for the Rendezvous connection.

Agents: Enter the associated agents. The agent name displays in the field after entering the name and typing a comma or by clicking the Tab or Enter key. You can enter more than one agent in the fields. Once the agent is specified, you can delete the agent by clicking the **X** next to their name.

Adapter Types: Select the type of adapter or enter a custom adapter name. You can specify any custom adapter types using the associated field. You can specify any custom adapter types using the associated field. The custom adapter name displays in the field after entering the name and typing a comma or by clicking the **Tab** or **Enter** key. You can enter more than one custom adapter in the field. Once the adapter is specified, you can delete the adapter by clicking the **X** next to their name.

5. If you want to modify the default values for the update rates for the TIBCO Adapters caches, you can update the default polling rates in RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Adapters** > **DATA COLLECTION** > **Poll Rates**.

Modify the value for the **Poll Rate** field to modify the default polling rate for the TadAdapterServiceInformation, TadVersion, TadHostInformation, TadStatus, and TadAdapterQuality caches.



6. **SAVE** your changes in the RTView Configuration Application (upper left-hand corner), and then stop and restart your project to apply your changes.

Additional Configurations

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **DATA STORAGE** tab in the RTView Configuration Application. This section contains the following:

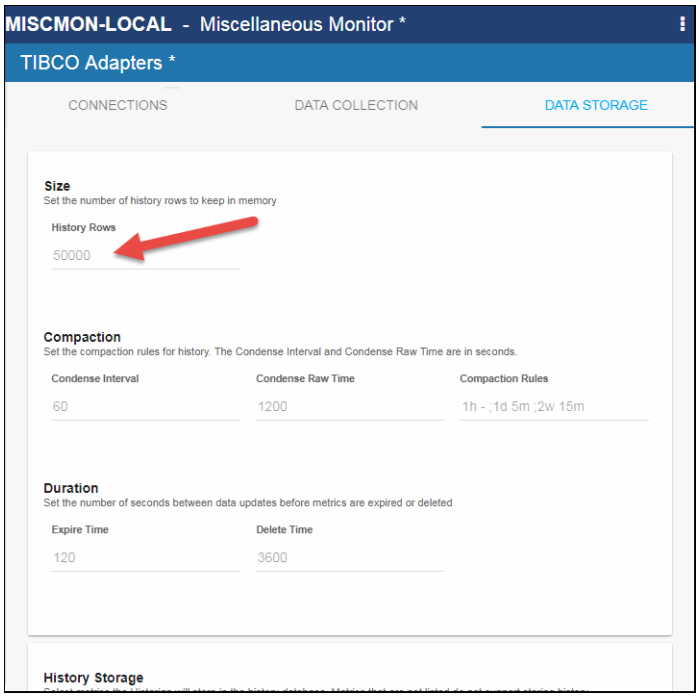
- "Defining the Storage of In Memory TADMON History"
- "Defining Compaction Rules for TADMON"
- "Defining Expiration and Deletion Duration for TADMON Metrics"
- "Enabling/Disabling Storage of TADMON Historical Data"
- "Defining a Prefix for All History Table Names for TADMON Metrics"

Defining the Storage of In Memory TADMON History

You can modify the maximum number of history rows to store in memory in the **DATA STORAGE** tab. The **History Rows** property defines the maximum number of rows to store for the TadStatus and TadAdapterQuality caches. To update the default settings:

1. Navigate to the RTView Configuration Application > (**Project Name**/**MISCMON-LOCAL**) > **Solution Package Configuration** > **TIBCO Adapter** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



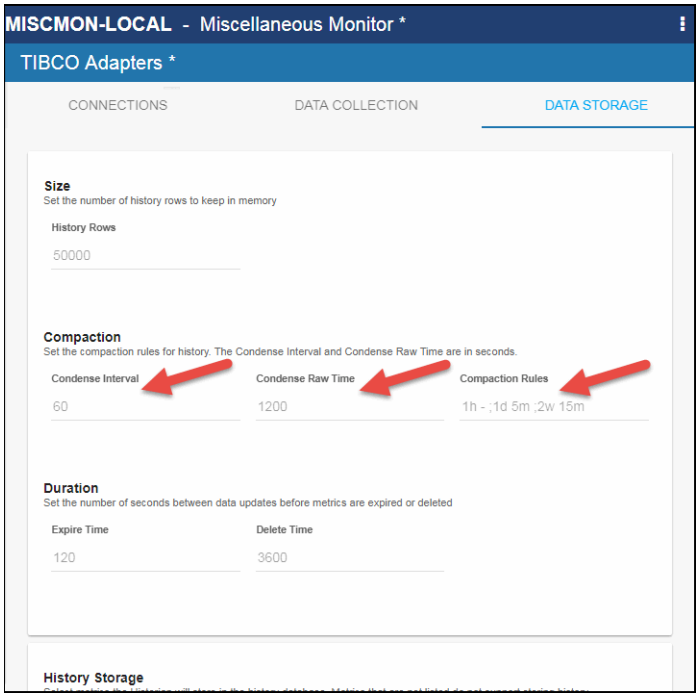
Defining Compaction Rules for TADMON

Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed. The default is 60 seconds. The following cache is impacted by this setting: TadStatus.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table. The default is 1200 seconds. The following cache is impacted by this setting: TadStatus.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule). The following cache is impacted by this setting: TadStatus.

1. Navigate to the RTView Configuration Application > (**Project Name**/**MISCMON-LOCAL**) > **Solution Package Configuration** > **TIBCO Adapter** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

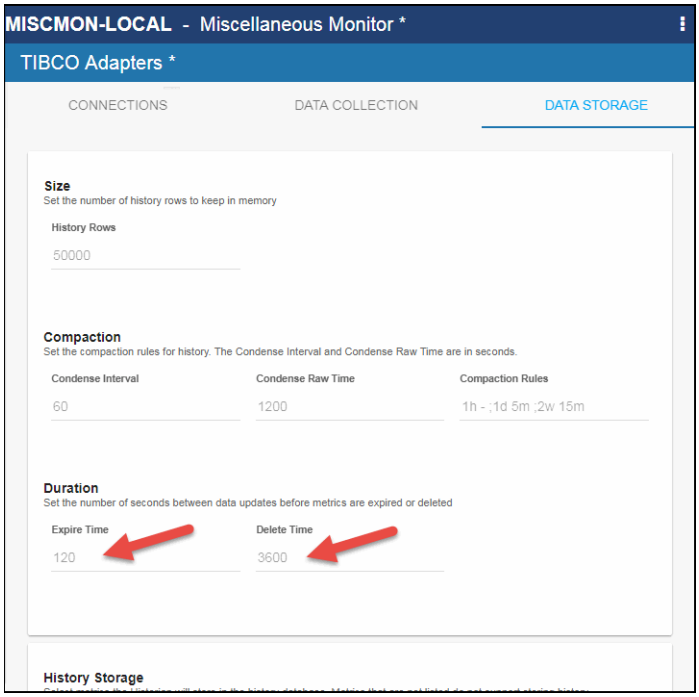


Defining Expiration and Deletion Duration for TADMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. The **Expire Time** field, which sets the expire time for the TadStatus, TadVersion, TadHostInformation, TadAdapterServiceInformation, and TadAdapterQuality caches, defaults to 120 seconds. The **Delete Time** field, which sets the expire time for the TadStatus, TadVersion, TadHostInformation, TadAdapterServiceInformation, and TadAdapterQuality caches, defaults to 3600 seconds. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**Project Name**/**MISCMON-LOCAL**) > **Solution Package Configuration** > **TIBCO Adapter** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

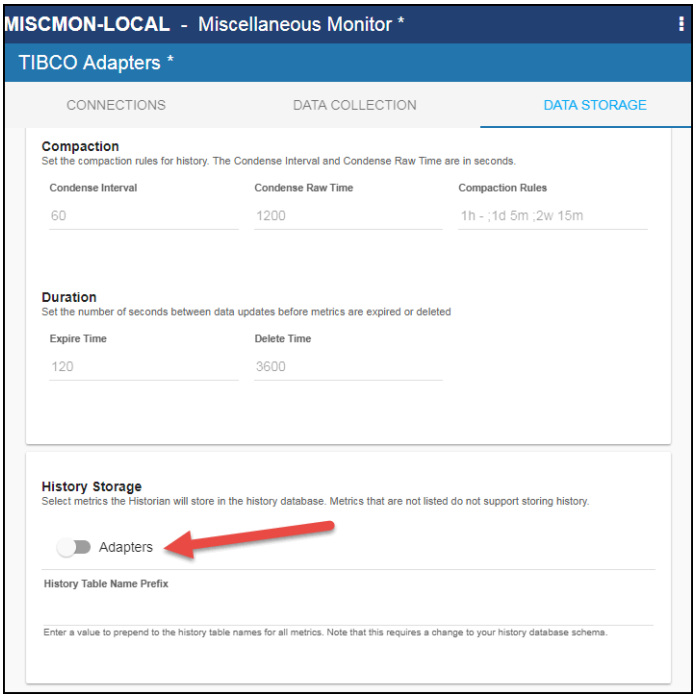


Enabling/Disabling Storage of TADMON Historical Data

The **History Storage** region allows you to select which metrics you want the Historian to store in the history database. By default, historical Adapters data is not saved to the database. To enable/disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**Project Name**/**MISCMON-LOCAL**) > **Solution Package Configuration** > **TIBCO Adapter** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggle for the Adapter metrics if you want to collect/deselect for the Adapter metrics if you do not want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for TADMON Metrics

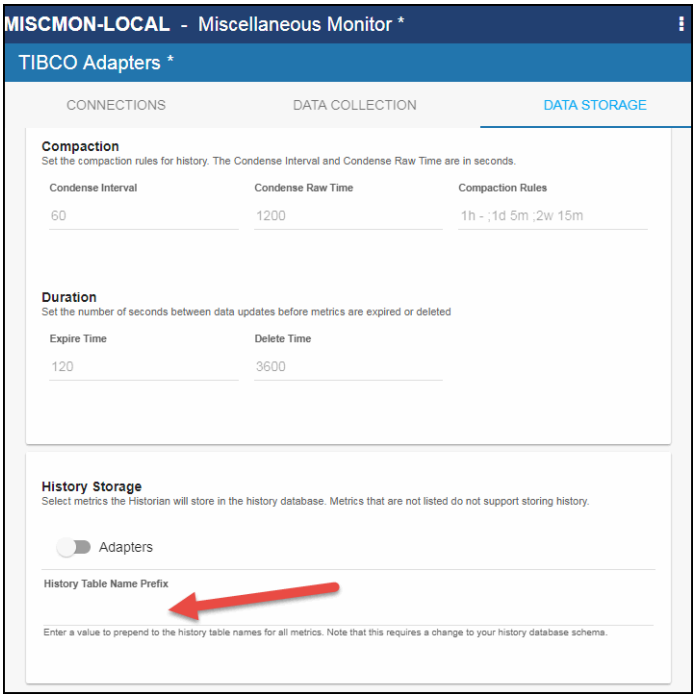
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**tadmon**/**dbconfig** and make a copy of it.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to the RTView Configuration Application > (**Project Name**/**MISCMON-LOCAL**) > **Solution Package Configuration** > **TIBCO Adapter** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Tad." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

TIBCO Adapters Monitor Views/Displays

The following TIBCO Adapters Monitor Views (and their associated displays) can be found under **Components** tab **> Middleware > TIBCO Adapters** once the Solution Package for TIBCO Adapters™ is installed.

This section contains the following:

- "All Adapters View": The displays in this View allow you to view the current and historical metrics for all adapters in a heatmap or tabular format.
- "Single Adapter View": The displays in this View allow you to view the current and historical metrics for a single adapter in a tabular format.

All Adapters View

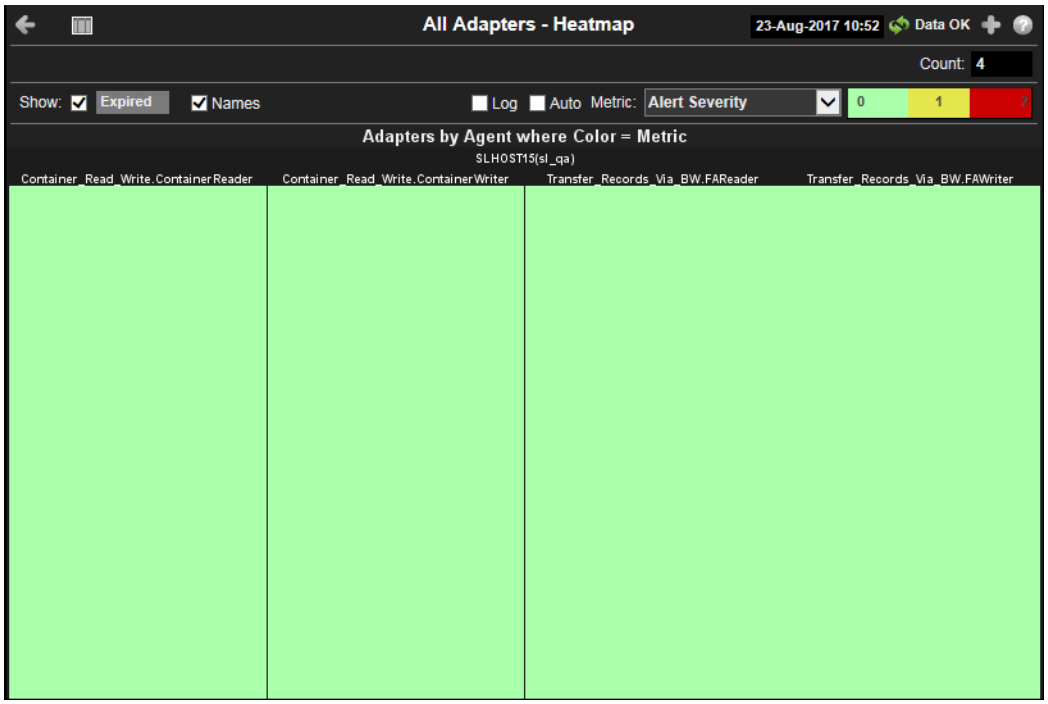
These displays provide detailed data for all adapters. Displays in this View are:

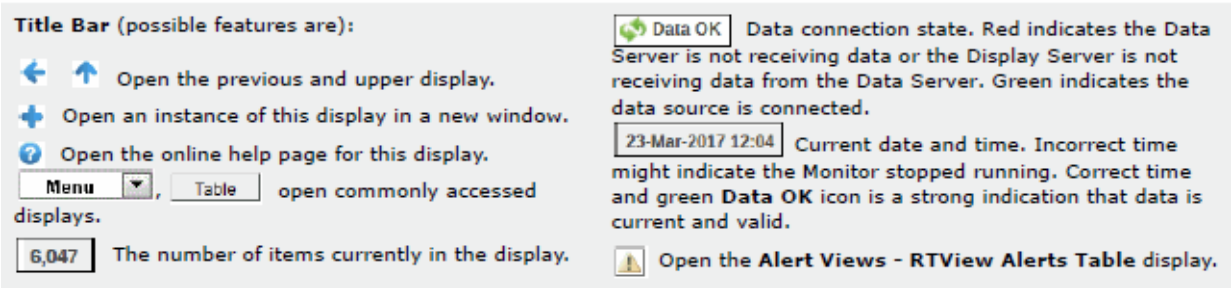
- "All Adapters Heatmap": A heatmap view of all adapters in a heatmap format and their associated metrics.
- "All Adapters Table": A tabular view of your adapters and their associated metrics.

All Adapters Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your adapters for each available metric. You can view the adapters in the heatmap based on the following metrics: the current alert severity, the current alert count, the delta messages received, the messages received rate, the messages sent rate, the delta messages sent, and the increase in errors from the previous polling period. By default, this display shows the heatmap based on the **Alert Severity** metric.

You can use the **Names** check-box ☑ to include or exclude labels in the heatmap, and you can mouse over a rectangle to see additional metrics for an adapter. Clicking one of the rectangles in the heatmap opens the "Adapter Summary" display, which allows you to see additional details for the selected adapter





Fields and Data:

Count The number of adapters included in the display. This number can change if you toggle the **Expired** check box on and off.

Show: Expired Select this check box to display those adapters whose data has not been updated recently (expired).

Show: Names Select this check box to display the names of the adapters at the top of each rectangle in the heatmap.

Log Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Auto Select to enable auto-scaling. When auto-scaling is activated, the color gradient bar's maximum range displays the highest value.

Note: Some metrics auto-scale automatically, even when **Auto** is not selected.

Metric Choose a metric to view in the display.

Alert Severity The current alert severity. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

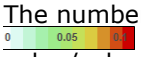
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

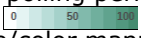
Alert Count The total number of critical and warning unacknowledged alerts in the adapters. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

Delta Msgs Rcvd The increase in the number of messages received (per second) from the previous polling period to the current polling period. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of messages received. The middle value in the gradient bar indicates the middle value of the range.

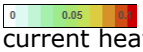
The **Auto** check box does not impact this metric.

Rate Msgs Rcvd
The number of messages received per second. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TadAdapterMsgsRcvdRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Delta Msgs Sent
The increase in the number of messages sent (per second) from the previous polling period to the current polling period. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the maximum number of messages sent. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** check box does not impact this metric.

Rate Msgs Sent
The number of message sent per second. The color gradient bar  shows the range of the value/color mapping. ated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TadAdapterMsgsSentRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

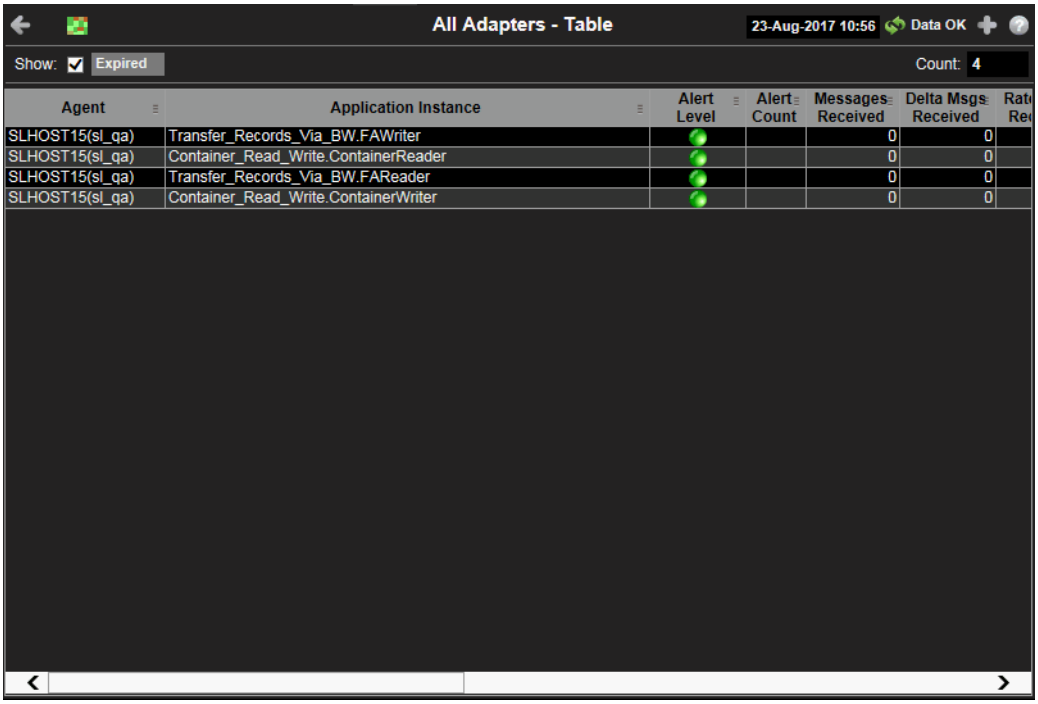
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Delta Errors
The increase in the number of errors from the previous polling period to the current polling period. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from 0 to the defined alert threshold of **TadAdapterDeltaErrorsHigh**. The middle value in the gradient bar indicates the middle value of the range.

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Adapters Table

The table in this display provides a view of all of your adapters and their associated metric data including agent, application instance, alert severity, alert count, and the current value of each gathered metric. You can click a column header to sort column data in numerical or alphabetical order, and drill-down and investigate by clicking a row to view details for the selected adapter in the "Adapter Summary" display



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected adapter. Refer to TIBCO Adapter documentation for more information regarding these fields.

Fields and Data:

Show: Expired	Select this check box to display adapters that have expired data in the table.
Count	The total number of adapters listed in the **All Adapters Table**.

All Adapters Table:

Agent	The name of the agent.
Application Instance	The name of the application instance.

Alert Level	The current alert severity. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of alerts for the host.
Messages Received	The number messages received.*
Delta Messages Received	The increase in the number of messages received (from the previous polling period to the current polling period).*
Rate Messages Received	The number of messages received per second.*
Messages Sent	The total number of messages sent.*
Delta Msgs Sent	The increase in the number of messages sent (from the previous polling period to the current polling period).*
Rate Msgs Sent	The number of messages sent per second.*
New Errors	The number of new errors received since the last polling update.*
Total Errors	The total number of errors.*
Delta Total Errors	The increase in the number total errors (from the previous polling period to the current polling period).*
Rate Total Errors	The number of errors per second.*
Adapter Name	The name of the adapter.*
Last Restart	The date and time the adapter was last restarted.*
Process ID	The process ID of TIBCO Adapter you are running.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Adapters** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time the row data was last updated.

Single Adapter View

This display allows you to view the current and historical metrics for a single adapter. The available display in this View is:

- "Adapter Summary": This display allows you to view current and trending data for a single adapter for a particular agent.

Adapter Summary

This display provides a view of the current and historical metrics for a single adapter. You can view message statistics, adapter service information, and host information for a specific instance. The trend graph in the bottom half of the display traces the current and historical delta messages received, delta messages sent, and delta errors.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the selected adapter. Refer to TIBCO Adapter documentation for more information regarding these fields.

Filter By:

The display might include these filtering options:

Agent Select the agent for which you want to show data in the display.

Instance Select the instance for which you want to show data in the display.

Fields and Data:

Last Update The date and time in which the data in the display was last updated.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Adapters** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Alert State The current alert severity.

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

Green indicates that no metrics have exceeded their alert thresholds.

Alert Count The total number of current alerts.

PID The process ID of the Instance.*

Last Restart The data and time the instance was last restarted.*

Message Stats

Received
Totals -- The total number of messages received.*
Deltas -- The increase in the number of messages received since the last polling update.*
Rates -- The number of messages received per second.*

Sent
Totals -- The total number of messages sent.*
Deltas -- The increase in the number of messages sent since the last polling update.*
Rates -- The number of messages sent per second.*

Errors
Totals -- The total number of errors that have occurred.*
Deltas -- The increase in the number of errors since the last polling update.*
Rates -- The number of errors occurring per second.*

Adapter Service Information

Service Name The name of the service.*

Subject The name of the subject.*

 # Messages The current number of messages.*

Type The type of adapter service.*

Host Information

Name The name of the host.*

Value The host's value.*

Trends Graph Traces the following:

Delta Msgs Rcvd -- traces the increase in the number of messages received since the last polling update, or the rate of messages received with **Use Rates** selected.

Delta Msgs Sent -- traces the increase in the number of messages sent since the last polling update, or the rate of messages sent with **Use Rates** selected.

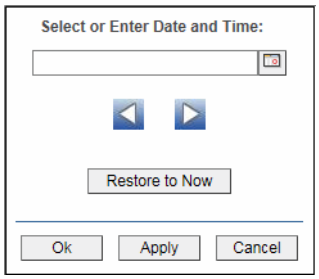
Delta Errors -- traces the increase in the number of errors since the last polling update, or the rate of errors with **Use Rates** selected.

Use Rates Select this toggle to trace the rates (**Msgs Rcvd/sec**, **Msgs Sent/sec**, and **Errors/sec**) instead of the delta numbers (**Delta Msgs Rcvd**, **Delta Msgs Sent**, and **Delta Errors**).

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

CHAPTER 28 Solution Package for TIBCO BusinessEvents

The Monitor provides information about how TIBCO BusinessEvents clusters are configured and performing, presents historical data detailing rule execution times per inference node, heap and table sizes for storage nodes, and event, concept and channels statistics. Pre-configured alert conditions provide early warning when any of these gathered performance metrics indicate a situation which is nearing a critical state.

The Monitor can help to diagnose several critical conditions relevant to the health of TIBCO BusinessEvents, including:

- events flooding into the system at much higher-than-expected rates.
- rules firing at a much higher rate than expected causing CPU usage to spike.
- the backing store running inefficiently.
- BusinessEvents concepts being created at a much higher rate than expected causing evaluation or re-evaluation of rules.

This section describes how to install, configure, deploy, start the Solution Package for TIBCO® BusinessEvents®, and read and use the Solution Package for TIBCO® BusinessEvents® displays. See **README_sysreq.txt** for the full system requirements for RTView®.

This section includes:

Setup

- The memory setting for BusinessEvents projects must be set to **Cache**. The "in memory" memory management setting does not expose the MBeans queried by the Monitor. This means that your project must use a cluster of both inference and cache agents. Inference-only configurations are not supported, since the JMX MBean data is not available.
- Your BusinessEvents (inference and cache) engines must be JMX-enabled. For example, to start a simple BusinessEvents cluster on the command line, type:

start be-engine --propFile be-engine.tra -n TestCache --propVar jmx_port=58700 -c yourBeProjectCDD.cdd -u cache yourBeProjectEAR.ear

be-engine --propFile be-engine.tra -n TestInf --propVar jmx_port=58701 -c yourBeProjectCDD.cdd -u default yourBeProjectEAR.ear

Configuration Parameters You Need

To configure the Solution Package for TIBCO® BusinessEvents®make a note of the following values:

- **PackageName=bemon**
- **ServerDirectory=miscmon**
- **AlertPrefix=Tbe**

Configure Data Collection

This section describes how to configure data collection for TIBCO BusinessEvents Monitor. You configure the Data Servers by defining data source connections for each TIBCO BusinessEvents engine that you want to monitor in the RTView Configuration Application. There are two agent types that you can configure: Inference Agents and Cache Agents.

Note: Your BusinessEvents project must include a cache agent as well as inference agents. TIBCO does not expose the management MBeans for inference agent only configurations.

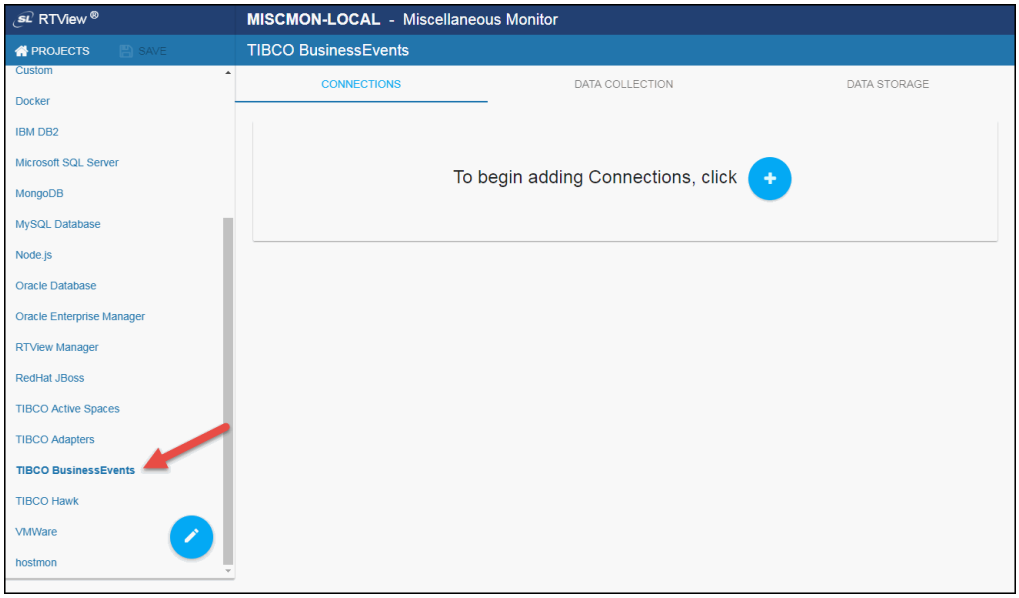
Before You Begin:

- Verify that your BusinessEvents engines are JMX-enabled.
- For each engine to be monitored, obtain the JMX port assigned to that engine.

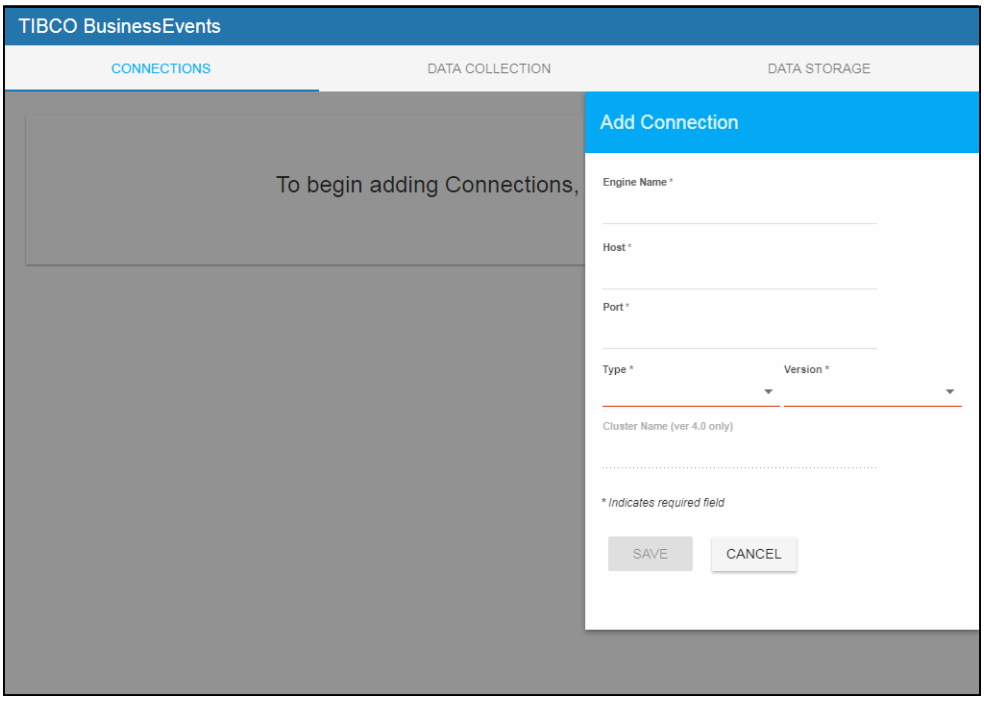
To Configure the Data Connection

Use the RTView Configuration Application to configure your data collection:

1. Navigate to RTView Configuration Application > **(MISCMON-LOCAL/Project Name)** > **Solution Package Configuration** > **TIBCO BusinessEvents** > **CONNECTIONS** tab.



2. On the **CONNECTIONS** tab, click the + icon to add connections to your BEMON engines. The **Add Connection** dialog displays.



3. Enter the **Engine Name**, the **Host**, the **Type**, the **Version**, and the **Cluster Name** (if Version selected was 4.0) for the engine to which you want to connect (to enable the Monitor to collect data) where:

Engine Name: the data source connection name used by the Monitor (it is not related to any TIBCO BusinessEvents configuration). Choose a descriptive name as the name appears in the Monitor displays for end-users. It should match the name specified in the first property.

Host: resolves to the address of the system where the TIBCO BusinessEvents engine is running. Specify a unique hostname/port combination for each JMX connection. The hostname can be an IP address or a name that is resolvable via DNS or other network name resolution method used on the host.

Port: the TCP port number assigned to the agent for monitoring via JMX. This port number is usually set in the engine's **.tra** file (**java.property.be.engine.jmx.connector.port=%jmx_port%**) and on the command line (**--propVar jmx_port=58700**).

Type: Select the BusinessEvents engine type (**Cache** or **Inference**).

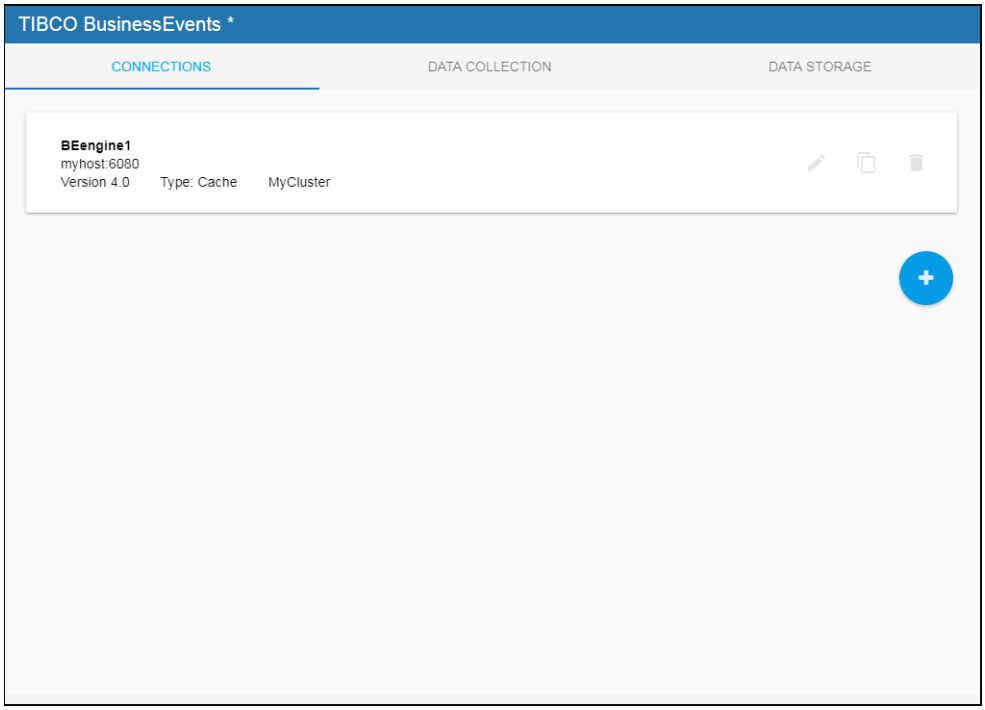
Version: Select the BusinessEvents Version for the engine.

Cluster Name: Specify the name of the cluster in which the engine resides. This field is only active if you selected version **4.0** in the **Version** field, and is intended to provide a solution if you have BusinessEvents nodes running on Java version 1.6.0_30 or earlier.

NOTE: The BusinessEvents Solution Package requires Java version 1.6.0_31 or later, as it depends on JMX support for wild-carded queries to auto-discover BE cluster names.

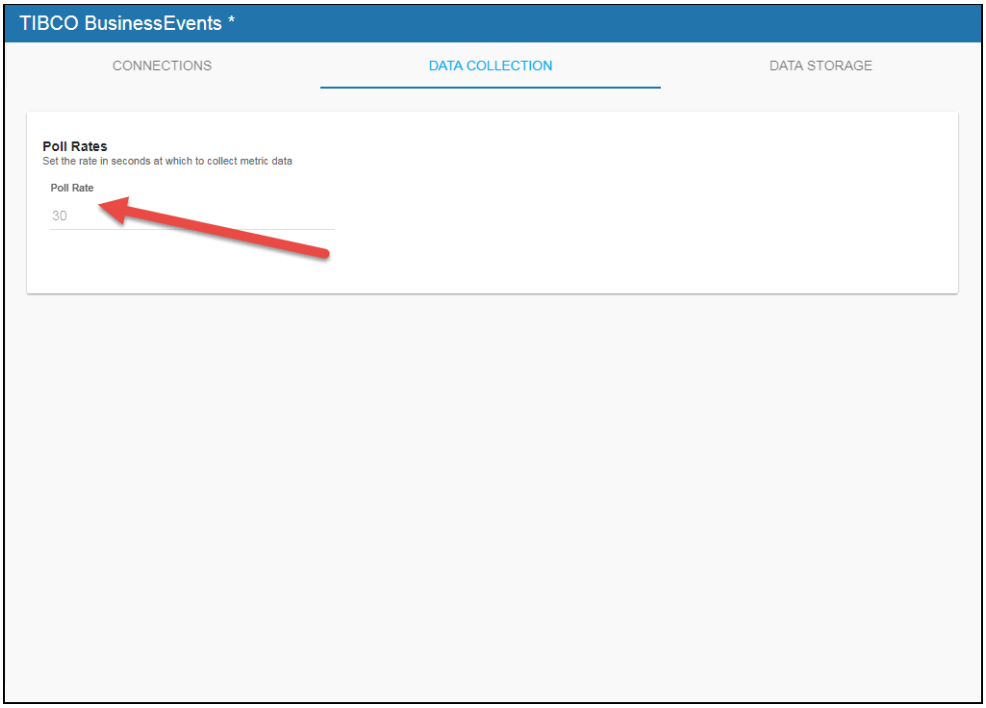
4. click **Save**.

   Your newly created engine connection displays in the Connections tab.



5. Repeat steps 2-4 to create any additional connections to BusinessEvents engines.

6. If you want to modify the default values for the update rates for the BusinessEvents caches, you can update the default polling rates in RTView Configuration Application > **DATA COLLECTION**> **Poll Rates**.



Additional Configurations

This section describes the additional optional TIBCO BusinessEvents Monitor configurations:

- "Enable Collection of Historical BEMON Data"

Enable Collection of Historical BEMON Data

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application. This section contains the following:

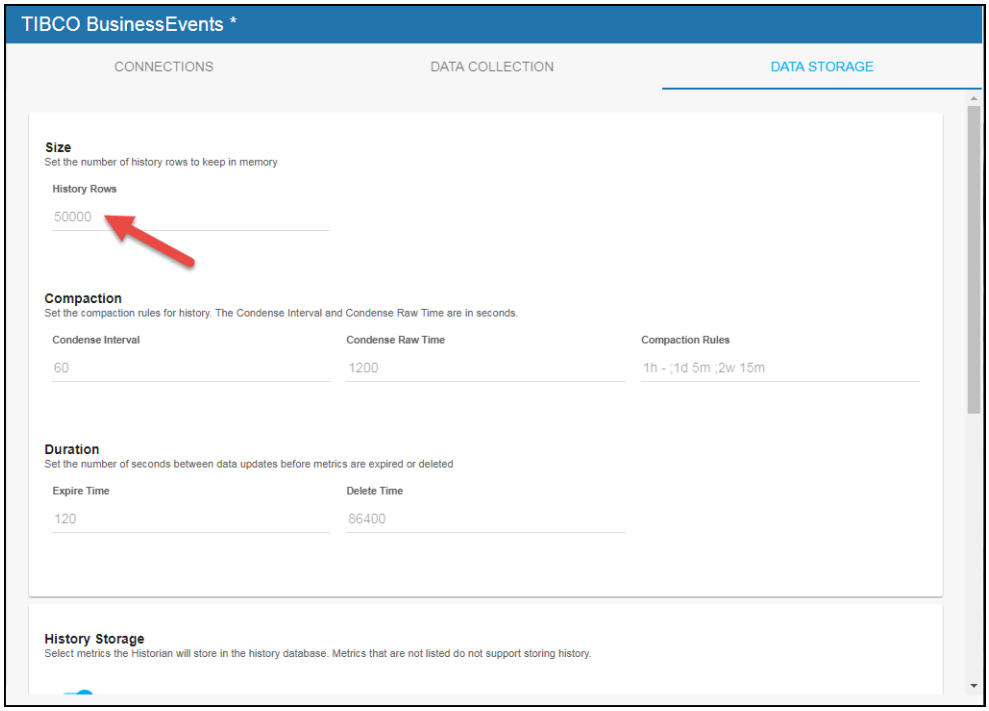
- "Defining the Storage of In Memory BEMON History"
- "Defining Compaction Rules for BEMON"
- "Defining Expiration and Deletion Duration for BEMON Metrics"
- "Enabling/Disabling Storage of BEMON Historical Data"
- "Defining a Prefix for All History Table Names for BEMON Metrics"

Defining the Storage of In Memory BEMON History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the TbeInferenceAgent, TbeObjectTable, TbeBackingStore, TbeNodeEvents, TbeAgentEvents, TbeNodeConcepts, and TbeClusterSummary caches. The default settings for **History Rows** is 50,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining Compaction Rules for BEMON

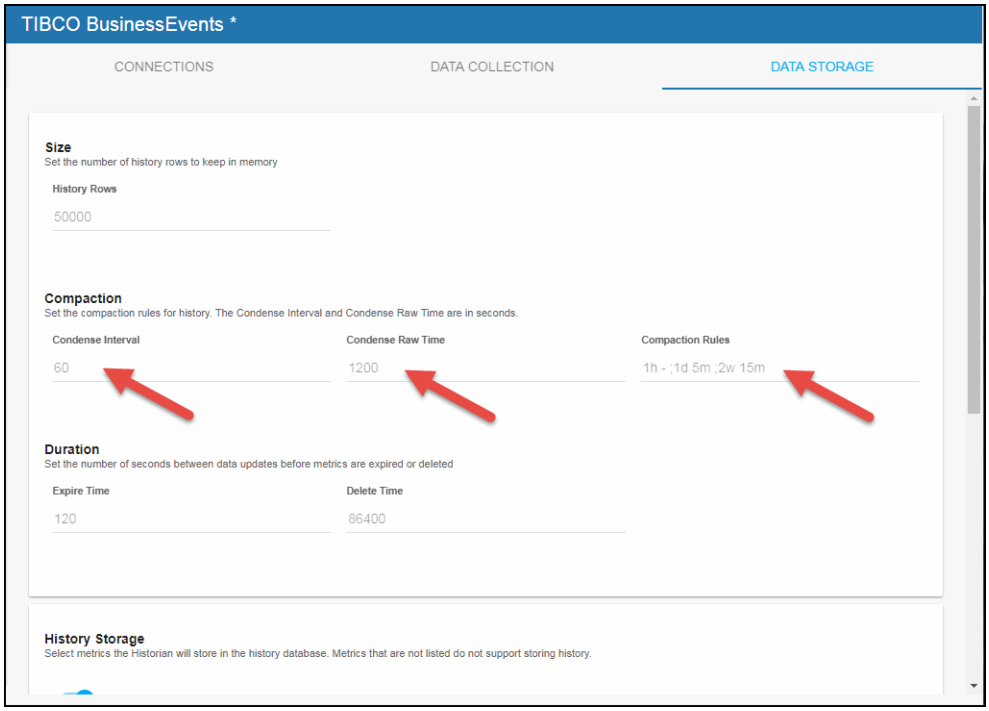
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: TbeInferenceAgent, TbeObjectTable, TbeBackingStore, TbeNodeEvents, TbeAgentEvents, TbeNodeConcepts, and TbeClusterSummary. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: TbeInferenceAgent, TbeObjectTable, TbeBackingStore, TbeNodeEvents, TbeAgentEvents, TbeNodeConcepts, and TbeClusterSummary. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: TbeInferenceAgent, TbeObjectTable, TbeBackingStore, TbeNodeEvents, TbeAgentEvents, TbeNodeConcepts, and TbeClusterSummary. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.



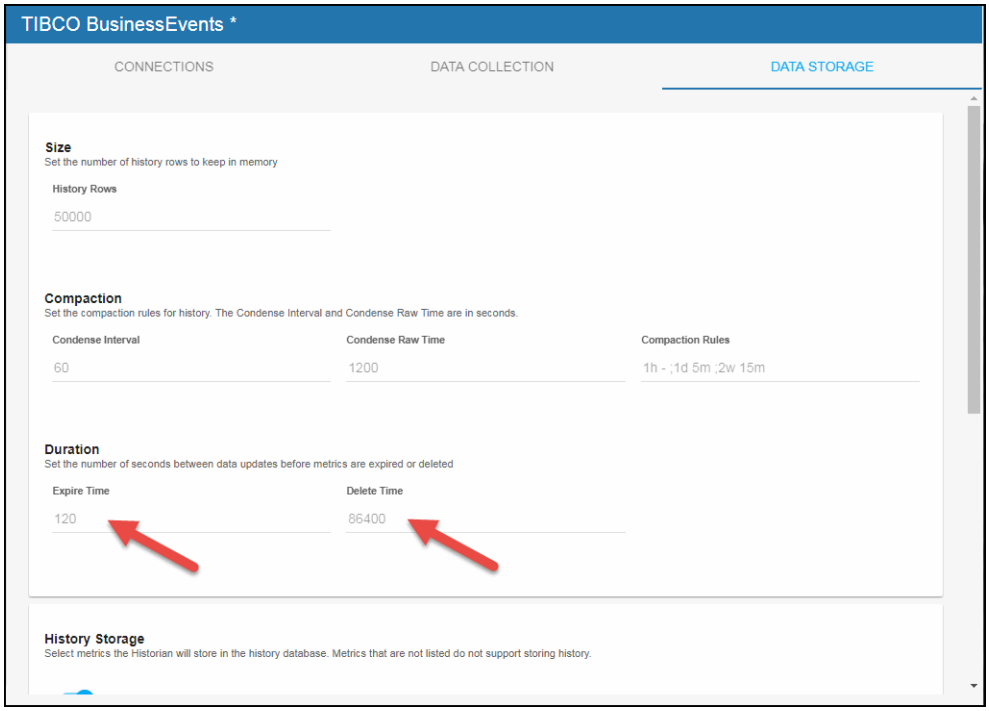
Defining Expiration and Deletion Duration for BEMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache.

The caches impacted by the **Expire Time** and **Delete Time** properties are: TbeInferenceAgent, TbeClusterNode, TbeRtcTxnManagerReport, TbeObjectTable, TbeDbConnectionPool, TbeAvailability, TbeBackingStore, TbeNodeEvents, TbeAgentEvents, TbeNodeConcepts, TbeDestinationStatus, TbeChannelStatus, and TbeClusterSummary. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

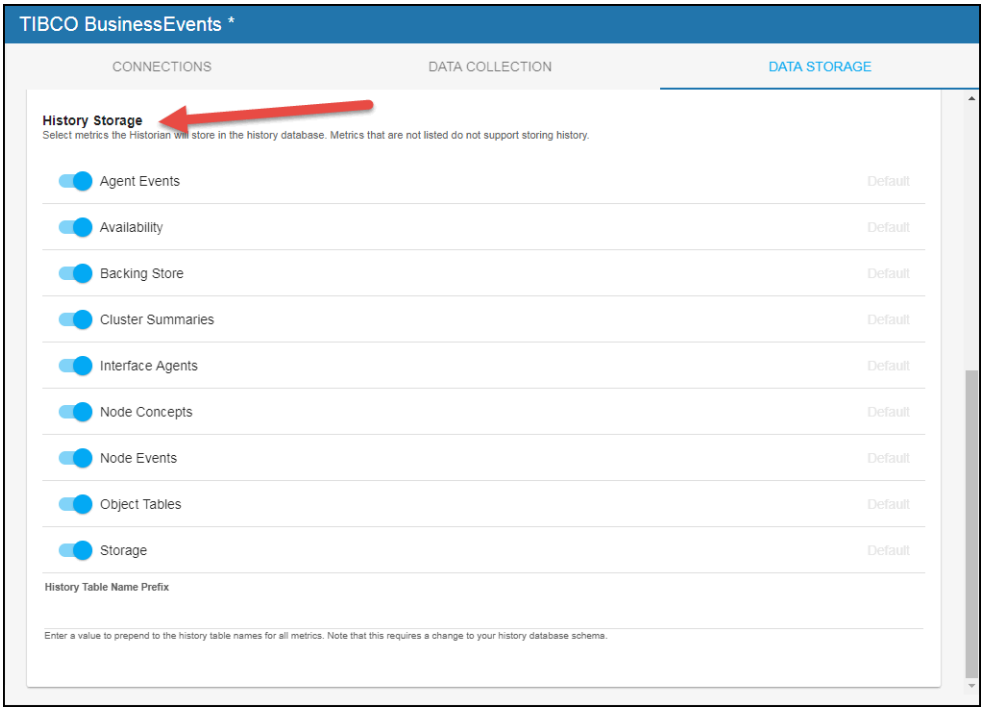


Enabling/Disabling Storage of BEMON Historical Data

The **History Storage** section allows you to select which metrics you want the Historian to store in the history database. By default, all historical data (in the TbeAgentEvents, TbeAvailability, TbeBackingStore, TbeClusterSummary, TbeInferenceAgent, TbeNodeConcepts, TbeNodeEvents, and TbeObjectTable caches) is saved to the database. To disable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab.

2. In the **History Storage** region, (de)select the toggles for the various metrics that you (do not) want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for BEMON Metrics

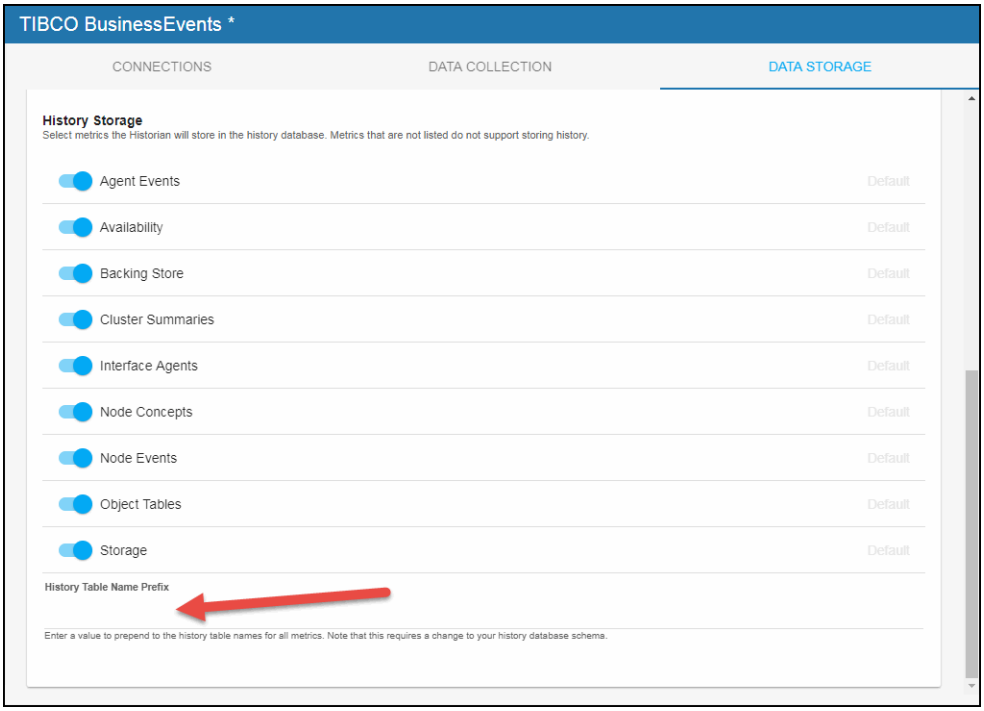
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**tbemon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to the RTView Configuration Application > (**MISCMON-LOCAL**/**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Limitations for TIBCO BusinessEvents Installation

Applications using JMX to monitor applications on a server with the server's firewall enabled might experience connection problems. The JMX protocol allows initial contact on a known port, but subsequent communications might occur over a second randomly chosen port. Version 5 of TIBCO BusinessEvents has a fix that allows the follow-on communications to occur over the same port. However, BusinessEvents version 4.0 does not have this fix. BusinessEvents 4.0 installations should use a local agent to push the necessary MBean data to the central RTView Data Server, or use a "premain agent" as described here:

https://blogs.oracle.com/jmxetc/entry/connecting_through_firewall_using_jmx

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/tbemon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/tbemon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **TBEMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "TBEMON." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

TIBCO BusinessEvents Monitor Views/Displays

The following TIBCO Business Events Monitor Views (and their associated displays) can be found under **Components** tab **> Middleware > TIBCO BusinessEvents** once TIBCO BusinessEvents Monitor is installed.

This section includes:

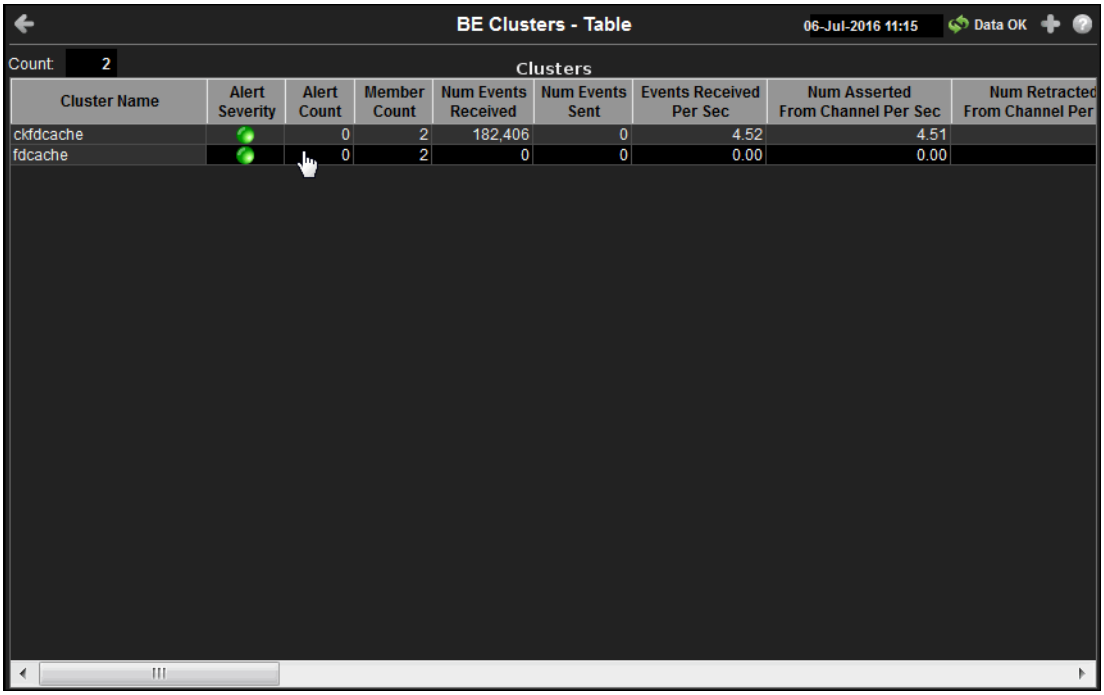
Clusters / Nodes View

These displays present performance data for your BusinessEvents system. Displays in this View are:

Clusters

Use this display to check event, concept, and backing store metrics for all of your clusters. Consider keeping this display open to monitor your TIBCO BusinessEvents clusters in general. Each row in the table is a different cluster. Click on a cluster row to view additional cluster details (current and historical) in the "Cluster Summary" display. The summary display includes trend charts so that you can view key metrics over time.

Sort the table columns when all the rows cannot fit on the screen. For example, sort the **Alert Status** column so that all nodes with red alerts (🔴) are listed at the top, or sort the **Expired** column so that all expired nodes are listed at the top.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

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Open the **Alert Views - RTView Alerts Table** display.

Clusters Table

Each row in the table is a different cluster, and data in the row columns describe the cluster.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

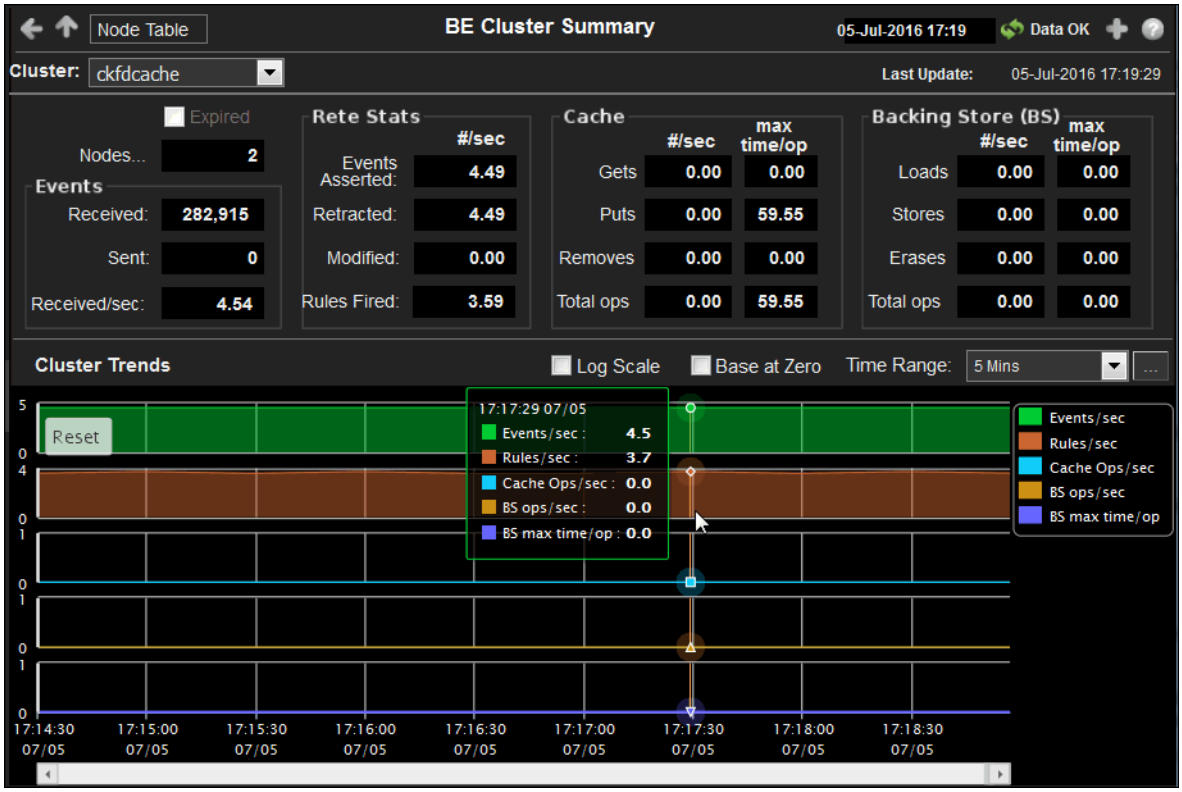
Count:	The total number of clusters in the table.
Cluster Name	The name of the TIBCO BusinessEvents cluster.
Alert Severity	The severity level of open alerts. Values range from **0** to **2**, where **2** is the greatest Severity: 🔴 One or more alerts exceeded their ALARM LEVEL threshold. 🟡 One or more alerts exceeded their WARNING LEVEL threshold. 🟢 No alert thresholds have been exceeded.
Alert Count	The total number of critical and warning alerts.

Member Count	The count of the number of nodes (both cache and inference) that have been collected. For example, for a cluster that has 3 inference nodes and two cache nodes, the Member Count for all 5 rows in the Cluster Table should be 5. If one of the rows shows a member count of one and the others show four, that is a clear indication that a node failed to join the cluster, and the corresponding node should be restarted. **Note:** The actual number of nodes in the cluster will not match the count in this column if one or more of the nodes do not have connection properties configured in the property file that is read by the data server at startup.
Num Events Received	The total number of events received.*****
Num Events Sent	The total number of events sent.*****
Events Received Per Sec	The rate of events received in the cluster.
Num Asserted From Channel Per Sec	The rate of events asserted into the Rete network via the channel.
Num Retracted From Channel Per Sec	The rate of events retracted/deleted from the Rete network via the channel.
Num Modified From Channel Per Sec	The rate of events modified in the Rete network via the channel.
Num Rules Fired Rate	The rate of rules fired in the cluster.
Concept Max Get Time	The longest time taken for a "get" operation for any node in the cluster since the cluster was started.*****
Concept Max Put Time	The longest time taken for a "put" operation for any node in the cluster since the cluster was started.*****
Concept Max Remove Time	The longest time taken for a "remove" operation for any node in the cluster since the cluster was started.*****
Concept Max Operation Time	The longest time taken for a concept operation (get/put/remove) for any node in the cluster since the cluster was started.*****
Concept Gets/ sec	The rate of "get" operations in the cluster.
Concept Puts/ sec	The rate of "put" operations in the cluster.
Concept Removes/sec	The rate of "remove" operations in the cluster.
Concept Operations/sec	The rate of operations (gets/puts/removes) in the cluster.
Backing Store Max Erase Time	The longest time taken for an "erase" operation in the Backing Store for any node in the cluster.*****
Backing Store Max Load Time	The longest time taken for a "load" operation in the Backing Store for any node in the cluster.*****
Backing Store Max Store Time	The longest time taken for a "store" operation in the Backing Store for any node in the cluster.*****
Backing Store Max Operation Time	The longest time taken to perform an operation (erase/load/store) in the Backing Store for any node in the cluster.*****
Backing Store Erases/sec	The rate of "erases" in the Backing Store.

Backing Store Loads/sec	The rate of "loads" into the Backing Store.
Backing Store Stores/sec	The rate of "stores" into the Backing Store.
Backing Store Operations/sec	The rate of operations (erases/loads/stores) in the Backing Store.
Source	The name of the data server from which the data was collected.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the engine.

Cluster Summary

Use this display to view configuration and utilization data for a single cluster. Select a cluster to view Rete statistics, cache metrics, Backing Store data, and trend data for the cluster.



Title Bar (possible features are):

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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster	Choose a cluster for which you want to see metrics.
Last Update	The date and time the data was last updated in the display.

Fields and Data

This display includes:

Note: Fields with an asterisk (*****) at the end of the field definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.

Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.	
Nodes	Lists the number of nodes on the cluster.	
Events	**Received**	The number of events received since the last data update.*****
	Sent	The number of events sent since the last data update.*****
	Received/ sec	The rate of events received in the cluster.
Rete Stats	**Events Asserted (#/sec)**	The rate of events asserted into the Rete network.
	Retracted (#/sec)	The rate of events retracted/deleted from the Rete network.
	Modified (#/sec)	The rate of events modified in the Rete network.
	Rules Fired (#/ sec)	The rate of rules fired in the Rete network.
Cache	**Gets (#/ sec)**	The rate of "get" operations in the L1 cache.
	Gets (max time/op)	The longest time taken for a "get" operation for any node in the cluster since the cluster was started.*****
	Puts (#/ sec)	The rate of "put" operations in the cache.
	Puts (max time/op)	The longest time taken for a "put" operation for any node in the cluster since the cluster was started.*****
	Removes (#/sec)	The rate of "removes" in the cache.
	Removes (max time/op)	The longest time taken for a "remove" operation for any node in the cluster since the cluster was started.*****
	Total ops (#/sec)	The rate of operations (gets/puts/removes) in the cache.
	Total ops (max time/op)	The longest time taken for an operation (get/put/remove) for any node in the cluster since the cluster was started.*****
Backing Store (BS)	**Loads (#/ sec)**	The rate of "load" operations into the backing store.
	Loads (max time/op)	The longest time taken for a "load" operation in the backing store for any node in the cluster.*****
	Stores (#/sec)	The rate of "store" operations in the backing store.
	Stores (max time/op)	The longest time taken for a "store" operation in the backing store for any node in the cluster.*****
	Erases (#/sec)	The rate of "erase" operations in the backing store.

Erases (max time/op)	The longest time taken for an "erase" operation in the backing store for any node in the cluster.*
Total ops (#/sec)	The rate of operations (loads/stores/erases) in the backing store.
Total ops (max time/op)	The longest time taken to perform an operation (erase/load/store) in the backing store for any node in the cluster.*

Cluster Trends Shows the following metrics for the selected cluster.

Events/sec -- Traces the rate of events received in the cluster.

Rules/ sec -- Traces the rate of rules in the cluster.

Cache Ops/ sec -- Traces the rate of cache operations in the cluster.

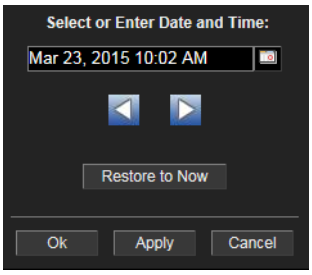
BS ops/sec-- Traces the rate of backstore operations in the cluster.

BS max time/op-- Traces the average maximum time per backstore operation.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



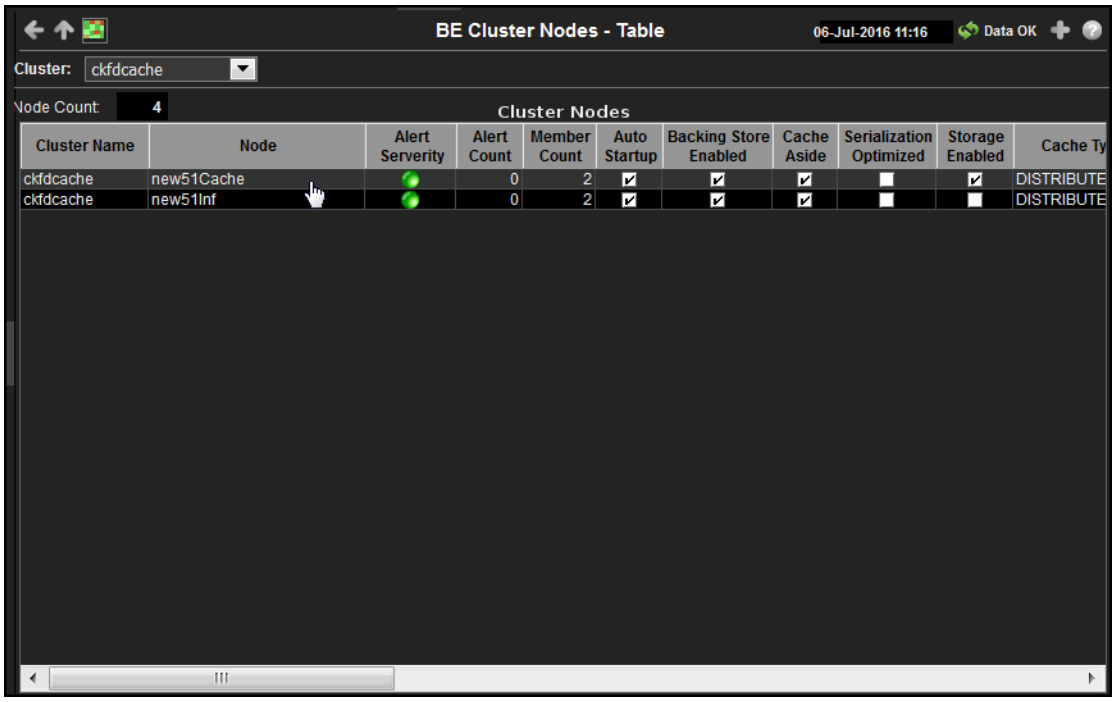
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Cluster Nodes Table

Use this display to view configuration and utilization data for nodes in a cluster.



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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster Choose a cluster for which you want to see metrics.

Cluster Nodes Table

Each row in the table is a different node. Data in the row columns describe the node.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Node Count: The total number of clusters in the table.

Cluster Name The name of the TIBCO BusinessEvents cluster.

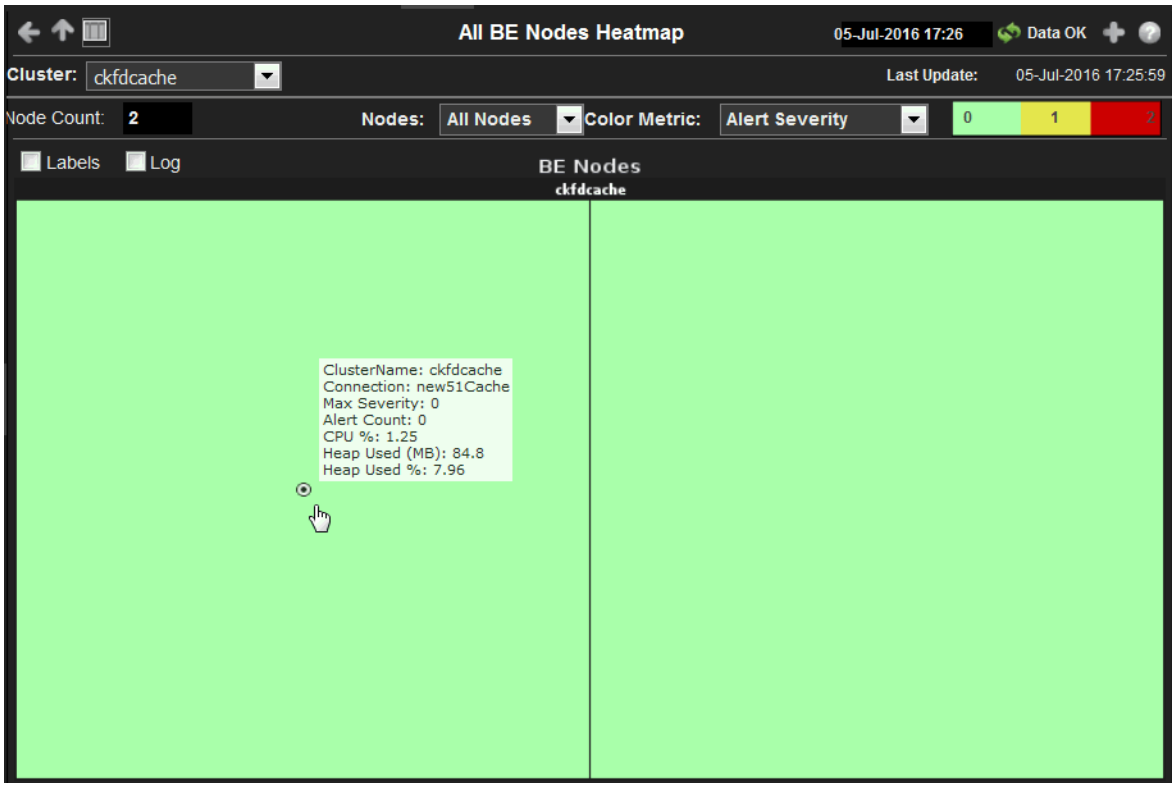
Node The name of the node.

Alert Severity	The severity level of open alerts. Values range from **0** to **2**, where **2** is the greatest Severity: One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded.
Alert Count	The total number of critical and warning alerts.
Member Count	The number of neighbors seen by a given node. This value is obtained directly from each node in the cluster. This value should always match the total "Member Count" in the corresponding row of the **Clusters** table. If they do not match, the node did not join the cluster properly and, hence, the cluster should be restarted.
Auto Startup	When checked (**true**), this feature is enabled.
Backing Store Enabled	When checked (**true**), this feature is enabled.*****
Cache Aside	When checked (**true**), this feature is enabled.*****
Serialization Optimized	When checked (**true**), this feature is enabled.*****
Storage Enabled	When checked (**true**), this feature is enabled.*****
Cache Type	The type of TIBCO BusinessEvents cache.*****
BE Version	The approximate TIBCO BusinessEvents version, as configured by the **connection** property. The exact version information is not available via JMX.
Cache Node?	When checked (**true**), the node is a storage node. Otherwise, it is an inference node. This column is added by the Monitor rather than read from the JMX interface.
Node ID	A unique string that identifies the node.
Host	The IP address of the host to which the node is connected.
Port	The port number of the host to which the node is connected.
URL	Uniform Resource Locater, used as an alternative way to specify a JMX connection. When set, the **Host** and **Port** columns are blank (and vice versa).
% CPU Used	The amount of CPU, in percent, used by the node. This value is derived from the java.lang.OperatingSystem MBean.
Heap-Max	The maximum amount of memory, in megabytes, that can be used by the JVM for heap space. This value is provided by standard Java MBeans.
Heap-Used	The current amount of memory, in megabytes, in use by the JVM for heap space. This value is provided by standard Java MBeans.
NonHeap Max	The maximum amount of memory, in megabytes, that can be used by the process (not counting heap usage). This value is provided by standard Java MBeans.
NonHeap Used	The current amount of memory, in megabytes, in use by the process (not counting heap usage). This value is provided by standard Java MBeans.
Host OS	The operating system on the host where the node is running.
Connection String	The connection string for the node, which can be the IP address and port of the host that the node is connected to, or the Uniform Resource Locater (which is used as an alternative way to specify a JMX connection).
Connected	When checked (**true**), the node is currently connected to the Data Server via JMX.

Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the node.

Cluster Nodes Heatmap

This display allows you to view utilization data for all nodes in a cluster in a heatmap format. You can view heatmap data for **All Nodes**, **Inference** nodes, or **Cache** nodes by selecting the desired option from the **Nodes** drop down list. When you click on the heatmap for one of the nodes, the detailed data for that particular node displays in the "Inference Node Summary" display if you selected an inference node, or in the "Storage Node Summary" display if you selected a cache node.



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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster Choose a cluster for which you want to see metrics.

Last Update The date and time that the display was last updated.

Node Count The total number of nodes in the display.

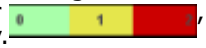
Nodes Select the type of nodes for which you want to view metrics. You can select from **All Nodes**, **Inference**, and **Cache**. Your selection in this drop down determines the available options in the **Color Metric** drop down.

Labels Select this option to display labels in the heatmap for each of the nodes.

Log Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Color Metric Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the nodes by cluster, where each rectangle represents a node. Mouse-over any rectangle to display the current values of the metrics for the cluster. Click on a rectangle to drill-down to the associated "Storage Node Summary" display for a detailed view of metrics for that particular server. The available options in this drop down change depending on your selection in the **Nodes** drop down.

Nodes: All Nodes The following options are available when **All Nodes** is selected from the **Nodes** drop down.

Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar 

, where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

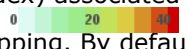
1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

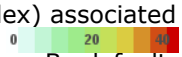
Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

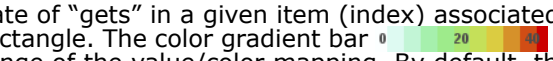
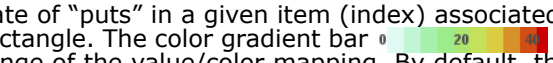
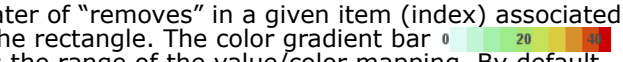
The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

JVM % CPU Used The total percentage of JVM CPU used in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **JvmCpuPercentHigh**, which is **75**. The middle value in the gradient bar indicates the middle value of the range (the default is **38**).

	JVM % Memory Used	The total percentage of JVM Memory Used in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **JvmMemoryUsedHigh**, which is **75**. The middle value in the gradient bar indicates the middle value of the range (the default is **38**).
Nodes: Inference	In addition to **Alert Severity**, **Alert Count**, **JVM % CPU Used**, and **JVM % Memory Used**, the following options are also available when **Inference** is selected from the **Nodes** drop down.	
	Received Events Rate	The rate of events received in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeChanRecvdRateHigh**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
	Rules Fired Rate	The rate of rules fired in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeRuleFiringRateHigh**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
	Total Rules Fired	The total number of rules fired in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the maximum count of rules fired in the heatmap. The middle value in the gradient bar indicates the middle value of the range.
Nodes: Cache	In addition to **Alert Severity**, **Alert Count**, **JVM % CPU Used**, and **JVM % Memory Used**, the following options are also available when **Cache** is selected from the **Nodes** drop down.	
	Backing Store Reads/sec	The rate of reads from the backing store in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeBackingStoreLoadRateHi**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
	Backing Store Writes/sec	The rate of writes to the backing store in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeBackingStoreStoreRateHi**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
	Backing Store Deletes/sec	The rate of deletes from the backing store in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeBackingStoreEraseRateHigh**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).

Concept Gets/ sec	The rate of "gets" in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeConceptsGetRateHigh**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
Concept Puts/ sec	The rate of "puts" in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeConceptsPutRateHigh**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
Concept Removes/sec	The rater of "removes" in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeConceptsRemoveRateHigh**, which is **95**. The middle value in the gradient bar indicates the middle value of the range (the default is **48**).
Object Table Size	The number of objects maintained in the cache in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **TbeNodeObjectTableSize**, which is **10,000**. The middle value in the gradient bar indicates the middle value of the range (the default is **5,000**).

Inference Node Summary

Use this display to view configuration and utilization data for a single inference node. View a list of all agents on the node, a Run-To-Completion Transaction Manager Report, and trend graphs tracing the rule execution rate for agents on the node. The rule execution rate is relative to the overall CPU and heap utilization for the engine's JVM.

NOTE: An inference node (also known as an engine or processing unit) is the container where one or more inference agents run. Generally, the agents in a given node implement different rule sets, and distributing nodes on different hosts provides fault tolerance and load balancing for the cluster. For details, refer to TIBCO documentation.

Choose a single cluster or **All Clusters** and a node from the drop-down menus.

Change the trend graph **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time. To change the time range, click Open Time Range  , choose the date and time, and then click **OK**.

Title Bar (possible features are):

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Open an instance of this display in a new window.

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Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster	Choose a cluster for which you want to view metrics.
Node	Choose a node for which you want to view metrics.

Fields and Data:

Last Update	The date and time the data in the display was last updated.
Cluster Name:	The name of the TIBCO BusinessEvents cluster with which the node is a member.
BE Version:	The approximate TIBCO BusinessEvents version, as configured by the **connection** property. The exact version information is not available via JMX.
Node ID:	A unique string that identifies the node.

Connection:	The JMX connection method specified in the **connection** property for a given engine. It is displayed as either a combination of the host and port fields (**<host>:<port>**), or the URL. This convention saves space on the display by avoiding empty fields. This information is provided as a convenience for those rare occasions where a user might wish to view the data directly in jconsole.
% CPU:	The percent of CPU used by the engine process. This value is provided by standard Java MBeans.
Heap used:	The current amount of memory, in megabytes, in use by the JVM for heap space. This value is provided by standard Java MBeans.
Heap max	The maximum amount of memory, in megabytes, that can be used by the JVM for heap space. This value is provided by standard Java MBeans.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Auto Startup	When checked (**true**), this feature is enabled.
Cache Aside	When checked (**true**), this feature is enabled.
Backing Store Enabled	When checked (**true**), this feature is enabled.
Storage Enabled	When checked (**true**), this feature is enabled.
Serialization Optimized	When checked (**true**), this feature is enabled.

RTC TXN Manager Report

Note: Fields in this display with an asterisk (*****) at the end of the field definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.

Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Avg Action Txn Millisec	The average amount of time taken for an action transaction, in milliseconds.*****
Avg Cache Queue Wait Time Millisec	The average cache queue wait time, in milliseconds.*****
Avg Cache Txn Millisec	The average amount of time taken for a cache transaction, in milliseconds.*****
Avg DB Ops Batch Size	The average database operation batch size.*****
Avg DB Queue Wait Time Millisec	The average database queue wait time, in milliseconds.*****
Avg DB Txn Millisec	The average amount of time taken for a database transaction, in milliseconds.*****

Avg Successful Txn Time Millisec	The average amount of time taken for a successful transaction, in milliseconds.*
Last DB Batch Size	The size of the last database batch.*
Pending Actions	The total number of pending actions.*
Pending Cache Writes	The total number of pending cache writes.*
Pending DB Writes	The total number of pending database writes.*
Pending Events to Ack	The total number of pending events that need to be acknowledged.*
Pending Locks to Release	The total number of pending locks that need to be released.*
Total DB Txns Completed	The total number of database transactions that have been completed.*
Total Errors	The total number of errors.*
Total Successful Txns	The total number of successful transactions.*

Agents for this Node Table

Each row in the table is an agent associated with the node, with data in the row columns describing the agent.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Agent Count:	The number of agents currently in the table.
Agent ID	The agent's ID.
Agent Class	The agent's class. See TIBCO documentation for more information.
Type	The type of agent (Inference, Cache, Query, or Dashboard).*
Current State	The current state of the agent.*
Started	When checked, denotes that the agent is started.*
Suspended	When checked, denotes that the agent is suspended.*
Concurrent	When checked, denotes that it is a concurrent agent.*
Queue Capacity	The queue capacity for the agent.*
Queue Size	The queue size for the agent.*
Thread Count	The total number of threads for the agent.*
Total # Rules Fired	The total number of rules fired for the agent.*
Rules Fired	The number of rules fired.*
Rules/sec	The rate of rules fired for the agent.

Avg Receive Time	See TIBCO documentation for more information.*
Avg Txn Commit Time	The average amount of time taken to commit a transaction.*
Cache Queue Remaining	The total amount of remaining space on the cache queue.*
DB Ops Queue Remaining	The total amount of remaining space on the DB Operations queue.*
Hit Ratio	See TIBCO documentation for more information.*
Job Rate	See TIBCO documentation for more information.*
L1 Cache Max Size	The maximum size of the L1 cache.*
L1 Cache Size	The current size of the L1 cache.*
Max Active	See TIBCO documentation for more information.*
# Event Threads	The total number of currently active event threads.*
# Jobs	The total number of currently active jobs.*
Priority	See TIBCO documentation for more information.*
Read Only	See TIBCO documentation for more information.*
Txn Commit Count	The number of transactions committed by the agent.*
Txn Receive Count	The number of transactions received by the agent.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the agent.

Trend Graph Shows metrics for the selected node.

% CPU -- Traces the amount of CPU used, in percent, by the node.

Rules/sec -- Traces the number of rules processed, per second, by the agent.

Heap-max -- Traces the maximum amount of heap space, in bytes, used by the node since the agent was started.

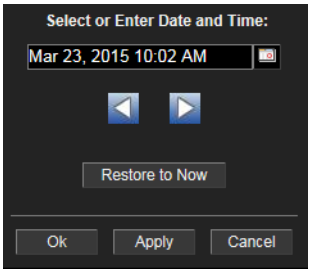
Heap-used -- Traces the current amount of heap space, in bytes, used by the agent.

Rules/sec for Agent Choose an agent from the drop-down menu.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Storage Node Summary

Use this display to view configuration details for a single cache node, the database connection pool status, as well as a list of all caches that are backed by the backing store (database). Also view trend graphs that trace utilization metrics such as CPU and heap memory usage.

NOTE: A storage node (also known as a cache node) provides fast access to events and concepts required during each RTC by the inference engines. Storage nodes also serve as buffers for reads and writes between the cluster and the backing store. For details, refer to TIBCO documentation.

Choose a single cluster or **All Clusters** and a node from the drop-down menus.

Change the trend graph **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time. To change the time range click Open Time Range ..., choose the date and time, then click **OK**.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster:	Choose a cluster to see metrics for.
Node:	Choose a node to see metrics for.

Fields and Data

Last Update	The date and time the data was last updated in the display.
Cluster Name:	The name of the TIBCO BusinessEvents cluster with which the node is a member.
BE Version:	The approximate TIBCO BusinessEvents version, as configured by the **connection** property. The exact version information is not available via JMX.
Node ID:	A unique string that identifies the node.

Connection:	The JMX connection method specified in the **connection** property for a given engine. It is displayed as either a combination of the host and port fields (**<host>:<port>**), or the URL. This convention saves space on the display by avoiding empty fields. This information is provided as a convenience for those rare occasions where a user might wish to view the data directly in jconsole.
% CPU:	The amount of CPU, in percent, used by the node. This value is provided by standard Java MBeans.
Heap used:	The current amount of memory, in megabytes, in use by the JVM for heap space. This value is provided by standard Java MBeans.
Heap Max:	The maximum amount of memory, in megabytes, that can be used by the JVM for heap space. This value is provided by standard Java MBeans.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Auto Startup	When checked (**true**), this feature is enabled.
Cache Aside	When checked (**true**), this feature is enabled.
Backing Store Enabled	When checked (**true**), this feature is enabled.
Storage Enabled	When checked (**true**), this feature is enabled.
Serialization Optimized	When checked (**true**), this feature is enabled.

DB Connection Pool

Values describe status of the pool of database connections used by the cache agent to move data between the local caches and the database.

Note: Fields in this region with an asterisk (*****) at the end of the field definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.

Pool State	The state of the database connection pool.*****
Auto Failover	The number of times auto failover has occurred.*****
Failover Interval	The number of seconds taken for failover to take place.*****
Cache Size	The cache size.*****
# Connections Available	The total number of connections available.*****
# Connections in Use	The total number of connections currently in use.*****

Backing StoreTable

A cache node manages access to current events and concepts, buffering as necessary between local memory and a database. The Backing Store table provides a list of caches and the database select/insert/delete statistics for each cache.

Note: Row columns in this table with an asterisk (*****) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Cache Name	The name of the cache.*****
Active	When checked, denotes that the cache is active.*****
Delete Avg Time	The average amount of time taken for a "delete" ("erase") operation in the Backing Store for the cache.*****

Load Avg Time	The average amount of time taken for a "load" operation in the Backing Store for the cache.*****
Store Avg Time	The average amount of time taken for a "store" operation in the Backing Store for the cache.*****
Delete Total	The total number of "delete" operations in the Backing Store for the cache.*****
Load Total	The total number of "load" operations in the Backing Store for the cache.*****
Store Total	The total number of "store" operations in the Backing Store for the cache.*****
Deletes	The number of "delete" operations during the last polling interval.*****
Loads	The number of "load" operations during the last polling interval.*****
Stores	The number of "store" operations during the last polling interval.*****
Deletes/sec	The rate of "delete" operations in the node.
Loads/sec	The rate of "load" operations in the node.
Stores/sec	The rate of "store" operations in the node.

Object Table Trends Shows metrics for the selected cluster/node combination:

% CPU -- Traces the amount of CPU used, in percent, by the engine.

Table Size -- Traces the number of unique objects cached in the local index table.

Ext ID Tbl Size -- Traces the number of entries in the table of external IDs used as indexes by the backing store.

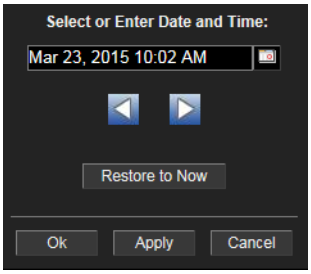
Max Heap (MB)-- Traces the maximum amount of memory, in megabytes, that can be used by the JVM for heap space.

Heap (MB) -- Traces the current heap space, in megabytes, in use by the JVM.

Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Events / Concepts View

These displays present performance data for your BusinessEvents system. Displays in this View are:

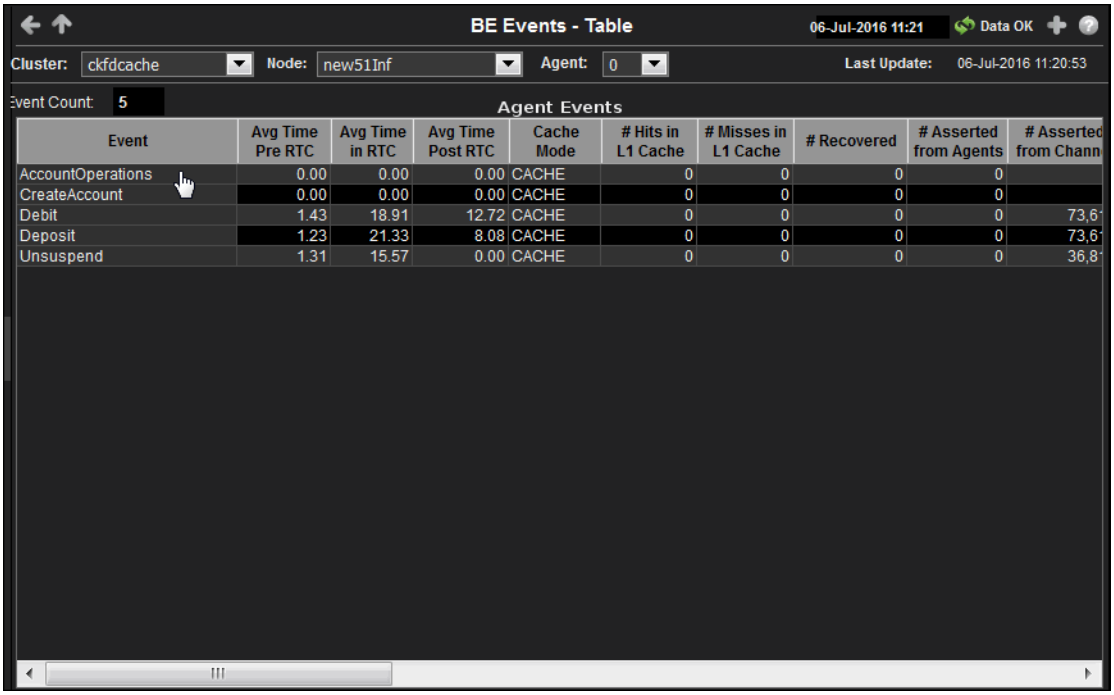
- "Agent Events"
- "Agent Event Summary"
- "Event Cache Hits"
- "Event Hit Summary"
- "Concept Cache Hits"
- "Concept Hit Summary"
- "Channels"
- "All Inference Agents"
- "All RTC Reports"

Agent Events

View run-time statistics for a selected group of agents. With TIBCO BusinessEvents, events are cached when they are out of scope, and deleted or persisted to the backing store when they are no longer useful. Clicking on a row in the table displays access patterns over time for the event in the "Agent Event Summary" display.

NOTE: Events cause rules to execute in the BusinessEvents Rete network. Events can be created by external phenomena, such as the arrival of a JMS message, or internally when rules are processed. When an event enters the Rete network, it causes a run-to-completion cycle which continues until no further rules can be processed. Each named event that can be handled by a BusinessEvents application is specified at build time in BusinessEvents studio. For details, refer to TIBCO documentation.

Sort the table columns when all the rows cannot fit on the screen. For example, sort the **Expired** column so that all expired nodes are listed at the top.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster: Select the cluster containing the node and agent for which you want to view metrics.

Node: Select a node containing the agent for which you want to view metrics.

Agent Select the agent for which you want to view metrics.

Fields and Data:

Last Update: The date and time the data on the display was last updated.

Agent Events Table:

Each row in the table is a different event. Data in the row columns describe the event. The following fields are added by Monitor collection. The assertions/sec, modified/sec, and retracted/sec metrics are calculated from the corresponding counters as the delta between two successive samples divided by the polling interval.

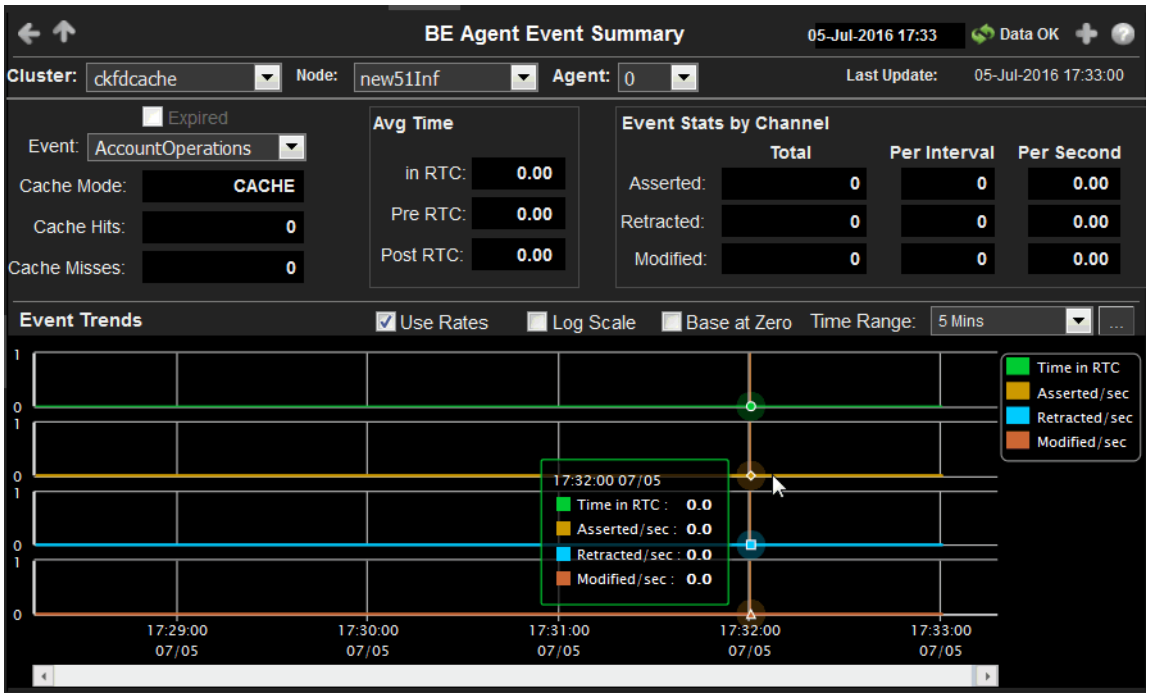
Note: Row columns in this table with an asterisk (*****) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

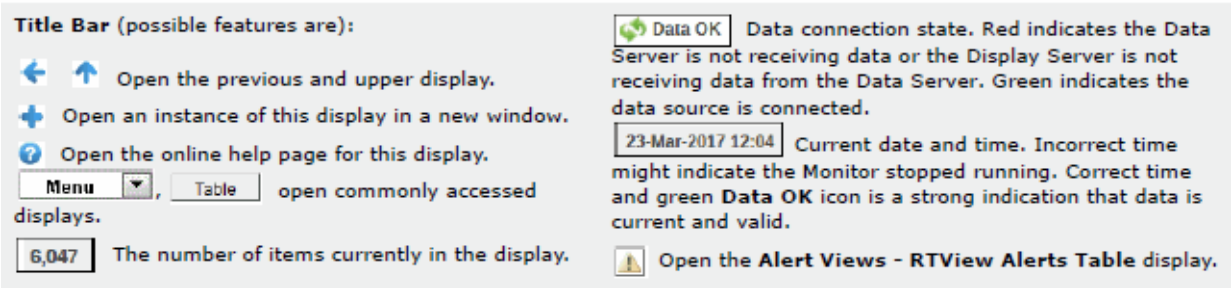
Event Count:	The total number of events in the table.
Event	The name of the event.
Avg Time Pre RTC	The average amount of time taken for the event to begin its run to completion cycle.*****
Avg Time in RTC	The average amount of time taken for the event to complete (once it has started) its run to completion cycle.*****
Avg Time Post RTC	The average amount of time taken by the event after its run to completion cycle has ended.*****
Cache Mode	Lists the mode used by the event, which can be either **CACHE** (only) or **MEMORY** (only).*****
# Hits in L1 Cache	The number of times data has been searched for in the L1 cache since the last data update.*****
# Misses n L1 Cache	The number of times data has been searched for in the L1 cache, but was not found, since the last data update.*****
# Recovered	The number of times data is not found in the L1 cache, but is found in a different cache, since the last data update.*****
# Asserted from Agents	The number of times the event was asserted by an agent into the Rete network.*****
# Asserted from Channel	The number of times the event was asserted into the Rete network via the channel.*****
# Modified from Agents	The number of times the event was modified by an agent in the Rete network.*****
# Modified from Channel	The number of times the event was modified in the Rete network via the channel.*****
# Retracted from Agents	The number of times the event was retracted/deleted by an agent from the Rete network.*****
# Retracted from Channel	The number of times the event was retracted/deleted from the Rete network via the channel.*****
L1 Cache Hits/sec	The rate of L1 cache hits.
L1 Cache Misses/sec	The rate of L1 cache misses.
# Recovered /sec	The rate of recovered data.
Assertions/ sec (Agent)	The rate of event assertions into the Rete network by the agent.
Assertions/ sec (Channel)	The rate of event assertions into the Rete network via the channel.
Modifies/ sec (Agent)	The rate of event modifications in the Rete network by the agent.

Modifies/ sec (Channel)	The rate of event modifications in the Rete network via the channel.
Retractions/ sec (Agent)	The rate of event retractions/deletions from the Rete network by the agent.
Retractions/ sec (Channel)	The rate of event retractions/deletions from the Rete network via the channel.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the engine.

Agent Event Summary

View detailed performance metrics for an agent's event. You can view cache, RTC, event statistics by channel, and event trend data over a specified period of time.





Filter By:

The display might include these filtering options:

Note: Fields in this display with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.

Cluster:		Select the cluster for which you want to see metrics.
Node:		Select the node for which you want to see metrics.
Agent		Select the agent for which you want to see metrics.
Last Update		The date and time in which the data was last updated.
Expired		When checked (**true**), the Monitor has not received a response from the event for the amount of time specified by the **$tbeRowExpirationTime** property (the default is **120** seconds). When the amount of time specified by the **$tbeRowExpirationTimeForDelete** property elapses (the default is one day), the event data is deleted from the cache and display.
Event		The name of the event.
Cache Mode		Lists the mode used by the event, which can be either **CACHE** (only) or **MEMORY** (only).*
Cache Hits		The number of times data has been searched for in the L1 cache since the last data update.*
Cache Misses		The number of times data has been searched for in the L1 cache, but was not found, since the last data update.*
Avg Time	**in RTC**	The average amount of time taken for the event to complete (once it has started) its run to completion cycle.*
	Pre RTC	The average amount of time taken for the event to begin its run to completion cycle.*
	Post RTC	The average amount of time taken by the event after its run to completion cycle has ended.*
Event Stats by Channel	**Asserted Total**	The total number of times the event was asserted into the Rete network via the channel.*
	Asserted Per Interval	The number of times the event was asserted into the Rete network via the channel since the last data update.*
	Asserted Per Second	The rate of event assertions into the Rete network via the channel.
	Retracted Total	The total number of times the event was retracted/deleted from the Rete network via the channel.*

Retracted Per Interval	The number of event retractions/deletions from the Rete network.
Retracted Per Second	The rate of event retractions/deletions from the Rete network via the channel.
Modified Total	The total number of times the event was modified in the Rete network via the channel.*****
Modified Per Interval	The number of event modifications in the Rete network via the channel.
Modified Per Second	The rate of event modifications in the Rete network via the channel.

Expired When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Event Trends Shows metrics for the selected event:

Time in RTC-- Traces the event spends in the run to completion cycle.

Asserted(/sec)-- Traces the number of events asserted into the Rete network (or the rate of event assertions per second depending on **Use Rates** setting).

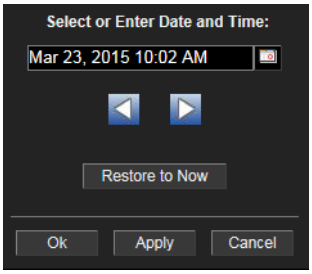
Retracted(/sec)-- Traces the number events retracted from the Rete network (or rate of event retractions per second depending on **Use Rates** setting).

Modified(/sec)-- Traces the number of events modified in the Rete network (or rate of events modified per second depending on **Use Rates** setting).

Use Rates	When selected, this toggle allows you to view data in the trend graph in counts per second (asserted count per second, retracted count per second, and modified count per second) instead of the default counts per selected interval (asserted count, retracted count, modified count).
Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

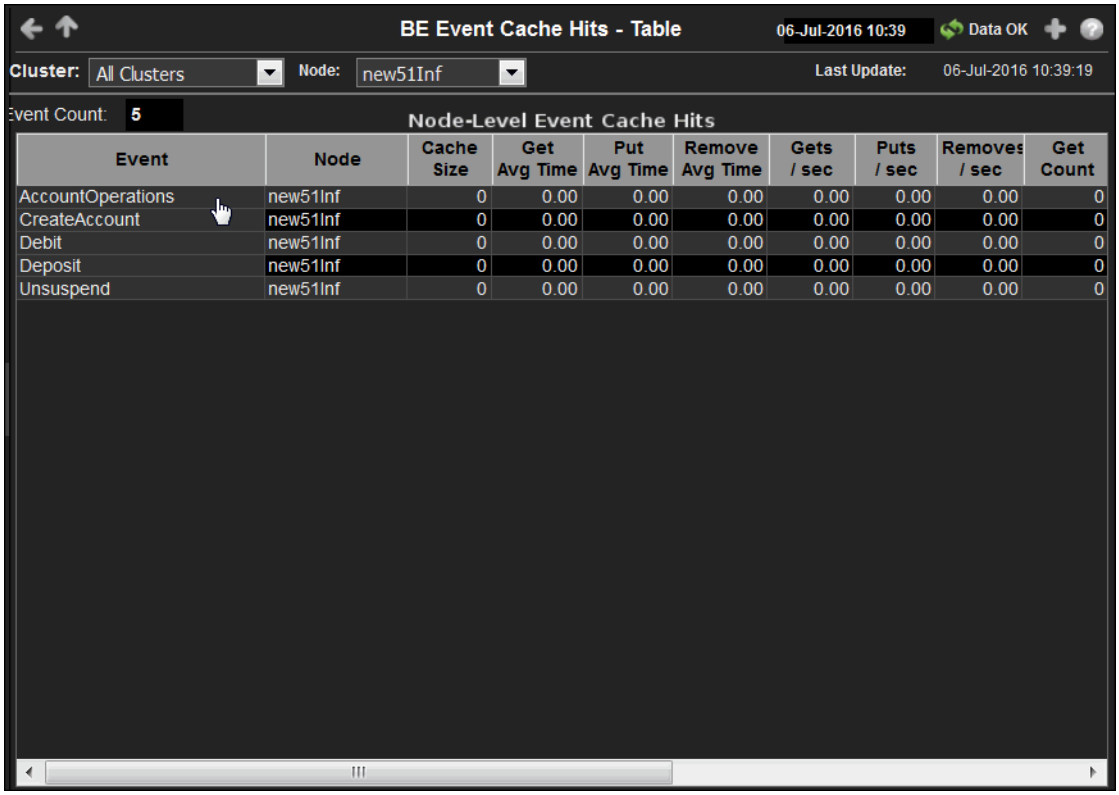
Event Cache Hits

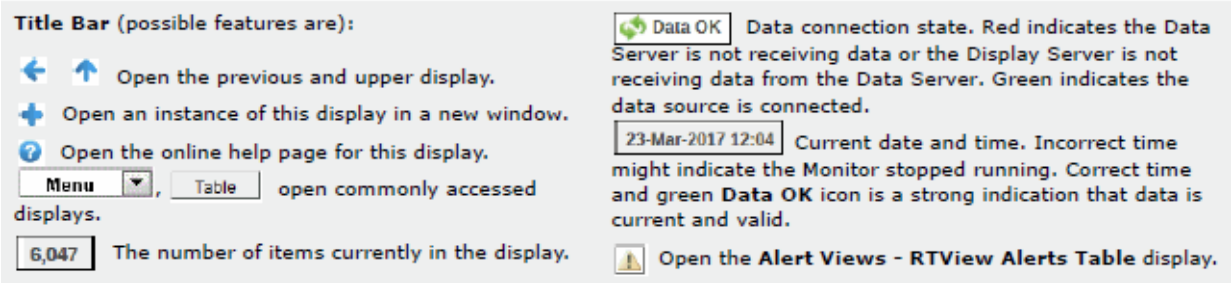
View cache performance metrics per event for a single cluster or **All Clusters**.

NOTE: Events cause rules to execute in the BusinessEvents Rete network. Events can be created by external phenomena, such as the arrival of a JMS message, or internally when rules are processed. When an event enters the Rete network, it causes a run-to-completion cycle which continues until no further rules can be processed. Each named event that can be handled by a BusinessEvents application is specified at build time in BusinessEvents studio. For details, refer to TIBCO documentation.

Choose a single cluster or **All Clusters** and a node from the drop-down menus.

Sort the table columns when all the rows cannot fit on the screen. For example, sort the **Expired** column so that all expired nodes are listed at the top.





Filter By:

The display might include these filtering options:

Cluster:	Select a cluster for which you want to see metrics.
Node:	Select a node for which you want to see metrics.
Last Update	The date and time the data was last updated.

Node-Level Event Statistics Table:

Each row in the table is a different event, with data in the row columns describing the event.

Note: Row columns in this table with an asterisk (*****) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Event Count:	The total number of events in the table.
Event	The name of the event.
Node	The name of the node.
Cache Size	The size of the event's cache.*****
Get Avg Time	The average time taken for a "get" event for the node.*****
Put Avg Time	The average time taken for a "put" event for the node.*****
Remove Avg Time	The average time taken for a "remove" event for the node.*****
Gets/sec	The rate of "get" operations for the event.
Puts/sec	The rate of "put" operations for the event.
Removes/ sec	The rate of "remove" operations for the event.
Get Count	The total number of "get" operations for the event.*****
Put Count	The total number of "put" operations for the event.*****
Remove Count	The total number of "remove" operations for the event.*****
Num Handles In Store	The number of handles in the Backing Store for the event.*****
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the engine.

Event Hit Summary

View detailed event performance metrics for a single cluster or **All Clusters,** a node, and an event.

NOTE: Events cause rules to execute in the BusinessEvents Rete network. Events can be created by external phenomena, such as the arrival of a JMS message, or internally when rules are processed. When an event enters the Rete network, it causes a run-to-completion cycle which continues until no further rules can be processed. Each named event that can be handled by a BusinessEvents application is specified at build time in BusinessEvents studio. For details, refer to TIBCO documentation.

Choose a single cluster or **All Clusters**, a node and an event from the drop-down menus.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Note: Fields in this display with an asterisk (*) at the end of the field definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.

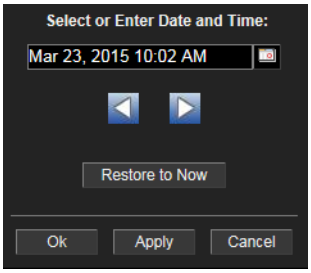
Cluster:	Select a cluster containing the node and event for which you want to see metrics.
Node:	Select a node containing the event for which you want to see metrics.
Event	Select the event for which you want to see metrics.
Last Update	The date and time in which the data was last updated.

Expired		When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Cache Size		The size of the cache.*****
Handles in Store		The number of handles in the Backing Store for the event.*****
Avg Cache Access Time	**Get**	The average time taken for a "get" operation.*****
	Put	The average time taken for a "put" operation.*****
	Remove	The average time taken for a "remove" operation.*****
Cache Access Stats	**Get -- Total Hits**	The total number of "get" operations for the event.*****
	Get-- Hits	The number of "get" operations for the event since the last data update.*****
	Get-- Hits/sec	The rate of "get" operations for the event.
	Put-- Total Hits	The total number of "put" operations for the event.*****
	Put--Hits	The number of "put" operations for the event since the last data update.*****
	Put-- Hits/sec	The rate of "put" operations for the event.
	Remove --Total Hits	The total number of "remove" operations for the event.*****
	Remove-- Hits	The number of "remove" operations for the event since the last data update.*****
	Remove --Hits/ sec	The rate of "remove" operations for the event.
Cache Access Trends		Shows metrics for the selected cluster/node/event combination: **Gets(/sec)** -- Traces the number of "gets" (or rate of "gets" per second depending on **Use Rates** setting) for the event. **Puts(/sec)**-- Traces the number of "puts" (or rate of "puts" per second depending on **Use Rates** setting) for the event. **Removes(/sec)**-- Traces the number of "removes" (or rate of "removes" per second depending on **Use Rates** setting) for the event.
	Use Rates	When selected, this toggle allows you to view data in the trend graph in counts per second ("get" operations count per second, "put" operations count per second, and "remove" operations count per second) instead of the default counts per selected interval ("get" operations count, "put" operations count, "remove" operations count).

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

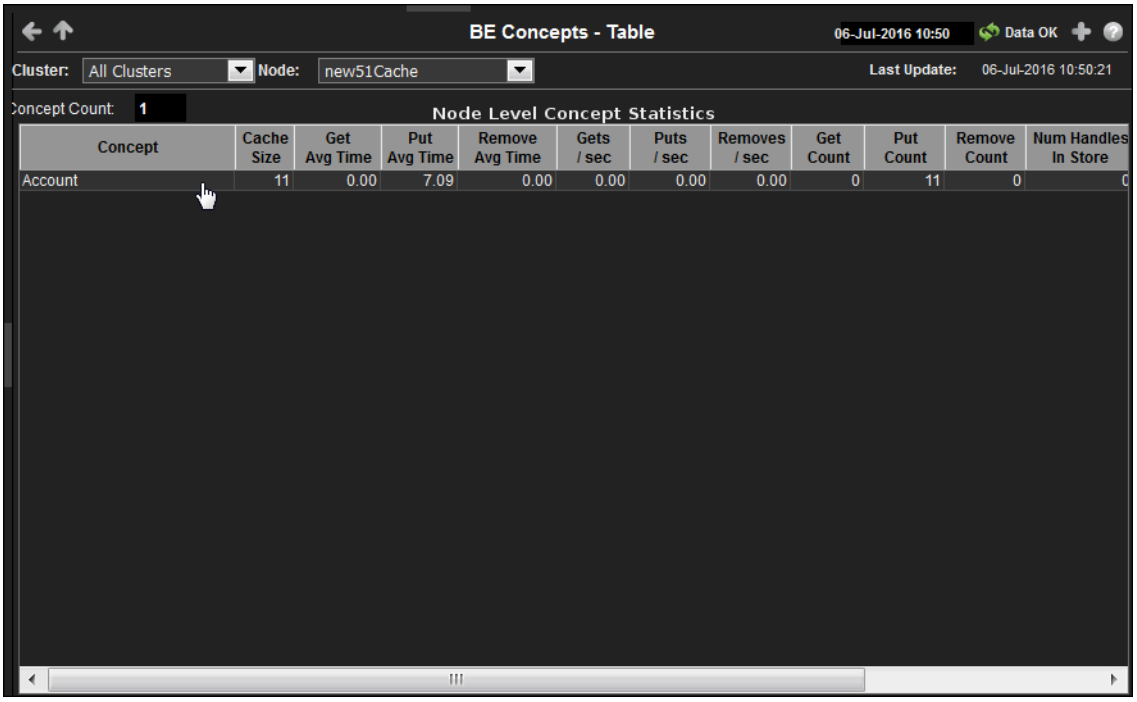
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

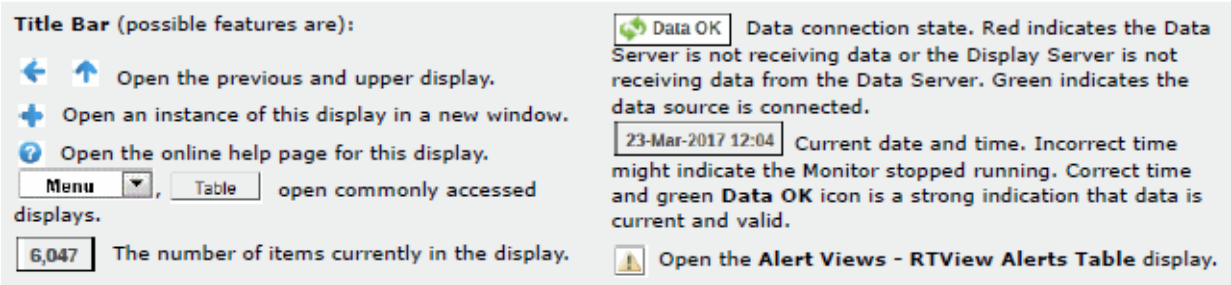
Click **Restore to Now** to reset the time range end point to the current time.

Concept Cache Hits

View a list of concepts and their run-time statistics. Choose a single cluster or **All Clusters** and a node from the drop-down menus.

Sort the table columns when all the rows cannot fit on the screen. For example, sort the **Expired** column so that all expired nodes are listed at the top.





Filter By:

The display might include these filtering options:

Cluster:	Choose a cluster to see metrics for.
Node:	Choose a node to see metrics for.
Last Update	The date and time the data was last updated.

Node-Level Concept Statistics Table:

Each row in the table provides statistics regarding data access for a given BusinessEvents concept.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Concept Count:	The total number of concepts in the table.
Concept	The name of the concept.
Cache Size	The size of the concept's cache.*****
Get Avg Time	The average time taken for a "get" operation.*****
Put Avg Time	The average time taken for a "put" operation.*****
Remove Avg Time	The average time taken for a "remove" operation.*****
Gets/sec	The rate of "gets" for the concept.
Puts/sec	The rates of "puts" for the concept.
Removes/ sec	The rate of "removes" for the concept.
Get Count	The total number of "gets" for the concept.*****
Put Count	The total number of "puts" for the concept.*****
Remove Count	The total number of "removes" for the concept.*****
Num Handles In Store	The number of handles in the Backing Store for the concept.*****
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the concept.

Concept Hit Summary

Use this display to view current and historic data for a single concept. Data in this display can be useful if your BusinessEvents system uses Cache object management. When Cache object management is used, concepts with a sufficiently long time to live (TTL) setting are cached.

Cache reference patterns for certain concepts may be related to incoming events (for example, customer purchase orders with associated inventory queries). The trend charts show the cache activity of such concepts, and might be useful in diagnosing the behavior of your application over time.

Choose a single cluster or **All Clusters**, a node and a concept from the drop-down menus. Change the trend graph **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

fFields in this table with an asterisk (*****) at the end of the field definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.The display might include these filtering options:

Cluster: Select a cluster containing the node and concept for which you want to see metrics.

Node: Select a node containing the concept for which you want to see metrics.

Concept Select the concept for which you want to see metrics.

Fields and Data:

Note: Fields in this table with an asterisk (*) at the end of the field definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these fields.

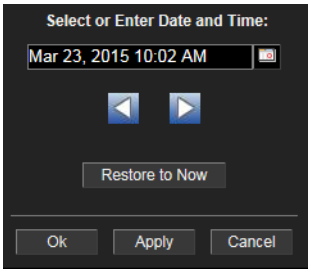
Last Update The date and time in which the data was last updated in the display.

Expired		When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Cache Size		The size of the cache.*****
Handles in Store		The number of handles in the Backing Store.*****
Avg Cache Access Time	**Get**	The average time taken for a "get" operation.*****
	Put	The average time taken for a "put" operation.*****
	Remove	The average time taken for a "remove" operation.*****
Cache Access Stats	**Get -- Total Hits**	The total number of "get" operations for the concept.*****
	Get-- Hits	The number of "get" operations for the concept since the last data update.*****
	Get-- Hits/sec	The rate of "get" operations for the concept.
	Put-- Total Hits	The total number of "put" operations for the concept.*****
	Put--Hits	The number of "put" operations for the concept since the last data update.*****
	Put-- Hits/sec	The rate of "put" operations for the concept.
	Remove --Total Hits	The total number of "remove" operations for the concept.*****
	Remove-- Hits	The number of "remove" operations for the concept since the last data update.*****
	Remove --Hits/ sec	The rate of "remove" operations for the concept.
Cache Access Trends		Shows metrics for the selected cluster/node/concept combination: **Gets(/sec)** -- Traces the number of "get" operations (or rate of "get" operations depending on **Use Rates** setting) for the concept. **Puts(/sec)**-- Traces the number of "put" operations (or rate of "put" operations depending on **Use Rates** setting) for the concept. **Removes(/sec)**-- Traces the number of "remove" operations (or rate of "remove" operations depending on **Use Rates** setting) for the concept.
	Use Rates	When selected, this toggle allows you to view data in the trend graph in counts per second ("get" operations count per second, "put" operations count per second, and "remove" operations count per second) instead of the default counts per selected interval ("get" operations count, "put" operations count, "remove" operations count).

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

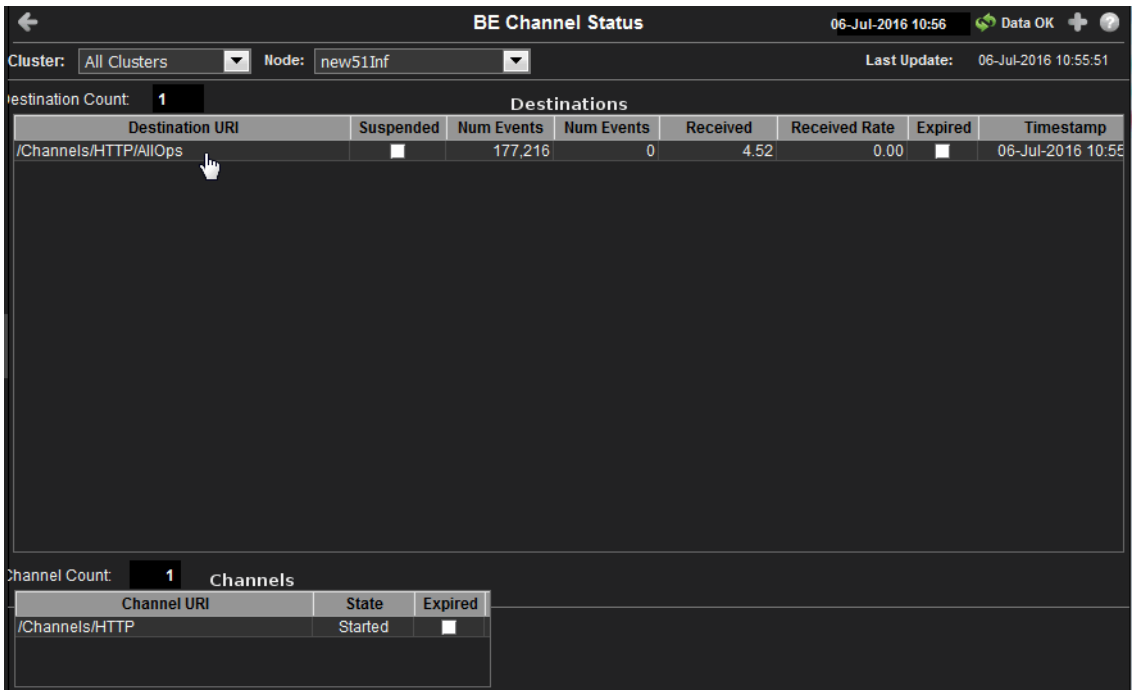
Click **Restore to Now** to reset the time range end point to the current time.

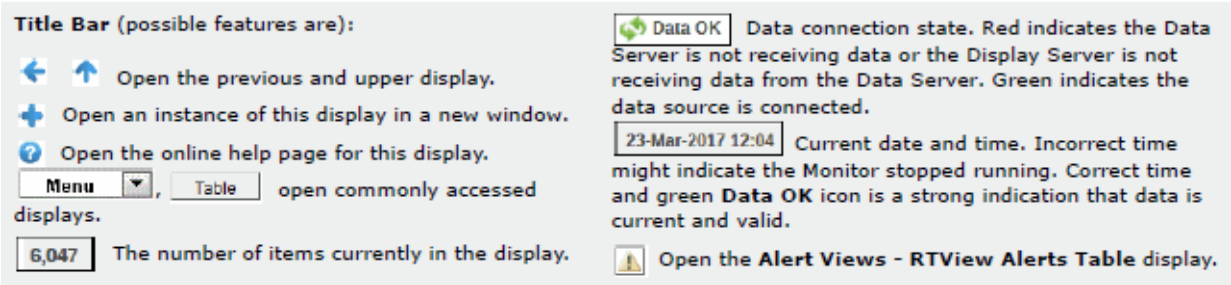
Channels

Use this display to view a list of destinations, which are sources and sinks of events. Destinations are potentially bi-directional, and the table indicates whether events are sent or received.

NOTE: Channels provide a class wrapper for destinations, and make it possible to enable or disable a group of destinations with one operation.

Choose a single cluster or **All Clusters** and a node from the drop-down menus. Each row in the table is a different destination URI. Click a row to view channel details in the **Channels** table.





Filter By:

The display might include these filtering options:

Cluster: Choose a cluster to see metrics for.

Node: Choose a node to see metrics for.

Destinations Table

Each row in the able provides data for a particular destination.

Note: Row columns in this table with an asterisk (*****) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Destination Count: The total number of destinations in the table.

Destination URI The Uniform Resource Identifier (URI) for the destination.*****

Suspended	Denotes whether the destination is suspended.*
Num Events Received	The number of events received by the destination.*
Number of Events Sent	The number of events sent by the destination.*
Received Events Rate	The rate of events received by the destination.
Received Rate Last Interval	The rate of events received.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the destination.

Channels Table

Each row in the able provides data for a particular channel.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

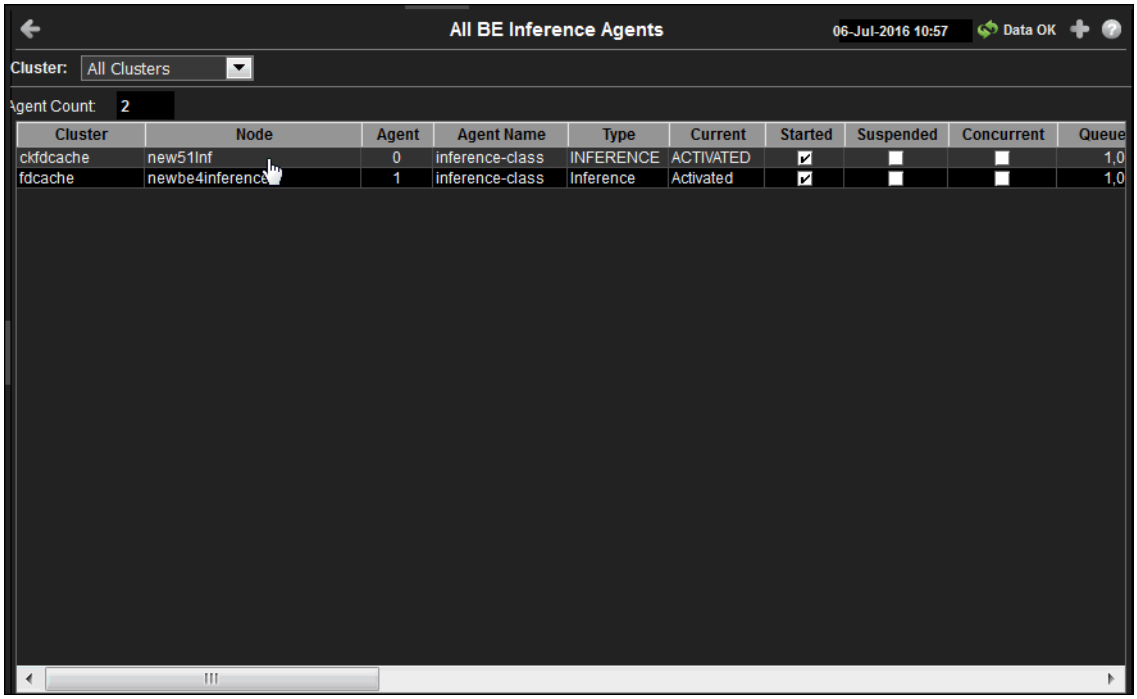
Channel Count:	The total number of channels in the table.
Channel URI	The Uniform Resource Identifier (URI) for the channel.*
State	The current state of the channel.*
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

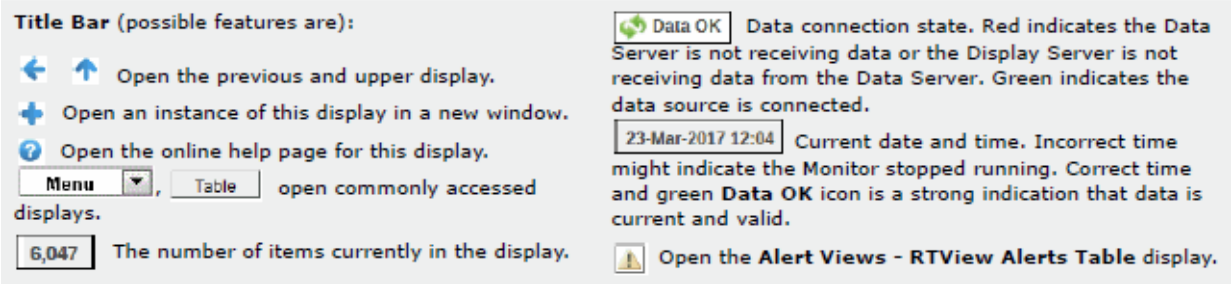
All Inference Agents

Use this display to compare agent metrics across deployed engines and verify that the cluster is properly load-balanced. View a list of all the inference agents deployed in each cluster. You can view agent data for a single cluster or all clusters.

The data in this display is identical to the data provided for a single engine in the "Cluster Summary" display, except that it is aggregated across all inference nodes.

Choose a single cluster or **All Clusters** from the drop-down menus. Each row in the table is a different agent.





Filter By:

The display might include these filtering options:

Cluster: Select the cluster for which you want to see metrics, or select **All Clusters** to see metrics for all clusters.

Table

Each row in the table provides details for an agent.

Note: Row columns in this table with an asterisk (*) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Agent Count: The number of agents currently in the table.

Cluster The name of the TIBCO BusinessEvents cluster.

Node The name of the node.

Agent ID A unique string that identifies the agent.

Agent Name	The name of the agent.
Type	The type of agent (Inference, Cache, Query, or Dashboard).*
Current State	The current state of the agent.*
Started	When checked, denotes that the agent is started.*
Suspended	When checked, denotes that the agent is suspended.*
Concurrent	When checked, denotes that it is a concurrent agent.*
Queue Capacity	The queue capacity for the agent.*
Queue Size	The queue size for the agent.*
Thread Count	The total number of threads for the agent.*
Total # Rules Fired	The total number of rules fired for the agent.*
Rules/sec	The rate of rules fired for the agent.
Avg Receive Time	See TIBCO documentation for more information.*
Avg Txn Commit Time	The average amount of time taken to commit a transaction.*
Cache Queue Remaining	The total amount of remaining space on the cache queue.*
DB Ops Queue Remaining	The total amount of remaining space on the DB Operations queue.*
Hit Ratio	See TIBCO documentation for more information.*
Job Rate	See TIBCO documentation for more information.*
L1 Cache Max Size	The maximum size of the L1 cache.*
L1 Cache Size	The current size of the L1 cache.*
Max Active	See TIBCO documentation for more information.*
# Event Threads	The total number of currently active event threads.*
# Jobs	The total number of currently active jobs.*
Priority	See TIBCO documentation for more information.*
Read Only	See TIBCO documentation for more information.*
Txn Commit Count	The number of transactions committed by the agent.*
Txn Receive Count	The number of transactions received by the agent.*

Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the destination.

All RTC Reports

Use this display to compare RTC metrics across deployed engines. View a list of all the inference engine RTC reports. You can view reports for a single cluster or all clusters.

The data in this display is identical to the data provided for a single engine in the "Cluster Summary" display, except that it is aggregated across all inference nodes.

Choose a single cluster or **All Clusters** from the drop-down menus. Each row in the table is a different node.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:

The display might include these filtering options:

Cluster: Select the cluster for which you want to see metrics, or select **All Clusters** to see metrics for all clusters.

RTC Txn Manager Reports Table

Each row in the table is a different report. Data in the row columns describe the report.

Note: Row columns in this table with an asterisk (*****) at the end of the column definition contain data that is provided by the TIBCO MBean interface. Refer to TIBCO documentation for more information regarding these columns.

Report Count:	The number of reports currently in the table.
Cluster	The name of the TIBCO BusinessEvents cluster.
Node	The name of the node.
Avg Action Txn Millisec	The average amount of time taken for an action transaction, in milliseconds.*****
Avg Cache Queue Wait Time Millisec	The average cache queue wait time, in milliseconds.*****
Avg Cache Txn Millisec	The average amount of time taken for a cache transaction, in milliseconds.*****
Avg DB Ops Batch Size	The average database operation batch size.*****
Avg DB Queue Wait Time Millisec	The average database queue wait time, in milliseconds.*****
Avg DB Txn Millisec	The average amount of time taken for a database transaction, in milliseconds.*****
Avg Successful Txn Time Millisec	The average amount of time taken for a successful transaction, in milliseconds.*****
Last DB Batch Size	The size of the last database batch.*****
Pending Actions	The total number of pending actions.*****
Pending Cache Writes	The total number of pending cache writes.*****
Pending DB Writes	The total number of pending database writes.*****
Pending Events to Ack	The total number of pending events that need to be acknowledged.*****
Pending Locks to Release	The total number of pending locks that need to be released.*****
Total DB Txns Completed	The total number of database transactions that have been completed.*****

Total Successful Txns	The total number of successful transactions.*****
Total Errors	The total number of errors.*****
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO BusinessEvents** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Timestamp	The date and time, relative to the Data Server, that data was last collected for the destination.

CHAPTER 29 Solution Package for TIBCO Enterprise Message Service™

The Monitor takes the time and guesswork out of monitoring and troubleshooting TIBCO® Enterprise Messaging System™ deployments, providing a centralized view of both real-time and historical performance metrics across numerous EMS Servers.

The Monitor enables TIBCO users to continually assess and analyze the health and performance of their EMS infrastructure, gain early warning of issues with historical context, and effectively plan for capacity of their EMS Servers. It does so by aggregating and analyzing key performance metrics across all servers, topics, queues, consumers and producers, and presents the results, in real time, through meaningful dashboards as data is collected.

Users also benefit from pre-defined rules and alerts that pin-point critical areas to monitor in most EMS environments and allow for customization of thresholds to let users fine-tune when alert events should be activated.

The Monitor also contains alert management features so that the life cycle of an alert event can be managed to proper resolution. All of these features allow you to know exactly what is going on at any given point, analyze the historical trends of the key metrics, and respond to issues before they can degrade service levels in high-volume, high-transaction environments.

This chapter describes how to configure, deploy, read and use the EMS Monitor displays, and also describes other optional features specific to EMS Monitor. This chapter includes the following:

This section includes:

Configuration Parameters You Need

To configure the Solution Package for EMS make a note of the following values:

- **PackageName=emsmon**
- **ServerDirectory=emsmon**
- **AlertPrefix=Ems**

Configure Data Collection

This section describes how to collect data from the EMS Servers you want to monitor. This part of the EMS Monitor configuration is required.

You define the EMS Servers you want to monitor using the **RTView Configuration Application**. By default, the EMS Servers that are routed to by the EMS Servers defined in the RTView Configuration Application are auto-discovered and subsequently monitored. These instructions give you the option to turn off auto-discovery, which is on by default.

Note: For changes made in the RTView Configuration Application to take place, you must restart your data server after making and saving your changes.

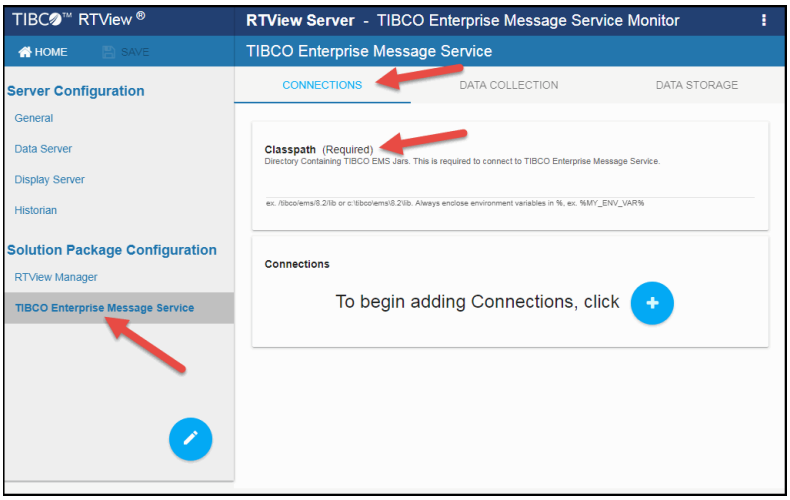
At this point you have:

- Verified your system requirements.

To configure data collection:

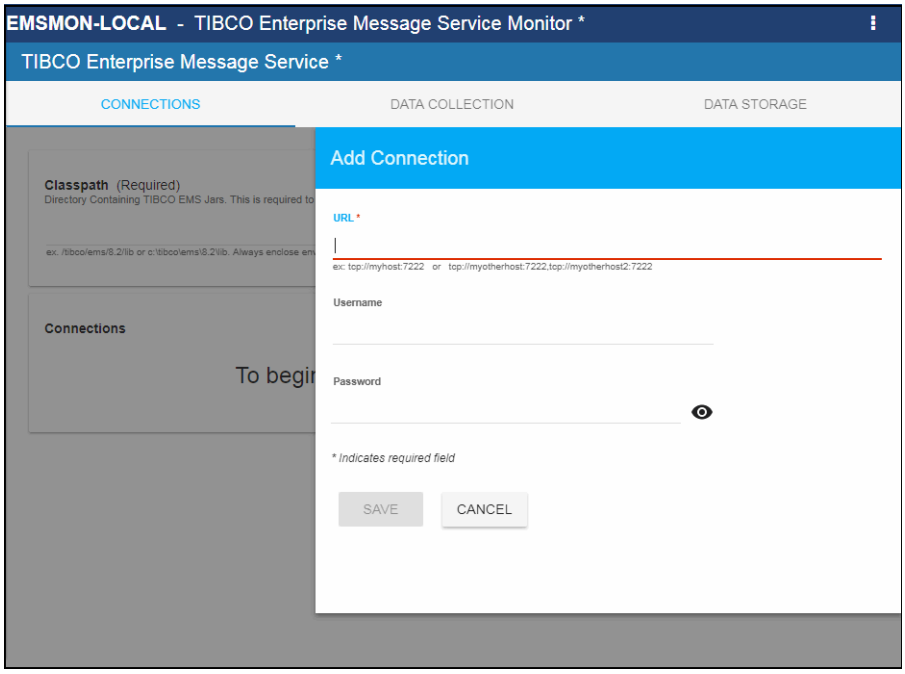
1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **CONNECTIONS** tab.

2. On the **CONNECTIONS** tab, provide the correct full path to the directory containing the TIBCO Enterprise Message Service jar files in the **Classpath** field.



3. Click the + icon.

   The **Add Connection** dialog displays.



4. Specify the connection information and click **Save** where:

URL: Enter the complete URL for the EMS Server. A comma-separated list of URLs is used to designate fault tolerant server pairs.

Username: The username is used when creating the connection to the EMS Server. This field is optional.

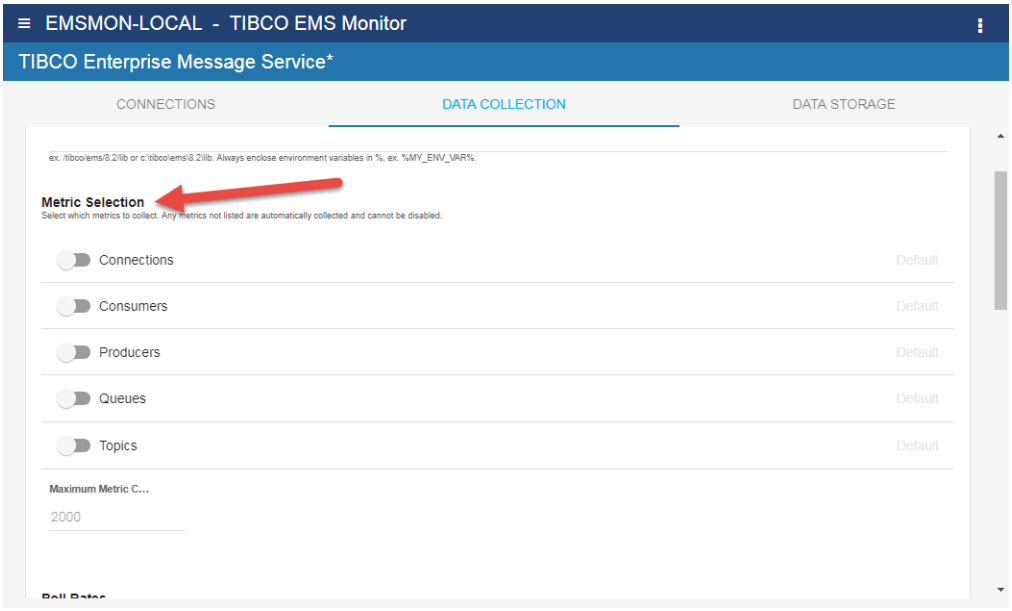
Password: This password is used when creating the connection to the EMS Server. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

5. Repeat steps 3-4 for each EMS Server to be monitored.

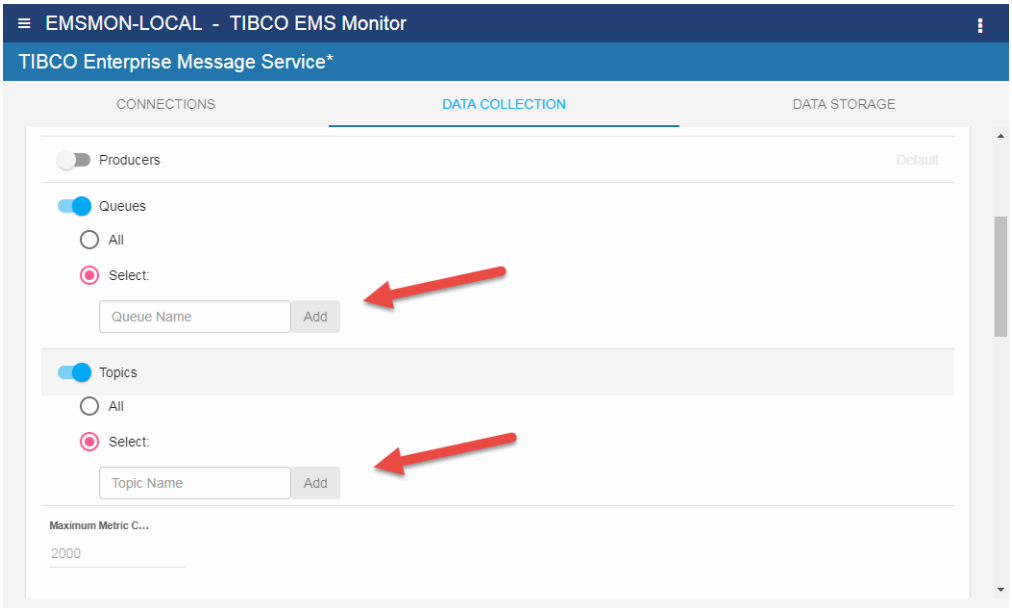
Note: By default, servers that are routed to by the servers defined in this file are automatically discovered (you have the option to turn off auto-discovery in subsequent steps).

---

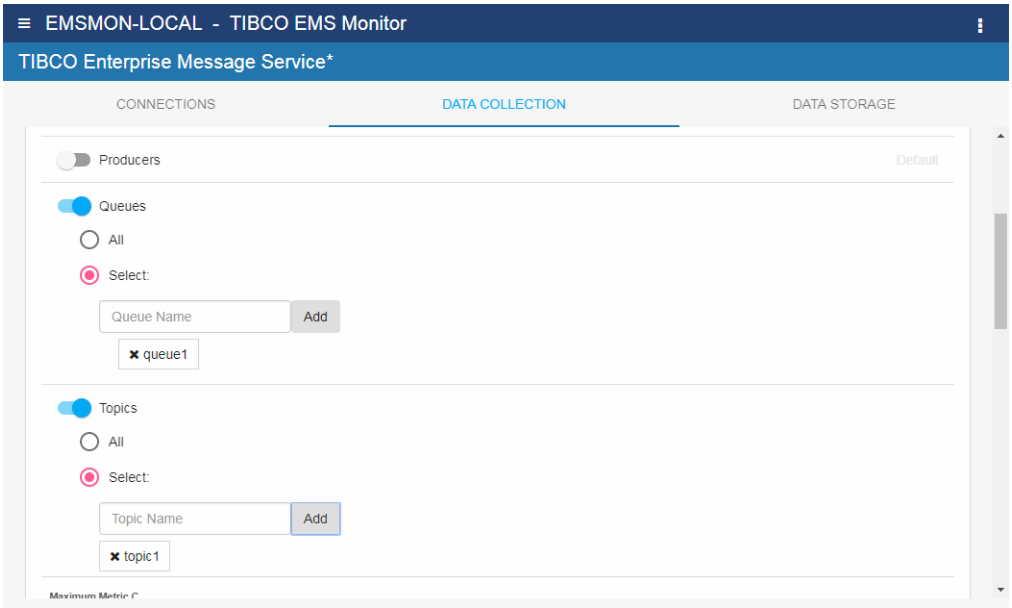
6. By default, collecting connections, producers, consumers, queues, and topics data is disabled. To enable collecting connections, producers, consumers, queues, and topics data, navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA COLLECTION** tab > **Metric Selection** section and enable the metrics for which you want to collect data.



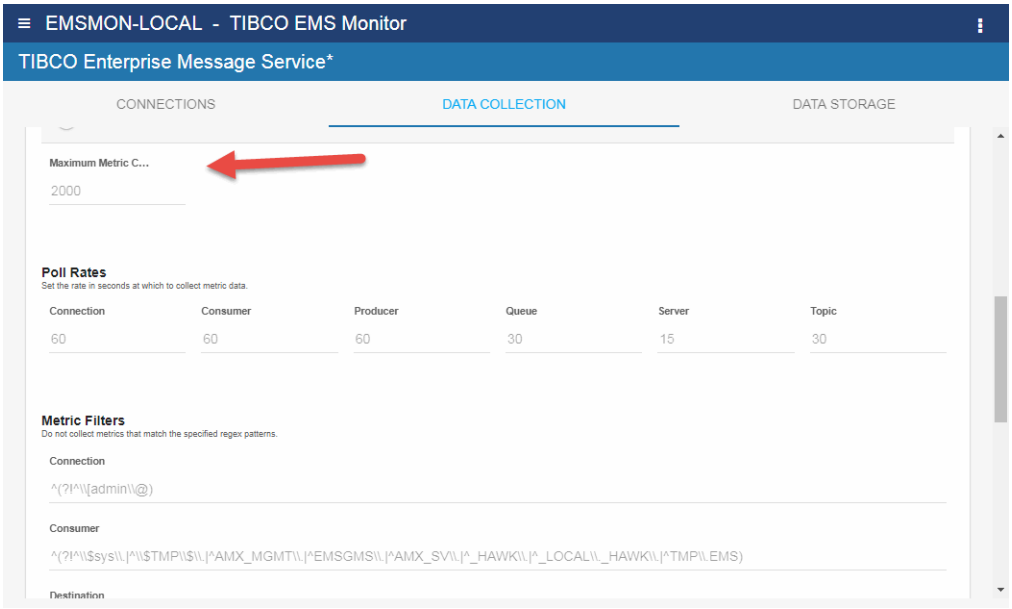
7. When enabling topics and queues, if you want to limit specific topics and queues monitored (rather than monitoring all topics and queues for all defined and auto-discovered servers), click the **Select** option, specify the queues and topics that you want to monitor in the associated text entry box, and click **Add**. Repeat the process for each queue/topic you want to monitor.



Newly added queues and topics are listed beneath the text entry field. Click the **x** next to the queue/topic to remove the queue/topic.



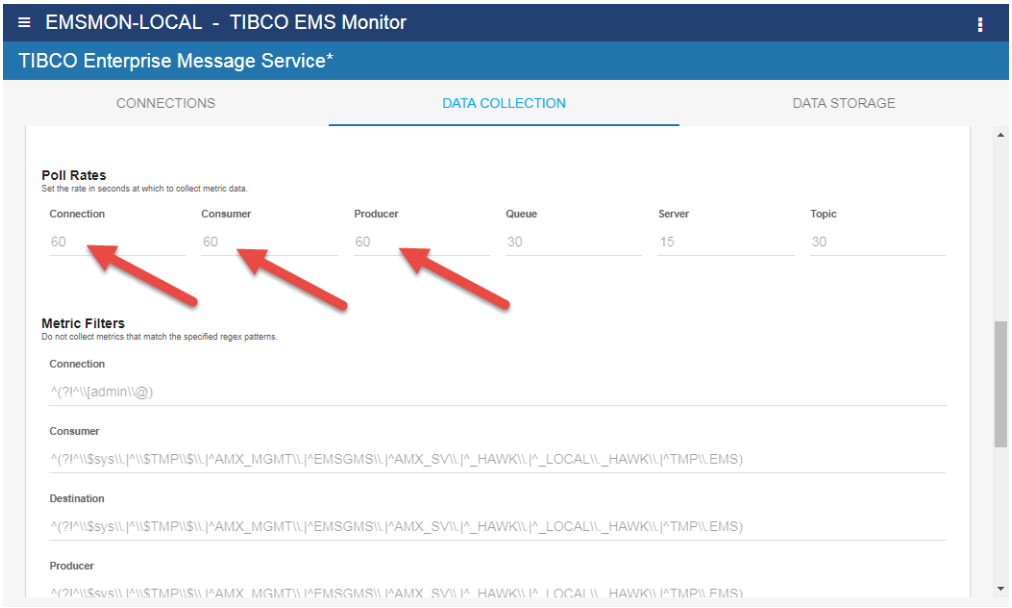
8. Enabling EMS Queues and EMS Topics might cause performance issues due to the potentially large number of associated destinations, hence, the collection of metric data has been limited to **2000** rows per Data Server by default. To modify this limit, click the **Maximum Metric Count Per Server** field and enter the desired limit.



9. If you want to modify the default values for the update rates for various server-related caches, you can update the default polling rates in RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA COLLECTION** > **Poll Rates**.

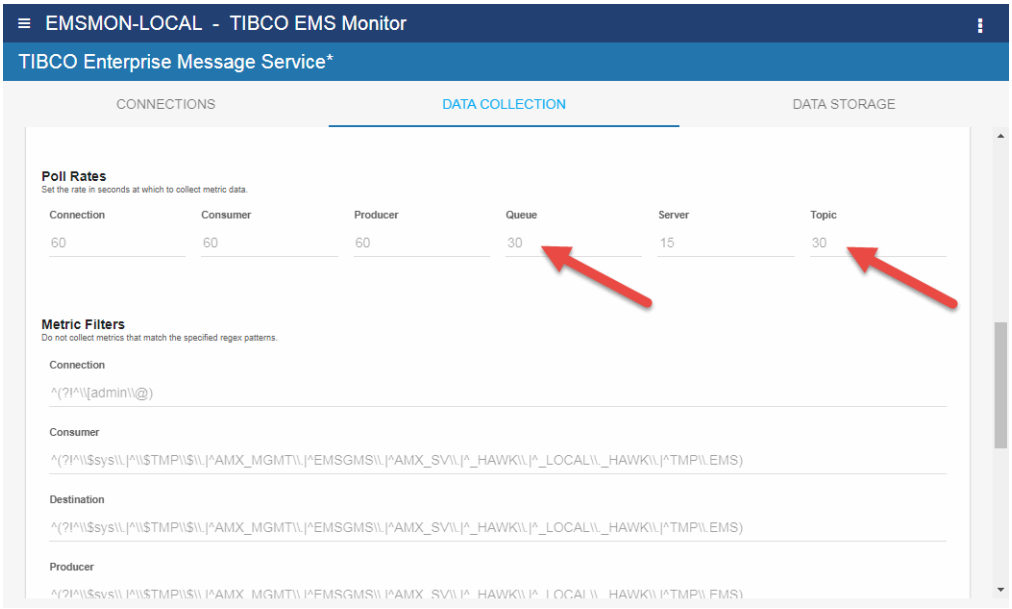
Connection, Consumer, and Producer Caches

Update the polling rates for the Connection, Producer, and Consumer fields to modify the default polling values for the EmsProducers, EmsConsumers, and EmsConnections caches:



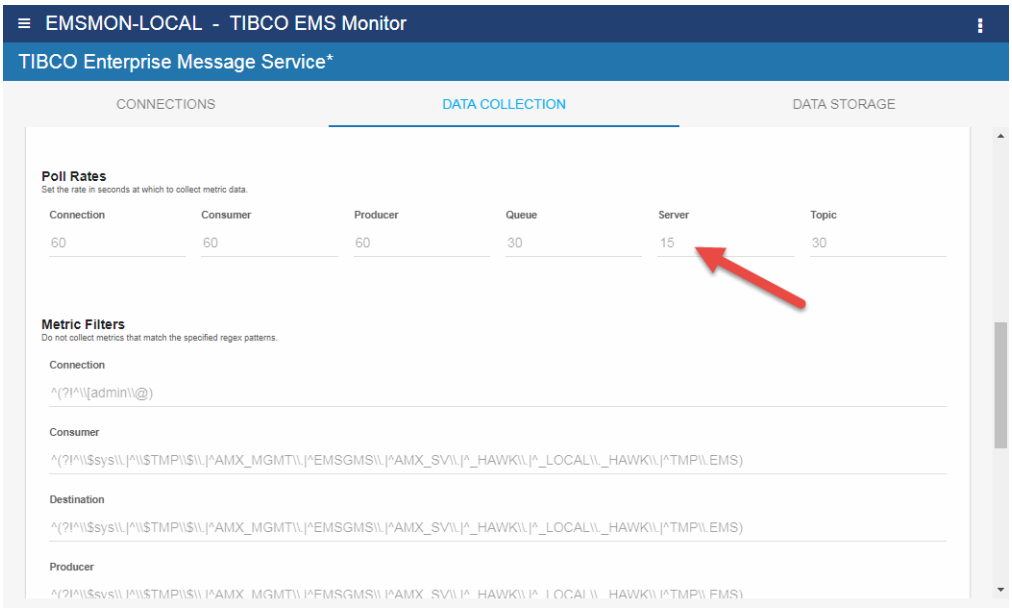
Queues and Topics Caches

Update the polling rate for the **Queue** and **Topic** fields to modify the default polling rates for the EmsQueues and EmsTopics caches:



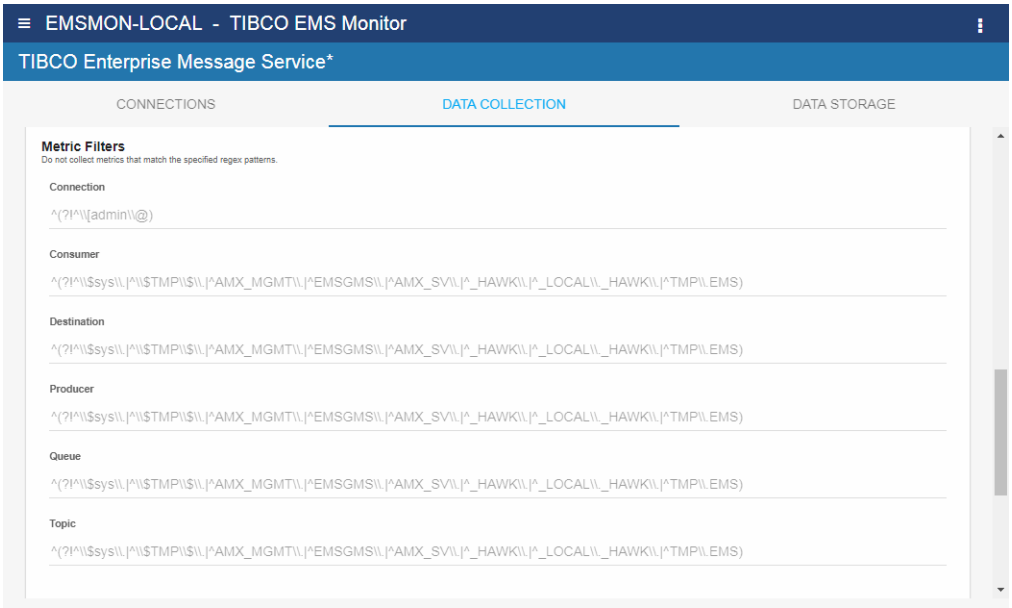
Server-Related Caches

Update the polling rate for the **Server** field to modify the default polling rate for the EmsServerInfo, EmsAdmStats, EmsBridges, EmsDurables, EmsRoutes, EmsFTServerTable, EmsListenPorts, EmsServerRouteTable, EmsServerTable, EmsUsers, and EmsDestinations caches:



Note: When modifying your update rates, you should take your system architecture and number of elements per cache into account and ensure that you are not changing your update rates to values that might negatively impact system performance.

10. Even when enabled, some Connection, Consumer, Destination, Producer, Queue, and Topic metrics are not collected by default. To modify the defaults, navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA COLLECTION** > **Metric Filters** section.



Each metric has a default regex pattern defined preventing metrics with the defined patterns from being collected. To edit the default:

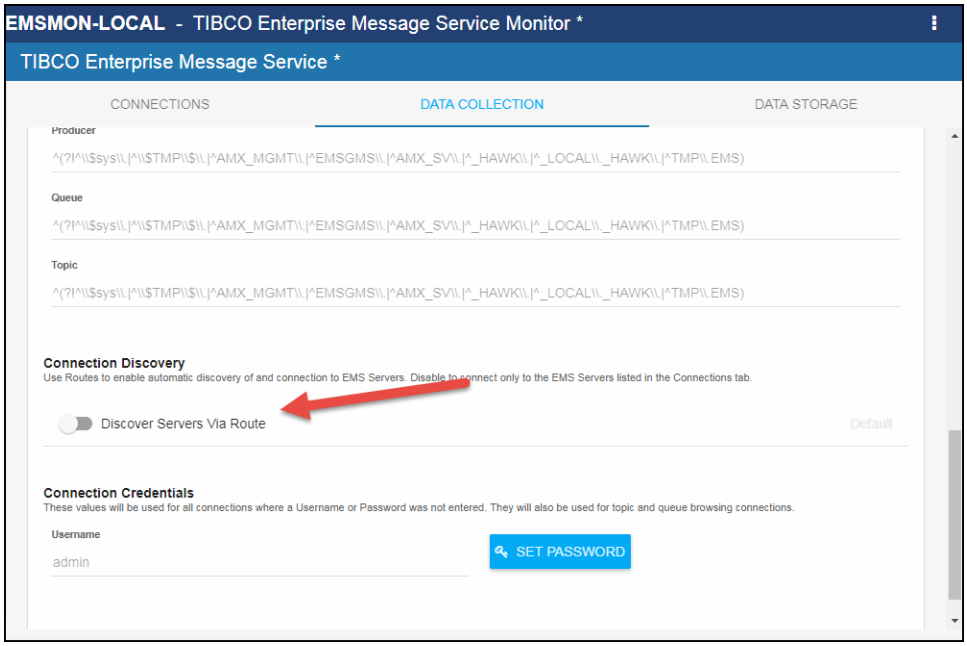
a. Click on the desired field.

The **Copy default text to clipboard** link displays beneath the line.

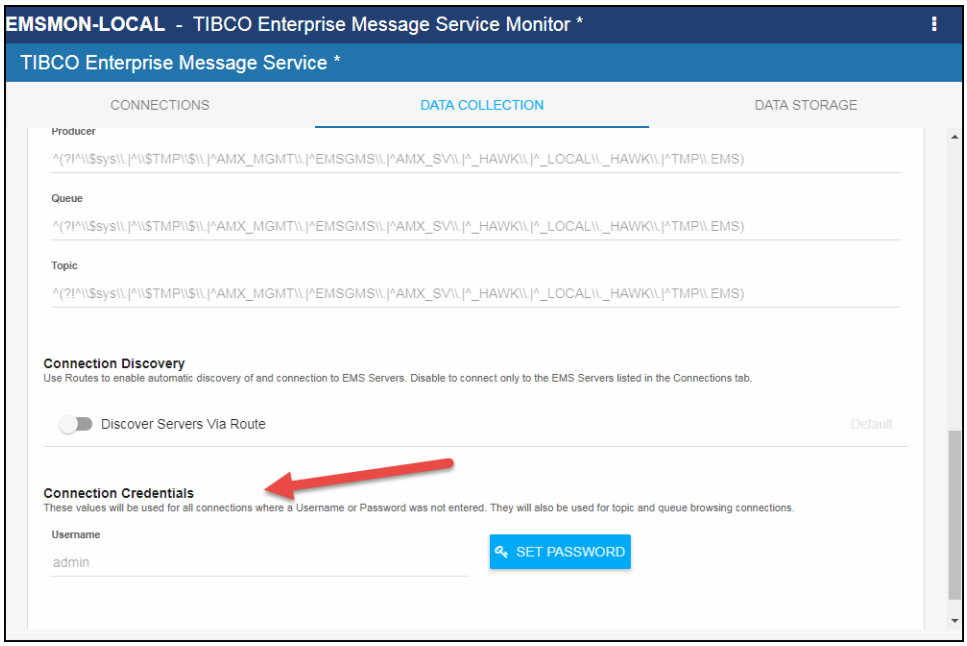
b. Click the **Copy default text to clipboard** link to copy the text, click on the field, and paste (Ctrl-v) the text into the line.

c. Edit the regex pattern as desired.

11. If you want to turn off the auto-discovery of servers found via route definitions, navigate to RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA COLLECTION** tab > **Connection Discovery** and deselect the **Discover Servers Via Route** option.



12. Optionally enter the **Username** and **Password** in the **Connection Credentials** section. The defined **Username** and **Password** will be used for all connections defined on the **Connections** tab when a user name and password are not defined. This user name and password will also be used when making topic and queue browser connections. You can edit the **Username** field by clicking in the field and entering the desired user name. You can enter the password by clicking on **Set Password** button, which opens the **Connections Credentials Password** dialog, and entering the desired password. By default, the password entered is hidden. Click the icon to view the password text.



Additional Configurations

This section describes the additional optional EMS Monitor configurations:

- "Configuring Historical Data"

Configuring Historical Data

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application.

Note: For changes made in the RTView Configuration Application to take place, you must restart your data server after making and saving your changes.

This section contains the following:

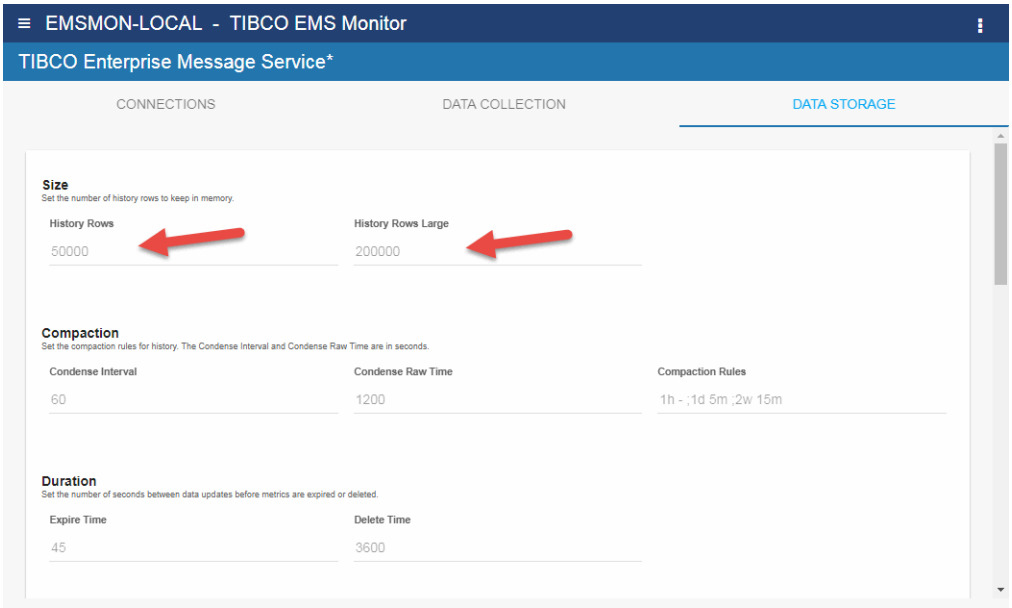
- "Defining the Storage of EMSMON In Memory History"
- "Defining Compaction Rules for EMSMON"
- "Defining Expiration and Deletion Duration for EMSMON Metrics"
- "Enabling/Disabling Storage of EMSMON Historical Data"
- "Defining a Prefix for All History Table Names for EMSMON Metrics"

Defining the Storage of EMSMON In Memory History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the EmsAdmStats, EmsQueuesExt, EmsServerInfo, EmsTopicsExt, EmsProducers, EmsConsumers, EmsRoutes, and EmsDurables caches. The **History Rows Large** property defines the maximum number of rows to store for the EmsQueues, EmsQueueTotalsByServer, EmsTopics, and EmsTopicTotalsByServer caches. The default setting for **History Rows** is 50,000 and the default setting for **History Rows Large** is 200,000. To update the default settings:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** and **History Rows Large** fields and specify the desired number of rows.



Defining Compaction Rules for EMSMON

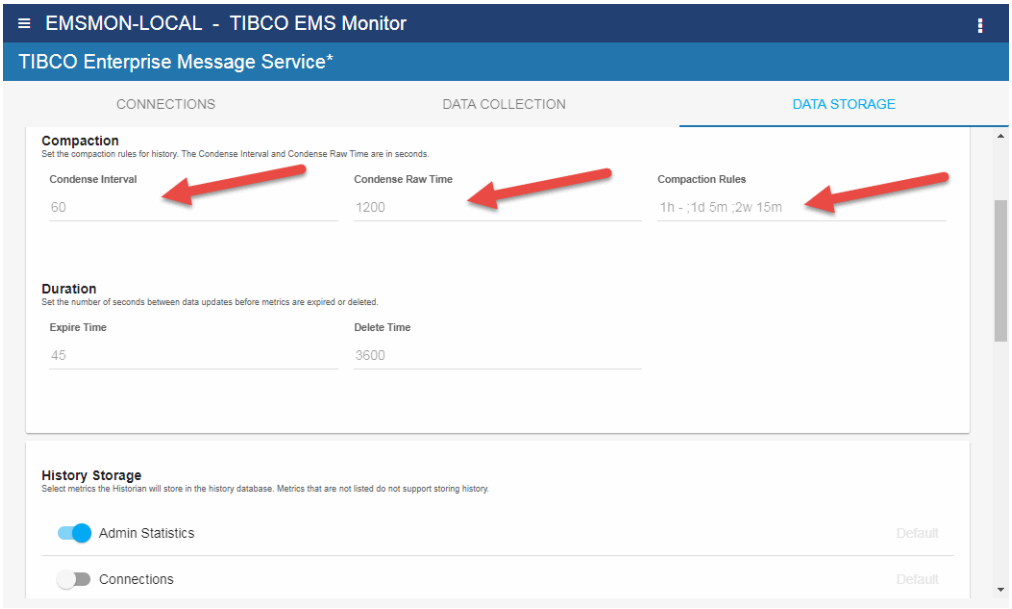
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: EmsAdmStats, EmsCompdestTotals, EmsQueues, EmsQueueTotalsByServer, EmsQueuesExt, EmsServerInfo, EmsProducers, EmsConsumers, EmsRoutes, EmsDurables, EmsConnections, EmsRouteCountsByServer, EmsServerInfoExt, EmsTopics, EmsTopicTotalsByServer, and EmsTopicsExt. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: EmsAdmStats, EmsCompdestTotals, EmsQueues, EmsQueueTotalsByServer, EmsQueuesExt, EmsServerInfo, EmsProducers, EmsConsumers, EmsRoutes, EmsDurables, EmsConnections, EmsRouteCountsByServer, EmsServerInfoExt, EmsTopics, EmsTopicTotalsByServer, and EmsTopicsExt. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: EmsAdmStats, EmsCompdestTotals, EmsQueues, EmsQueueTotalsByServer, EmsQueuesExt, EmsServerInfo, EmsProducers, EmsConsumers, EmsRoutes, EmsDurables, EmsFTServerTable, EmsServerRouteTable, EmsServerTable, EmsConnections, EmsTopics, EmsTopicTotalsByServer, EmsTopicsExt, EmsRouteCountsByServer, and EmsServerInfoExt. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

   Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.

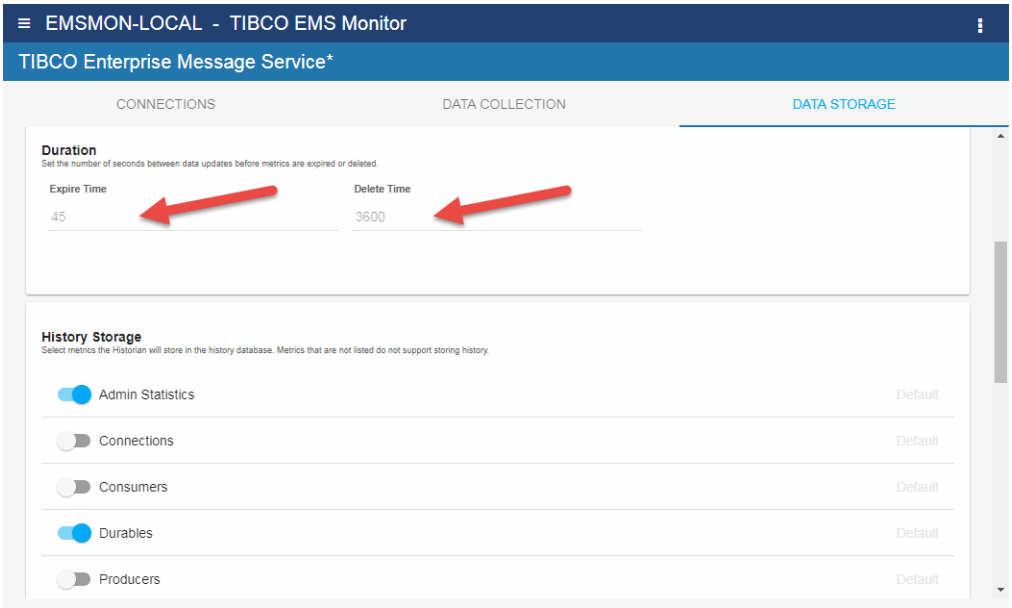


Defining Expiration and Deletion Duration for EMSMON Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has been an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. Also, by default, if the data has not been updated in the cache within 3600 seconds, it will be removed from the cache. The **Expire Time** field applies to the following cache: EmsCompdestTotals. The **Delete Time** field applies to the following caches: EmsJmsAdminMetrics, EmsQueues, EmsQueueTotalsByServer, EmsQueueInActivityTime, EmsQueuesExt, EmsQueueOutActivityTime, EmsBridges, EmsProducers, EmsConsumers, EmsDurables, EmsDestinations, EmsUsers, EmsConnections, EmsTopics, EmsTopicTotalsByServer, EmsTopicInActivityTime, EmsTopicsExt, and EmsTopicOutActivityTime. To modify these defaults:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time** and **Delete Time** fields and specify the desired settings.

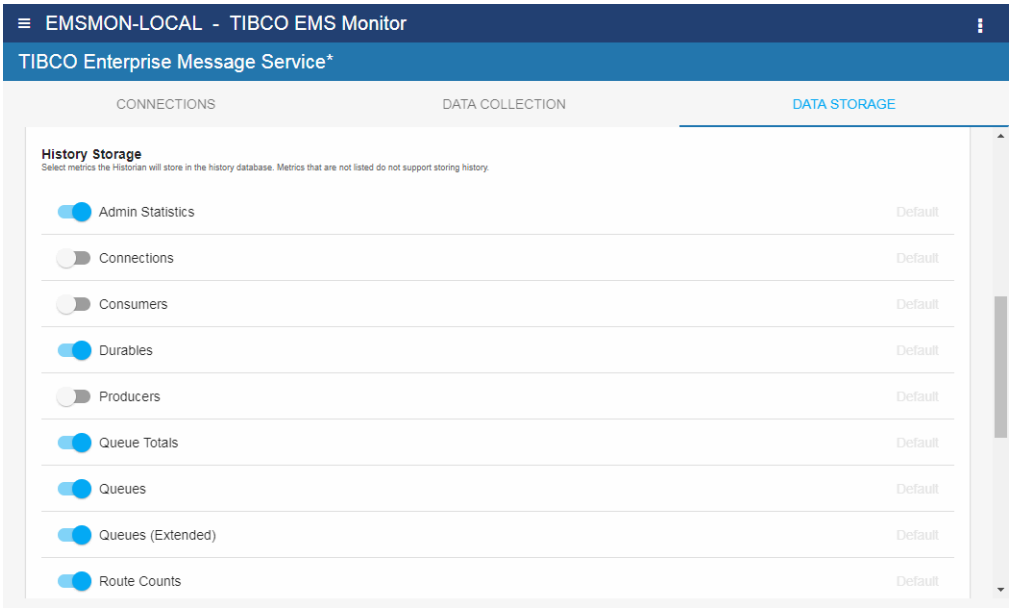


Enabling/Disabling Storage of EMSMON Historical Data

The History Storage section allows you to select which metrics you want the Historian to store in the history database. By default, historical EMS Connections, Producers, and Consumers data is not saved to the database. All other metrics are saved by default. To enable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggles for the various metrics that you want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for EMSMON Metrics

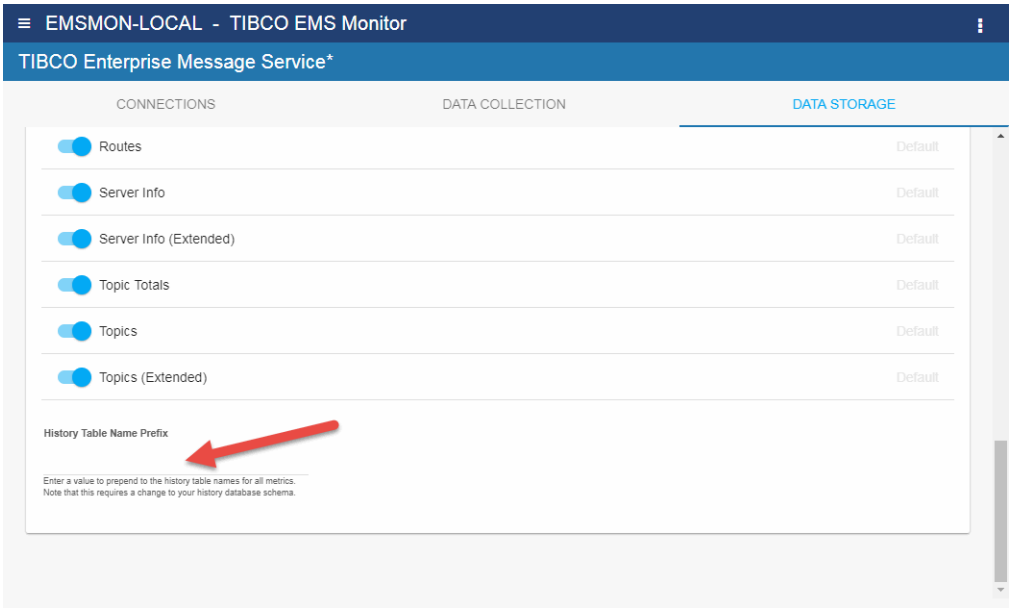
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**emsmon**/**dbconfig** and make a copy of it
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template
- Use the copied .sql template to create the tables in your database

To add the prefix:

1. Navigate to the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/emsmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/emsmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **EMSMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "EMSMON." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

Upgrading the Monitor

This section describes the steps necessary to upgrade existing RTView EMS Monitor applications. It is organized by version. To upgrade your application, follow the steps for each version between the version you are upgrading from and the version to which you are upgrading.

Version 4.2

No upgrade steps required.

Version 4.1

No upgrade steps required.

Version 4.0

No upgrade steps required.

Version 3.8

No upgrade steps required.

Version 3.7

No upgrade steps required

Version 3.6

Sender/receiver deployments

If you are using the sender/receiver deployment and upgrading projects from versions previous to 3.6, you need to modify properties files after upgrading in the following cases:

1. If the project properties files overwrite the **sender.sl.rtview.sub=$rtvAgentTarget** property, change it to use the new **sender.sl.rtvapm.dataxfr.target** property using the URL you specified for the **$rtvAgentTarget**. For example:

sender.sl.rtview.sub=$rtvAgentTarget:'localhost:3172'

would be changed to

sender.sl.rtvapm.dataxfr.target=id=default url=localhost:3172 packages=all

2. If the project properties file adds additional targets using the **sender.sl.rtview.cache.config** property, change it to use the new **sender.sl.rtvapm.dataxfr.target** property using the URL you specified for the **$rtvAgentTarget** and a new unique ID. For example:

sender.sl.rtview.cache.config=pck_rtvagent_sender.rtv
$rtvAgentTarget:'otherhost:3172'

would be changed to

sender.sl.rtvapm.dataxfr.target=id=target2 url=otherhost:3172 packages=all

If your project properties file did not overwrite either of the above, the default sender/receiver properties values were used and therefore no changes are needed.

Version 3.5

No upgrade steps required.

Version 3.4

No upgrade steps required.

Version 3.3

A missing index that prevented the correct storage of pending message count and pending message size in the **EmsDurables** cache and history has been fixed.

To upgrade, drop the **EMS_DURABLES_TABLE** from your RTVHISTORY database and recreate the table with the appropriate table creation SQL statement for your platform. These SQL statements are available in the **rtvapm\emsmon\dbconfig** directory.

Version 3.2

No upgrade steps required.

Version 3.1

No upgrade steps required.

Version 3.0

The types of several rate metrics were converted to real numbers to account for the loss of resolution when compaction (by averaging the metrics) occurred.

Follow the appropriate alter table SQL syntax to apply the change to your supported DB platforms (Oracle not needed).

DB2

```
ALTER TABLE "EMS_CONSUMERS"
ALTER COLUMN "consumerByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_CONSUMERS"
ALTER COLUMN "consumerMessageRate" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_DURABLES"
ALTER COLUMN "pendingMessageCount" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_DURABLES"
ALTER COLUMN "pendingMessageSize" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_PRODUCERS"
ALTER COLUMN "producerByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_PRODUCERS"
ALTER COLUMN "producerMessageRate" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_QUEUETOTALS"
ALTER COLUMN "inboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUETOTALS"
ALTER COLUMN "inboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUETOTALS"
ALTER COLUMN "outboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUETOTALS"
ALTER COLUMN "outboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUETOTALS"
ALTER COLUMN "pendingMessageCount" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUETOTALS"
ALTER COLUMN "pendingMessageSize" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_QUEUES"
ALTER COLUMN "inboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUES"
```

```
ALTER COLUMN "inboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUES"
ALTER COLUMN "outboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUES"
ALTER COLUMN "outboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUES"
ALTER COLUMN "pendingMessageCount" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_QUEUES"
ALTER COLUMN "pendingMessageSize" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_ROUTES"
ALTER COLUMN "outboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_ROUTES"
ALTER COLUMN "outboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_ROUTES"
ALTER COLUMN "inboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_ROUTES"
ALTER COLUMN "inboundMessageRate" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_SERVERINFO"
ALTER COLUMN "inboundBytesRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_SERVERINFO"
ALTER COLUMN "inboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_SERVERINFO"
ALTER COLUMN "outboundBytesRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_SERVERINFO"
ALTER COLUMN "outboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_SERVERINFO"
ALTER COLUMN "pendingMessageCount" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_SERVERINFO"
ALTER COLUMN "pendingMessageSize" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_TOPICTOTALS"
ALTER COLUMN "inboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICTOTALS"
ALTER COLUMN "inboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICTOTALS"
ALTER COLUMN "outboundByteRate" SET DATA TYPE DOUBLE;
```

```
ALTER TABLE "EMS_TOPICTOTALS"
ALTER COLUMN "outboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICTOTALS"
ALTER COLUMN "pendingMessageCount" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICTOTALS"
ALTER COLUMN "pendingMessageSize" SET DATA TYPE DOUBLE;

ALTER TABLE "EMS_TOPICS"
ALTER COLUMN "inboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICS"
ALTER COLUMN "inboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICS"
ALTER COLUMN "outboundByteRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICS"
ALTER COLUMN "outboundMessageRate" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICS"
ALTER COLUMN "pendingMessageCount" SET DATA TYPE DOUBLE;
ALTER TABLE "EMS_TOPICS"
ALTER COLUMN "pendingMessageSize" SET DATA TYPE DOUBLE;
```

SQL Server

```
ALTER TABLE [EMS_CONSUMERS]
ALTER COLUMN [consumerByteRate] FLOAT
ALTER TABLE [EMS_CONSUMERS]
ALTER COLUMN [consumerMessageRate] FLOAT

ALTER TABLE [EMS_DURABLES]
ALTER COLUMN [pendingMessageCount] FLOAT
ALTER TABLE [EMS_DURABLES]
ALTER COLUMN [pendingMessageSize] FLOAT

ALTER TABLE [EMS_PRODUCERS]
ALTER COLUMN [producerByteRate] FLOAT
ALTER TABLE [EMS_PRODUCERS]
ALTER COLUMN [producerMessageRate] FLOAT

ALTER TABLE [EMS_QUEUETOTALS]
ALTER COLUMN [inboundByteRate] FLOAT
```

```
ALTER TABLE [EMS_QUEUETOTALS]
ALTER COLUMN [inboundMessageRate] FLOAT
ALTER TABLE [EMS_QUEUETOTALS]
ALTER COLUMN [outboundByteRate] FLOAT
ALTER TABLE [EMS_QUEUETOTALS]
ALTER COLUMN [outboundMessageRate] FLOAT
ALTER TABLE [EMS_QUEUETOTALS]
ALTER COLUMN [pendingMessageCount] FLOAT
ALTER TABLE [EMS_QUEUETOTALS]
ALTER COLUMN [pendingMessageSize] FLOAT

ALTER TABLE [EMS_QUEUES]
ALTER COLUMN [inboundByteRate] FLOAT
ALTER TABLE [EMS_QUEUES]
ALTER COLUMN [inboundMessageRate] FLOAT
ALTER TABLE [EMS_QUEUES]
ALTER COLUMN [outboundByteRate] FLOAT
ALTER TABLE [EMS_QUEUES]
ALTER COLUMN [outboundMessageRate] FLOAT
ALTER TABLE [EMS_QUEUES]
ALTER COLUMN [pendingMessageCount] FLOAT
ALTER TABLE [EMS_QUEUES]
ALTER COLUMN [pendingMessageSize] FLOAT

ALTER TABLE [EMS_ROUTES]
ALTER COLUMN [outboundByteRate] FLOAT
ALTER TABLE [EMS_ROUTES]
ALTER COLUMN [outboundMessageRate] FLOAT
ALTER TABLE [EMS_ROUTES]
ALTER COLUMN [inboundByteRate] FLOAT
ALTER TABLE [EMS_ROUTES]
ALTER COLUMN [inboundMessageRate] FLOAT

ALTER TABLE [EMS_SERVERINFO]
ALTER COLUMN [inboundBytesRate] FLOAT
ALTER TABLE [EMS_SERVERINFO]
ALTER COLUMN [inboundMessageRate] FLOAT
ALTER TABLE [EMS_SERVERINFO]
```

ALTER COLUMN [outboundBytesRate] FLOAT
ALTER TABLE [EMS_SERVERINFO]
ALTER COLUMN [outboundMessageRate] FLOAT
ALTER TABLE [EMS_SERVERINFO]
ALTER COLUMN [pendingMessageCount] FLOAT
ALTER TABLE [EMS_SERVERINFO]
ALTER COLUMN [pendingMessageSize] FLOAT

ALTER TABLE [EMS_TOPICTOTALS]
ALTER COLUMN [inboundByteRate] FLOAT
ALTER TABLE [EMS_TOPICTOTALS]
ALTER COLUMN [inboundMessageRate] FLOAT
ALTER TABLE [EMS_TOPICTOTALS]
ALTER COLUMN [outboundByteRate] FLOAT
ALTER TABLE [EMS_TOPICTOTALS]
ALTER COLUMN [outboundMessageRate] FLOAT
ALTER TABLE [EMS_TOPICTOTALS]
ALTER COLUMN [pendingMessageCount] FLOAT
ALTER TABLE [EMS_TOPICTOTALS]
ALTER COLUMN [pendingMessageSize] FLOAT

ALTER TABLE [EMS_TOPICS]
ALTER COLUMN [inboundByteRate] FLOAT
ALTER TABLE [EMS_TOPICS]
ALTER COLUMN [inboundMessageRate] FLOAT
ALTER TABLE [EMS_TOPICS]
ALTER COLUMN [outboundByteRate] FLOAT
ALTER TABLE [EMS_TOPICS]
ALTER COLUMN [outboundMessageRate] FLOAT
ALTER TABLE [EMS_TOPICS]
ALTER COLUMN [pendingMessageCount] FLOAT
ALTER TABLE [EMS_TOPICS]
ALTER COLUMN [pendingMessageSize] FLOAT

MySQL

ALTER TABLE "EMS_CONSUMERS"
MODIFY "consumerByteRate" DOUBLE ,
MODIFY "consumerMessageRate" DOUBLE ;

```
ALTER TABLE "EMS_DURABLES"
MODIFY "pendingMessageCount" DOUBLE ,
MODIFY "pendingMessageSize" DOUBLE ;

ALTER TABLE "EMS_PRODUCERS"
MODIFY "producerByteRate" DOUBLE ,
MODIFY "producerMessageRate" DOUBLE ;

ALTER TABLE "EMS_QUEUETOTALS"
MODIFY "inboundByteRate" DOUBLE ,
MODIFY "inboundMessageRate" DOUBLE ,
MODIFY "outboundByteRate" DOUBLE ,
MODIFY "outboundMessageRate" DOUBLE ,
MODIFY "pendingMessageCount" DOUBLE ,
MODIFY "pendingMessageSize" DOUBLE ;

ALTER TABLE "EMS_QUEUES"
MODIFY "inboundByteRate" DOUBLE ,
MODIFY "inboundMessageRate" DOUBLE ,
MODIFY "outboundByteRate" DOUBLE ,
MODIFY "outboundMessageRate" DOUBLE ,
MODIFY "pendingMessageCount" DOUBLE ,
MODIFY "pendingMessageSize" DOUBLE ;

ALTER TABLE "EMS_ROUTES"
MODIFY "outboundByteRate" DOUBLE ,
MODIFY "outboundMessageRate" DOUBLE ,
MODIFY "inboundByteRate" DOUBLE ,
MODIFY "inboundMessageRate" DOUBLE ;

ALTER TABLE "EMS_SERVERINFO"
MODIFY "inboundBytesRate" DOUBLE ,
MODIFY "inboundMessageRate" DOUBLE ,
MODIFY "outboundBytesRate" DOUBLE ,
MODIFY "outboundMessageRate" DOUBLE ,
MODIFY "pendingMessageCount" DOUBLE ,
MODIFY "pendingMessageSize" DOUBLE;
```

```
ALTER TABLE "EMS_TOPICTOTALS"
MODIFY "inboundByteRate" DOUBLE ,
MODIFY "inboundMessageRate" DOUBLE ,
MODIFY "outboundByteRate" DOUBLE ,
MODIFY "outboundMessageRate" DOUBLE ,
MODIFY "pendingMessageCount" DOUBLE ,
MODIFY "pendingMessageSize" DOUBLE ;

ALTER TABLE "EMS_TOPICS"
MODIFY "inboundByteRate" DOUBLE ,
MODIFY "inboundMessageRate" DOUBLE ,
MODIFY "outboundByteRate" DOUBLE ,
MODIFY "outboundMessageRate" DOUBLE ,
MODIFY "pendingMessageCount" DOUBLE ,
MODIFY "pendingMessageSize" DOUBLE ;
```

SyBase

Altering the data type of columns in a Sybase table requires enabling the "select into" option for your database. Consult with your DB Admin on the correct procedure for your installation.

```
ALTER TABLE "EMS_CONSUMERS" MODIFY "consumerByteRate" FLOAT
ALTER TABLE "EMS_CONSUMERS" MODIFY "consumerMessageRate" FLOAT

ALTER TABLE "EMS_DURABLES" MODIFY "pendingMessageCount" FLOAT
ALTER TABLE "EMS_DURABLES" MODIFY "pendingMessageSize" FLOAT

ALTER TABLE "EMS_PRODUCERS" MODIFY "producerByteRate" FLOAT
ALTER TABLE "EMS_PRODUCERS" MODIFY "producerMessageRate" FLOAT

ALTER TABLE "EMS_QUEUETOTALS" MODIFY "inboundByteRate" FLOAT
ALTER TABLE "EMS_QUEUETOTALS" MODIFY "inboundMessageRate" FLOAT
ALTER TABLE "EMS_QUEUETOTALS" MODIFY "outboundByteRate" FLOAT
ALTER TABLE "EMS_QUEUETOTALS" MODIFY "outboundMessageRate" FLOAT
ALTER TABLE "EMS_QUEUETOTALS" MODIFY "pendingMessageCount" FLOAT
ALTER TABLE "EMS_QUEUETOTALS" MODIFY "pendingMessageSize" FLOAT

ALTER TABLE "EMS_QUEUES" MODIFY "inboundByteRate" FLOAT
```

```
ALTER TABLE "EMS_QUEUES" MODIFY "inboundMessageRate" FLOAT
ALTER TABLE "EMS_QUEUES" MODIFY "outboundByteRate" FLOAT
ALTER TABLE "EMS_QUEUES" MODIFY "outboundMessageRate" FLOAT
ALTER TABLE "EMS_QUEUES" MODIFY "pendingMessageCount" FLOAT
ALTER TABLE "EMS_QUEUES" MODIFY "pendingMessageSize" FLOAT

ALTER TABLE "EMS_ROUTES" MODIFY "outboundByteRate" FLOAT
ALTER TABLE "EMS_ROUTES" MODIFY "outboundMessageRate" FLOAT
ALTER TABLE "EMS_ROUTES" MODIFY "inboundByteRate" FLOAT
ALTER TABLE "EMS_ROUTES" MODIFY "inboundMessageRate" FLOAT

ALTER TABLE "EMS_SERVERINFO" MODIFY "inboundBytesRate" FLOAT
ALTER TABLE "EMS_SERVERINFO" MODIFY "inboundMessageRate" FLOAT
ALTER TABLE "EMS_SERVERINFO" MODIFY "outboundBytesRate" FLOAT
ALTER TABLE "EMS_SERVERINFO" MODIFY "outboundMessageRate" FLOAT
ALTER TABLE "EMS_SERVERINFO" MODIFY "pendingMessageCount" FLOAT
ALTER TABLE "EMS_SERVERINFO" MODIFY "pendingMessageSize" FLOAT

ALTER TABLE "EMS_TOPICTOTALS" MODIFY "inboundByteRate" FLOAT
ALTER TABLE "EMS_TOPICTOTALS" MODIFY "inboundMessageRate" FLOAT
ALTER TABLE "EMS_TOPICTOTALS" MODIFY "outboundByteRate" FLOAT
ALTER TABLE "EMS_TOPICTOTALS" MODIFY "outboundMessageRate" FLOAT
ALTER TABLE "EMS_TOPICTOTALS" MODIFY "pendingMessageCount" FLOAT
ALTER TABLE "EMS_TOPICTOTALS" MODIFY "pendingMessageSize" FLOAT

ALTER TABLE "EMS_TOPICS" MODIFY "inboundByteRate" FLOAT
ALTER TABLE "EMS_TOPICS" MODIFY "inboundMessageRate" FLOAT
ALTER TABLE "EMS_TOPICS" MODIFY "outboundByteRate" FLOAT
ALTER TABLE "EMS_TOPICS" MODIFY "outboundMessageRate" FLOAT
ALTER TABLE "EMS_TOPICS" MODIFY "pendingMessageCount" FLOAT
ALTER TABLE "EMS_TOPICS" MODIFY "pendingMessageSize" FLOAT
```

EMS Monitor Views/Displays

The following EMS Monitor Views (and their associated displays) can be found under **Components** tab **> Middleware > TIBCO EMS Messaging** once EMS Monitor is installed:

- "All EMS Servers"
- "Single EMS Server"
- "EMS Topics"
- "EMS Queues"
- "EMS Clients"

All EMS Servers

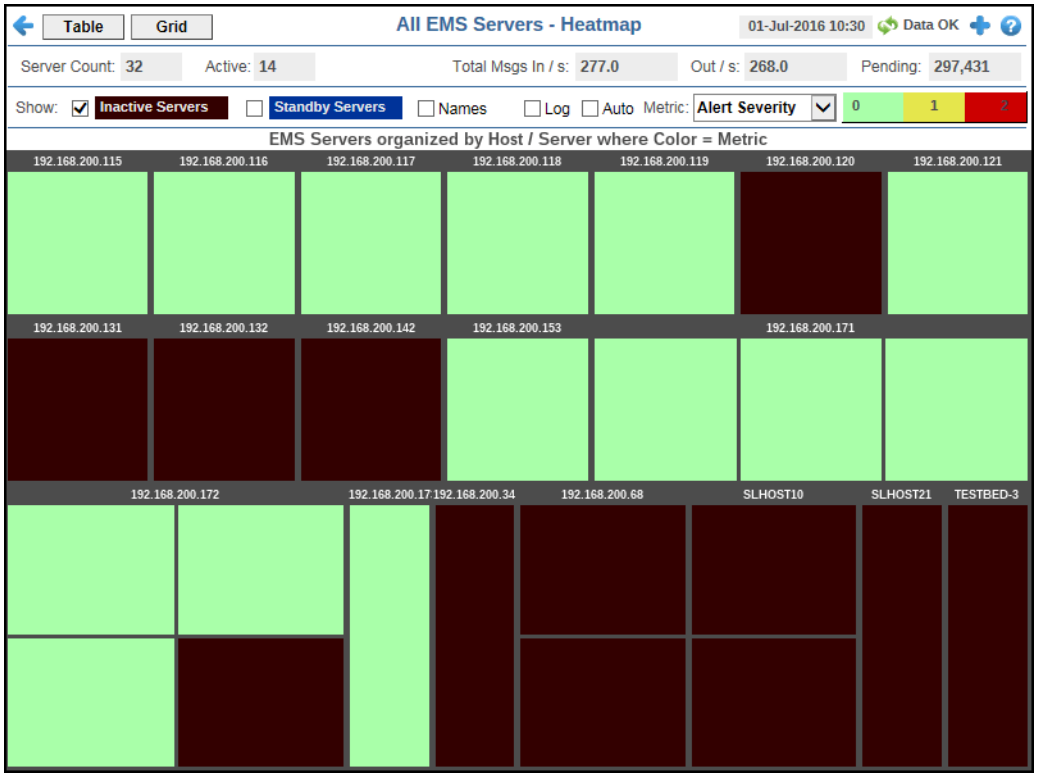
These displays present performance metrics and alert status for all EMS servers. The first three displays show different views of the same data:

- "All Servers Heatmap": Heatmap shows server and alert status for all EMS servers.
- "All Servers Table": Table shows all available utilization metrics for all EMS servers.
- "All Servers Grid": Grid enables you to see general performance of EMS servers in parallel. If you have few servers, this display is useful for verifying servers are active and generally performing as expected.
- "All Servers Topology": Topology of server routes and connections, as well as the status of active servers and standby servers that form a fault-tolerant pair.

All Servers Heatmap

View status and alerts of all EMS servers. Use the **Metric** drop-down menu to view the **Alert Severity**, **Alert Count**, **Connections**, **Pending Messages**, **Inbound Message Rate**, **Outbound Message Rate**, or **Message Memory Percent (%)**.

The heatmap is organized by host, each rectangle representing a server. The rectangle color indicates the most critical alert state. Click on a node to drill-down to the Single Server Summary display and view metrics for a particular server. Toggle between the commonly accessed **Table**, **Grid**, and **Heatmap** displays. Mouse-over rectangles to view more details about host performance and status.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Server Count		The total number of active, inactive, and standby EMS servers.
Active		The total number of currently active EMS servers.
Total Msgs In/s	**In/s**	The total number of inbound messages, per second, from all producers and consumers on all EMS servers.
	Out/s	The total number of outbound messages, per second, from all producers and consumers on all EMS servers.
	Pending	The total number of pending messages waiting to be processed on all EMS servers. Click to open the "All Servers Table" display.

Show Select the type of servers for which to display data. By default, all active servers are displayed.

Inactive Servers Select to include servers that are not currently running. **Inactive Servers** are represented in dark red.

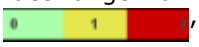
Standby Servers Select to include servers that are currently in Standby mode. Standby Servers are represented in blue.

Names Select to display the names of servers on the hosts.

Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting Auto helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the servers by host, where each rectangle represents a server. Mouse-over any rectangle to display the current values of the metrics for the Server. Click on a rectangle to drill-down to the associated "Single Server Summary" display for a detailed view of metrics for that particular server.

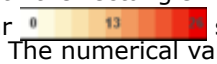
Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

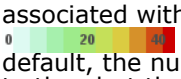
The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Connections The total number of connections in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of connections in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

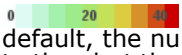
The **Auto** option does not impact this metric.

Pend Messages The total number of pending messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsServerPendingMsgsHigh**, which is **3500**. The middle value in the gradient bar indicates the middle value of the range (the default is **1750**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

In Msg Rate The total number of inbound messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsServerInMsgRateHigh**, which is **40**. The middle value in the gradient bar indicates the middle value of the range (the default is **20**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Out Msg Rate The total number of outbound messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsServerOutMsgRateHigh**, which is **40**. The middle value in the gradient bar indicates the middle value of the range (the default is **20**).

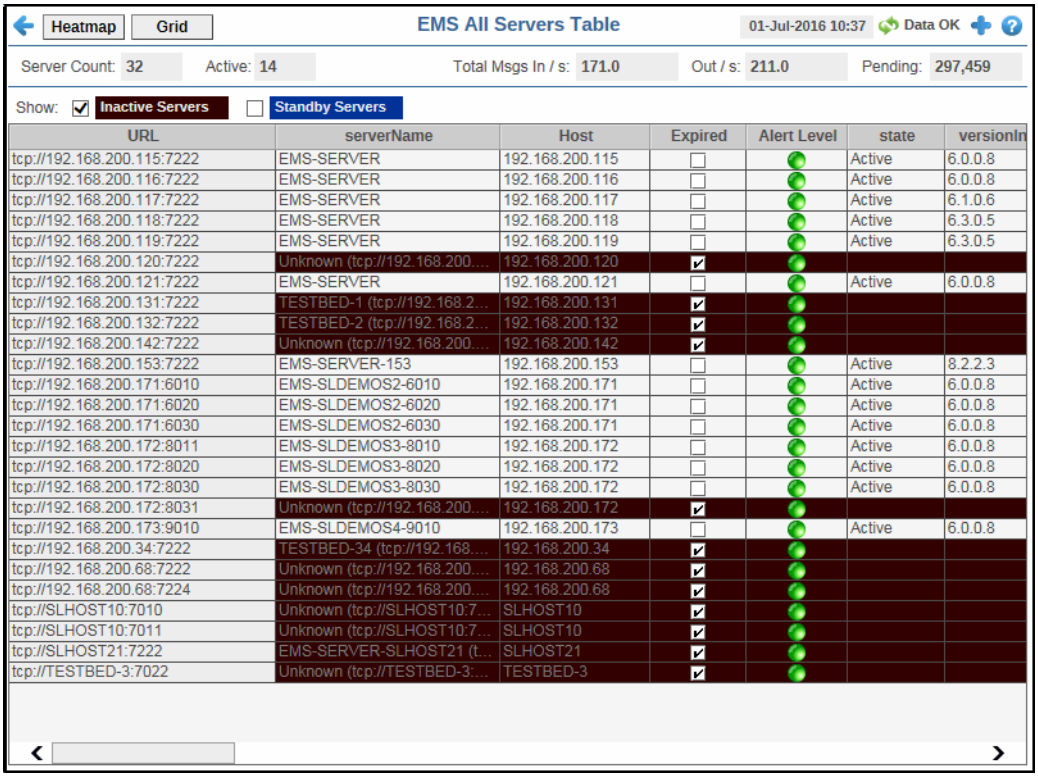
When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Mem Msg % The percent (%) memory used by messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsServerMemUsedHigh**, which is **40**. The middle value in the gradient bar indicates the middle value of the range (the default is **20**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

All Servers Table

Investigate detailed utilization metrics for all EMS servers. The **All Servers Table** contains all metrics available for servers, including the number of current client connections. Each row in the table contains data for a particular server. Click a column header to sort column data in numerical or alphabetical order. Click on a table row to drill-down to the "Single Server Summary" display and view metrics for that particular server. Toggle between the commonly accessed **Table**, **Grid**, and **Heatmap** displays.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

Server Count		The total number of active, inactive and standby EMS servers. **Inactive Servers** are represented in dark red. **Standby Servers** are represented in blue.
Active		The total number of currently active EMS servers.
Total Msgs	**In/s**	The total number of inbound messages, per second, from all producers and consumers on all EMS servers.
	Out/s	The total number of outbound messages, per second, from all producers and consumers on all EMS servers.
	Pending	The total number of inbound and outbound messages waiting to be processed on all EMS servers.

Show Select the type of servers to display data for. By default, all active servers are displayed.

Inactive Servers	Select to include servers that are not processing requests in the table. **Inactive Servers** are represented in dark red.
Standby Servers	Select to include servers that are not currently running. **Standby Servers** are represented in blue.

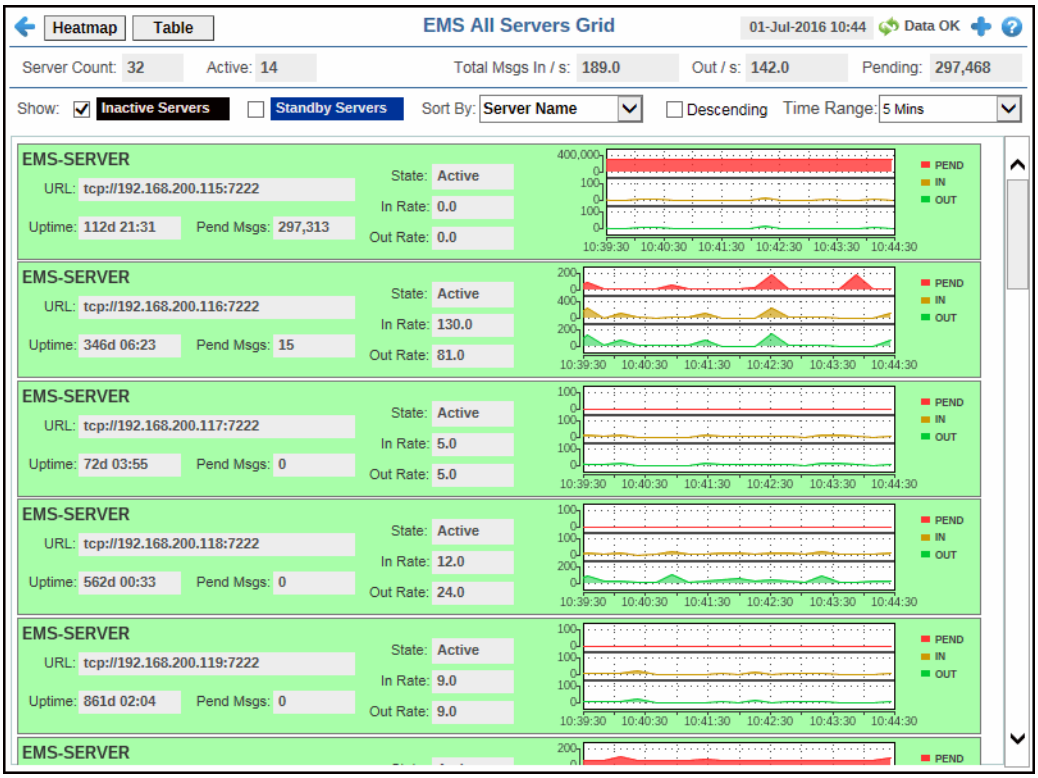
Table This table shows information for all EMS servers. Click on a table row to drill-down to the "Single Server Summary" display and view metrics for that particular server.

URL	Select to include servers that are currently in Standby mode. **Standby Servers** are represented in blue.
serverName	The name of the server.
Host	The name or IP address for the host server.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Alert Level	The maximum alert level in the item (index) associated with the rectangle. Values range from 0 to 2, as indicated in the color gradient bar, where **2** is the greatest Alert Severity. -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold, have an Alert Severity value of **2**, and are shown in red. -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold, have an Alert Severity value of **1**, and are shown in yellow. -- No alerts have exceeded an alert threshold, which have an Alert Severity value of **0**, and are shown in green.
state	The server status: **Active** -- The server is currently processing requests. **Inactive** -- The server is not currently processing requests. **Inactive Servers** are represented in dark red. **Standby** -- The server is functioning as a backup for a primary server. **Standby Servers** are represented in blue.
versionInfo	The TIBCO EMS software version currently running.
faultTolerantURL	The IP address and port number for the source (application, server, and so forth) associated with the alert.
asyncDBsize	The amount of database space, in bytes, occupied by asynchronous data on the server.
backupName	The name of the backup server assigned as the backup to this server.
connectionCount	The number of clients currently connected to the server.
diskReadRate	The speed at which the server reads disk data.
diskWriteRate	The speed at which the server writes data to disk.

durableCount	The number of durables on the server.
inboundBytesRate	The rate of inbound messages in bytes per second.
inboundMessageCount	The number of inbound messages received by the server since the server was started.
inboundMessageRate	The rate of inbound messages in number of messages per second.
MaxMessageMemory	The maximum amount of memory, in bytes, allocated for use by messages on the server.
messageMemory	The amount of memory, in bytes, currently used by messages on the server.
messageMemoryPct	The amount of memory, in percent, used by messages on the server.
messageMemoryPooled	The currently allocated pool size, in bytes, for messages.
outboundBytesRate	The rate of outbound messages in bytes per second.
outboundMessageCount	The number of outbound messages sent by the server since the server was started.
outboundMessageRate	The rate of outbound messages in number of messages per second.
pendingMessageCount	The number of currently pending messages on the server.
pendingMessageSize	The amount of space, in bytes, pending messages use on the server.
processId	The process ID of the EMS server.
queueCount	The number of message queues.
startTime	The date and time that the server was started.
syncDBSize	The amount of database space, in bytes, occupied by synchronous data on the server.
topicCount	The number of currently active topics on the server.
upTime	The amount of time, in milliseconds, since the server was started.
time_stamp	The date and time this row of data was last updated.

All Servers Grid

Track and view in parallel the general performance of all EMS servers. Click on a node to drill-down to the "Single Server Summary" display and view detailed metrics for that particular server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

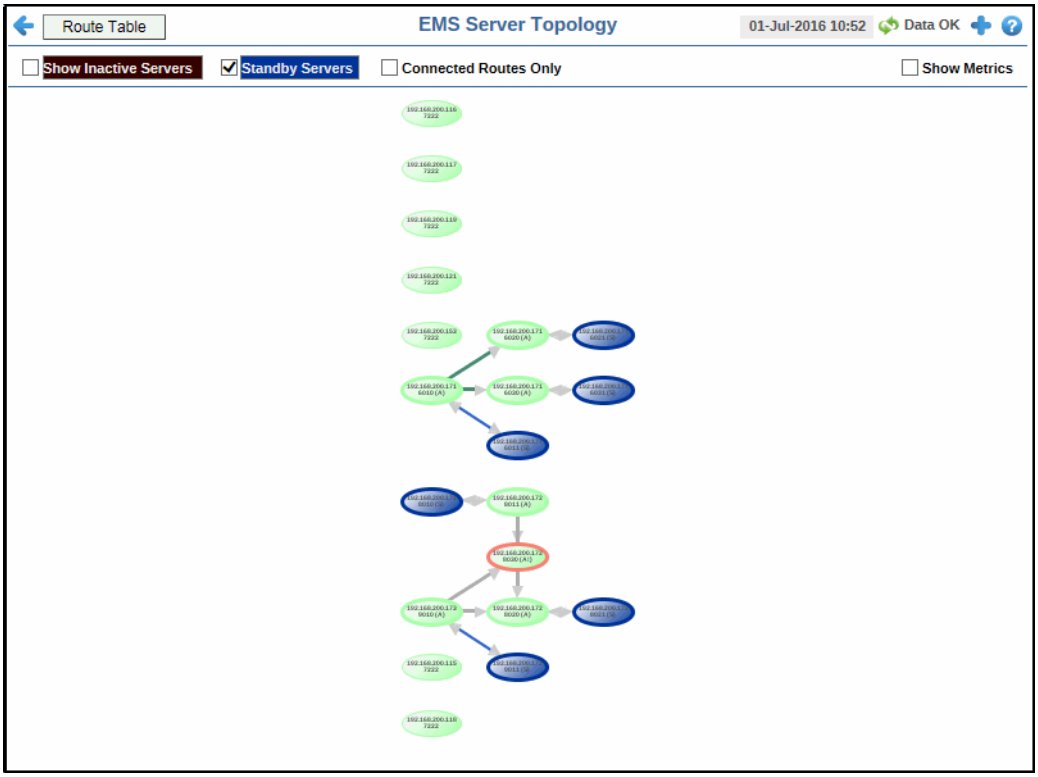
This display includes:

Server Count	The total number of active, inactive and standby EMS servers. Inactive Servers are represented in dark red. Standby Servers are represented in blue.
Active	The total number of currently active EMS servers.

Total Msgs	**In/s**	The total number of inbound messages, per second, from all producers and consumers on all EMS servers.
	Out/s	The total number of outbound messages, per second, from all producers and consumers on all EMS servers.
	Pending	The total number of inbound and outbound messages waiting to be processed on all EMS servers. Click to open the "All Servers Table" display.
Show	Select the type of servers to display data for. By default, all active servers are displayed.	
	Inactive Servers	Select to include servers that are not processing requests in the table. **Inactive Servers** are represented in dark red.
	Standby Servers	Select to include servers that are not currently running. **Standby Servers** are represented in blue.
Sort By	**Server Name**	Select to organize the servers in the grid by server name.
	Server URL	Select to organize the servers in the grid by server URL.
Descending	When checked, lists servers in the grid in descending order.	
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**.	
Grid	**Server Name**	The name of the server.
	URL	The URL for the server.
	Uptime	The amount of time, in milliseconds, since the server was started.
	Pend Msgs	The number of currently pending messages on the server.
	State	The server status: **Active** -- The server is currently processing requests. **Inactive** -- The server is not currently processing requests. Inactive Servers are represented in dark red. **Standby** -- The server is functioning as a backup for a primary server. Standby Servers are represented in blue.
	In Rate	The rate of inbound messages in messages per second.
	Out Rate	The rate of outbound messages in messages per second.
	Trend Graphs	Shows message data for the server. **Pend** -- Traces the total number of pending messages on the server. **In** -- Traces the rate of inbound messages in messages per second. **Out** -- Traces the rate of outbound messages in messages per second.

All Servers Topology

View a server topology map for all EMS servers. Click on a node to drill-down to the "Single Server Summary" display and view metrics for that particular server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking the **Route Table** button displays the **EMS Server Route Table** window. See "EMS Server Route Table" for more information.

Fields and Data

This display includes:

Show The total number of active, inactive and standby EMS servers. Inactive Servers are represented in dark red. Standby Servers are represented in blue.

- **Inactive Servers** Select to show servers that are not processing requests in the topology. Inactive Servers are represented in dark red.
- **Standby Servers** Select to show servers that are not processing requests in the topology. Standby Servers are represented in blue.
- **Connected Routes Only** Select to show only routes that have an active connection.

Show Metrics Available on desktop application deployments only. Shows the total input message rates, per second, on the top of each server icon and the total output message rate on the bottom of each server icon.

Topology Routes are shown between the active server and the standby server, which form a fault-tolerant pair. Either of the servers in a fault-tolerant pair can become the active server or the standby server. **Show Standby Servers** and **Show Inactive Servers** enable you to include or exclude standby and inactive servers. **Inactive Servers** are represented in dark red. **Standby Servers** are represented in blue. By default, standby servers are included in the topology and inactive servers are not.

Typically, it takes about 30 seconds for a server to appear in the display after startup.

The active server in a fault-tolerant pair appears in green with the suffix (**A**) appended to its URL. The standby server appears in blue, with the suffix (**S**) appended to its URL. Their link is blue and labeled **FT**.

If the active server fails:

- the failed server becomes inactive, its suffix changes to (**X!**), and the node turns red with a red outline.
- the standby server becomes active, its suffix changes to (**A!**), and the node turns green with a red outline.
- the link between the two servers turns red.

If the standby server fails:

- the failed server becomes inactive, its suffix changes to (**X!**), and the node turns red with a red outline.
- the active servers' suffix changes to (**A!**) and it is outlined in red.
- the link between the two servers turns red.

If a failed server recovers:

- the recovered server becomes the standby server, its suffix changes to (**S**), and the node turns blue with a grey outline.
- the active servers' suffix (**A!**) changes to (**A**), and the red node outline changes back to grey.
- the link between the two servers changes back to blue.

Suffix Definition

A -- This is the active server and it is running.

A! -- This is the active server and it is running but its standby has failed.

S -- This is the standby server and it is running.

X! -- The server is inactive.

Node Color Definition

-- This is the active server and it is running.

Blue -- This is the standby server and it is in standby mode.

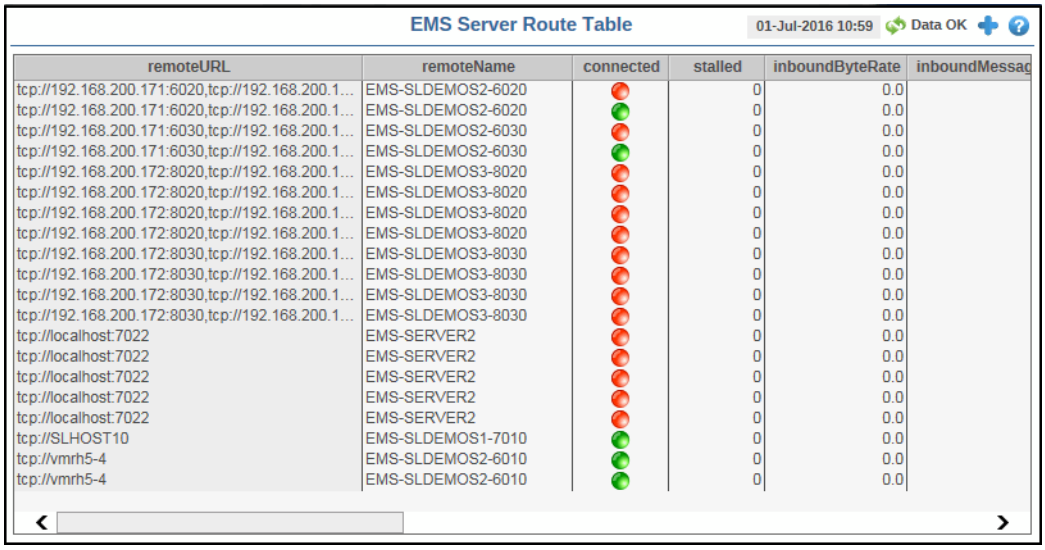
-- The server is inactive.

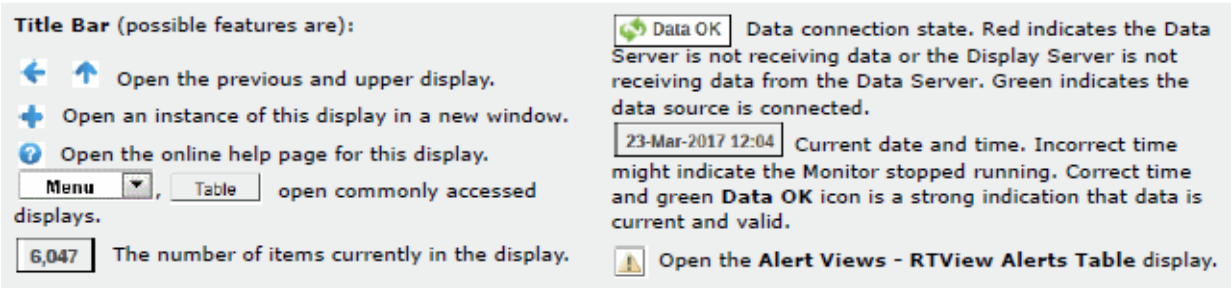
Link Color Definition Blue -- The two servers in the pair are running.
-- One of the servers in the pair is inactive.

Outline Color Definition Grey -- The two servers in the pair are running.
-- One of the servers in the pair is inactive. If the node color indicates this server is running, its pair is inactive.

EMS Server Route Table

Displays metrics for server routes on all servers. Inbound metrics, such as **inboundByteRate**, indicate an in route to the server. Outbound metrics, such as **outboundByteRate**, indicate an out route to the server.





Fields and Data

This display includes:

remoteURL The remote URL of the server.

remoteName The name of the server.

connected The connection state of the server route.

	 -- One or more routes for this server are disconnected.
	 -- All routes for this server are connected.
	 -- There are no routes for this server.
stalled	Indicates whether the IO flow stalled on the route.
	A value of **0** (zero) = not stalled.
	A value of **1** = stalled.
inboundByteRate	The rate of inbound data in bytes, per second.
inboundMessageRate	The rate of inbound messages in number of messages per second.
inboundTotalBytes	The total number of inbound bytes.
inboundTotalMessages	The total number of inbound messages.
outboundByteRate	The rate of inbound data in bytes, per second.
outboundMessageRate	The rate of outbound messages in number of messages per second.
outboundTotalBytes	The total number of outbound bytes.
outboundTotalMessages	The total number of outbound messages.
zoneName	The name of the zone for the route.
zoneType	Indicates a multi-hop or one-hop route.
active	Indicates whether the server route is currently transferring data:
	1 = true (is transferring data)
	0 = false
inactive	Indicates whether the server route is not currently transferring data:
	1 = true (is **not** transferring data)
	0 = false
suspended	Indicates whether outbound messages to the route have been suspended:
	1 = true
	0 = false
remoteURLName	The IP address and name for the remote connection.

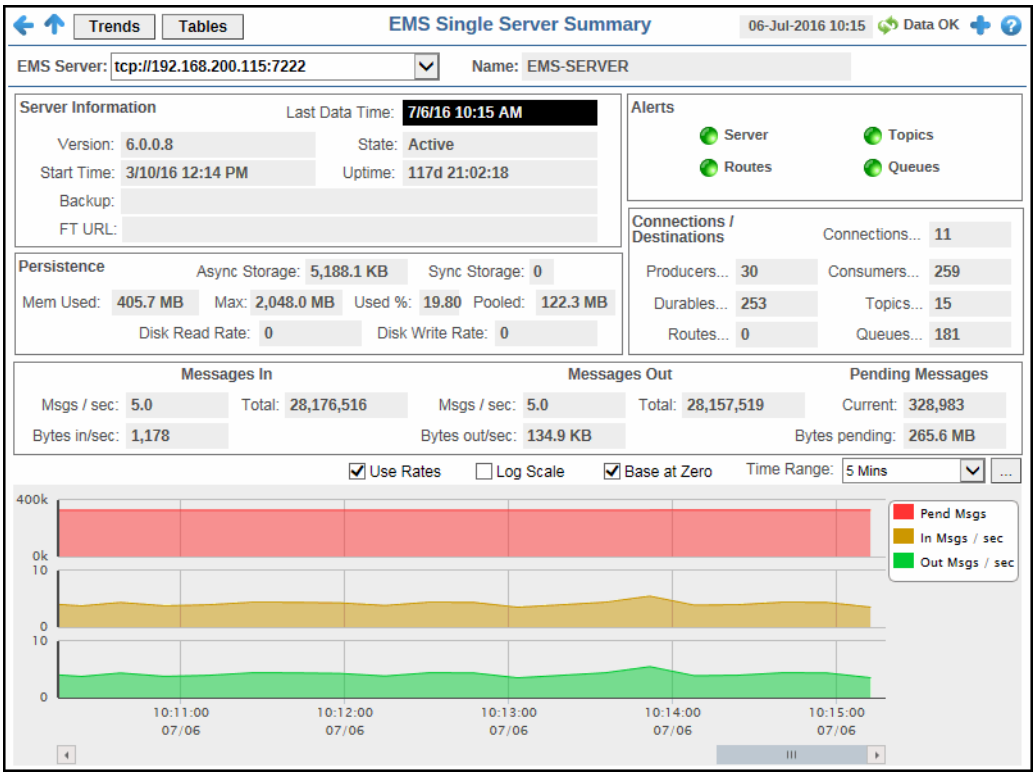
Single EMS Server

These displays present detailed performance metrics, alert status and connection information for a single EMS server.

- "Single Server Summary": Shows information for a single EMS server such as server connection details, the number of client connections, memory utilization, message performance metrics and alert status.
- "Single Server Trends": Trend graphs show utilization metrics for a single EMS server, such as the number of client connections, number of pending messages and in/out rate, and memory and disk utilization.
- "Single Server Tables": Tables show information about how the Monitor is connected to the EMS server, metrics queried from the server and alert details.

Single Server Summary

Track utilization and performance metrics for specific servers.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

EMS Server		Select the EMS Server for which you want to view data. The selection made here populates this display.
Name		The name of the EMS Server selected from the EMS Server drop-down menu.
Server Information	**Version**	The TIBCO EMS software version currently running.
	Start Time	The data and time that the server was started.
	Backup	The name of the backup server for the server.
	FT URL	The IP address and port number, or the hostname and port number, of the fault tolerant standby server assigned to this server.
	Last Data Time	The time that a data update was last made.
	State	The server status: **Active** -- The server is currently processing requests. **Inactive** -- The server is not currently processing requests. **Standby** -- The server is functioning as a backup for a primary server.
	Uptime	The amount of time since the server was started. Format: **dd HH:MM:SS** **<days> <hours>:<minutes>:<seconds>** For example: **10d 08:41:38**
Persistence	**Async Storage**	The amount of database space, in bytes, used by asynchronous message persistence data on the server
	Sync Storage	The amount of database space, in bytes, used by synchronous message persistence data on the server.
	Mem Used	The amount of memory, in kilobytes, used by message persistence on the server.
	Max	The maximum amount of memory, in kilobytes, used by message persistence on the server.
	Used %	The amount of memory, in percent, used by message persistence.
	Pooled	The amount of message memory that has been pooled.
	Disk Read Rate	The speed at which the server reads message persistence disk data.
	Disk Write Rate	The speed at which the server writes message persistence disk data.
Alerts	**Server**	Status indicator for server-related alerts. Click to open the EMS "Single Server Tables" display and view the **Server Alert Table** for more detail. -- No alerts have exceeded a specified threshold. -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.

	Routes	Status indicator for route-related alerts. Click to open the EMS "Single Server Tables" display and view the **Server Alert Table** for more detail. ● -- No alerts have exceeded a specified threshold. ● -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. ● -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.
	Topics	Status indicator for topic-related alerts. Click to open the EMS "Single Server Tables" display and view the **Server Alert Table** for more detail. ● -- No alerts have exceeded a specified threshold. ● -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. ● -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.
	Queues	Status indicator for queue-related alerts. Click to open the EMS "Single Server Tables" display and view the **Server Alert Table** for more detail. ● -- No alerts have exceeded a specified threshold. ● -- One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. ● -- One or more alerts have exceeded their specified **ALARMLEVEL** threshold.
Connections / Destinations		Shows connection information for the server. The counts shown here are also visible in the "EMS Topics" and "EMS Clients" displays.
	Producers	The number of producers currently active on the server. Click to open the "EMS Clients"/ "Producers" for Server display for details.
	Durables	The number of durables currently active on the server. Click to open the "EMS Clients" / "Consumer Summary" for Server display for details.
	Routes	The number of routes defined on the server.
	Connections	The number of clients currently connected to the server. Click to open the "EMS Clients" / "Connections" for Server display for details.
	Consumers	The number of consumers currently connected to the server. Click to open the "EMS Clients" / "Producer Summary" for Server display for details.
	Topics	The number of topics currently active on the server. Click to open the "EMS Topics" / "All Topics Table" display for details.
	Queues	The number of queues currently active on the server. Click to open the "EMS Topics" / "All Queues Heatmap" display for details.
Messages In	**Msgs/sec**	The number of inbound messages, per second, from all producers and consumers
	Bytes in/sec	The total size of inbound messages, in bytes per second, from all producers and consumers.
	Total	The total number of inbound messages, in bytes, from all producers and consumers since the server was started.

Messages Out	**Msgs/sec**	The number of outbound messages, per second, from all producers and consumers.
	Bytes out/ sec	The total size of outbound messages, in bytes per second, from all producers and consumers.
	Total	The total of outbound messages, in bytes, from all producers and consumers since the server was started.
Pending Messages	**Current**	The total number of inbound and outbound messages currently waiting to be processed.
	Bytes pending	The total size of inbound and outbound messages, in bytes, currently waiting to be processed.

Trend Graphs Shows message metrics for the selected server.

Pend Message -- Traces the total number of inbound and outbound messages currently waiting to be processed.

In Msgs / sec -- Traces the number of inbound messages, per second, from all producers and consumers. This trend graph only displays when **Use Rates** is selected.

Out Msgs / sec -- Traces the number of outbound messages, per second, from all producers and consumers. This trend graph only displays when **Use Rates** is selected.

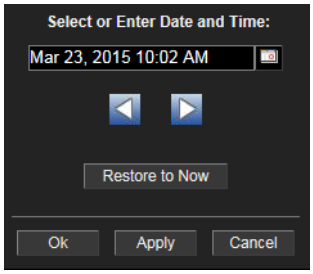
Delta In Msgs -- Traces the change in total inbound messages since the last update. This trend graph only displays when **Use Rates** is not selected.

Delta Out Msgs -- Traces the change in total outbound messages since the last update. This trend graph only displays when **Use Rates** is not selected.

Use Rates	When this check box is selected, the inbound and outbound message rates (**In Msgs/sec** and **Out Msgs/sec**) display in the trend graph. When this check box is not selected, the delta inbound and outbound messages (**Delta In Msgs** and **Delta Out Msgs**) display in the trend graph.
Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



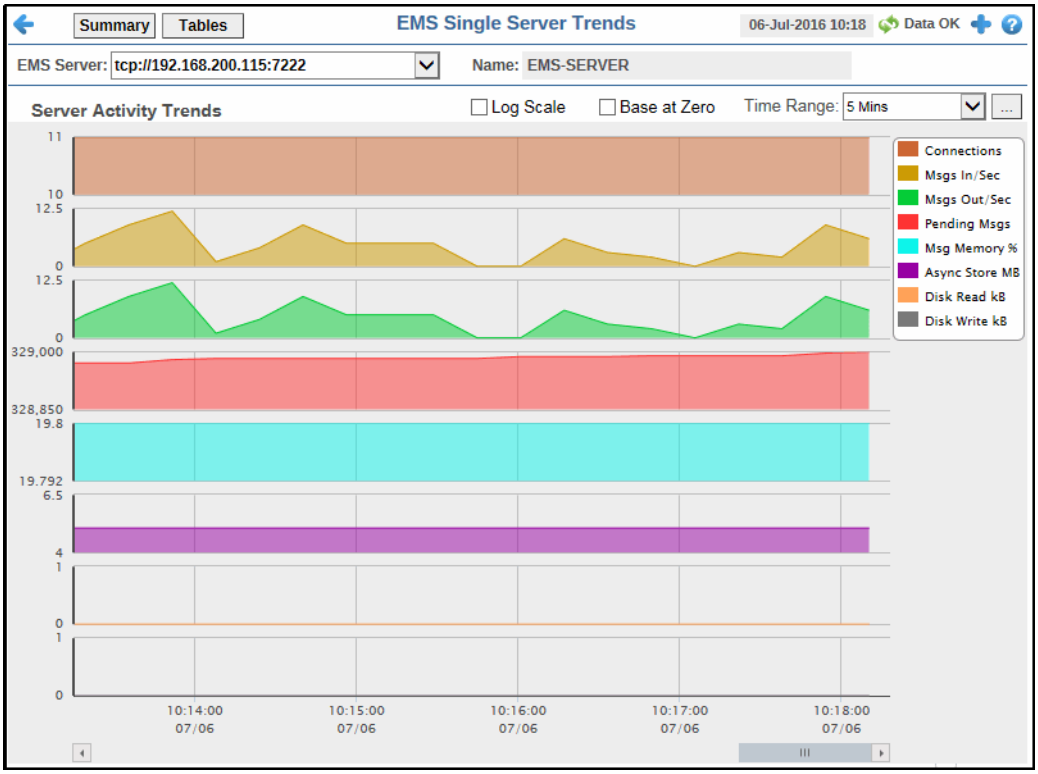
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single Server Trends

View trend graphs in parallel to investigate performance issues for a specific server.



Title Bar (possible features are):

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Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

EMS Server Select the EMS server for which you want to view data from this drop-down menu. The selection made here populates this display.

Name The name of the EMS Server selected from the EMS Server drop-down menu.

Server Activity Trends Specifies settings for the trend graphs.

Trend Graphs

Shows metrics for the selected server.

Connections -- Traces the total number of client connections.

Msgs In/Sec -- Traces the number of inbound messages, per second, from all producers and consumers.

Msgs Out/Sec -- Traces the number of outbound messages, per second, from all producers and consumers.

Pending Msgs -- Traces the total number of messages currently waiting to be processed.

Msg Memory % -- Traces the amount of memory, in percent, used by messages.

Async Store MB -- Traces the amount of database space, in megabytes, used by asynchronous data on the server.

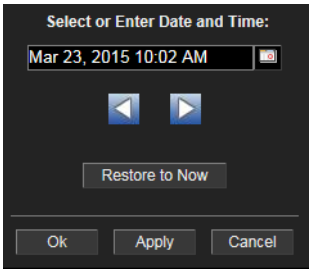
Disk Read KB -- Traces the amount of disk data, in kilobytes, read by the server since the server was started.

Disk Write KB -- Traces the amount of data, in kilobytes, written to disk by the server since the server was started.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



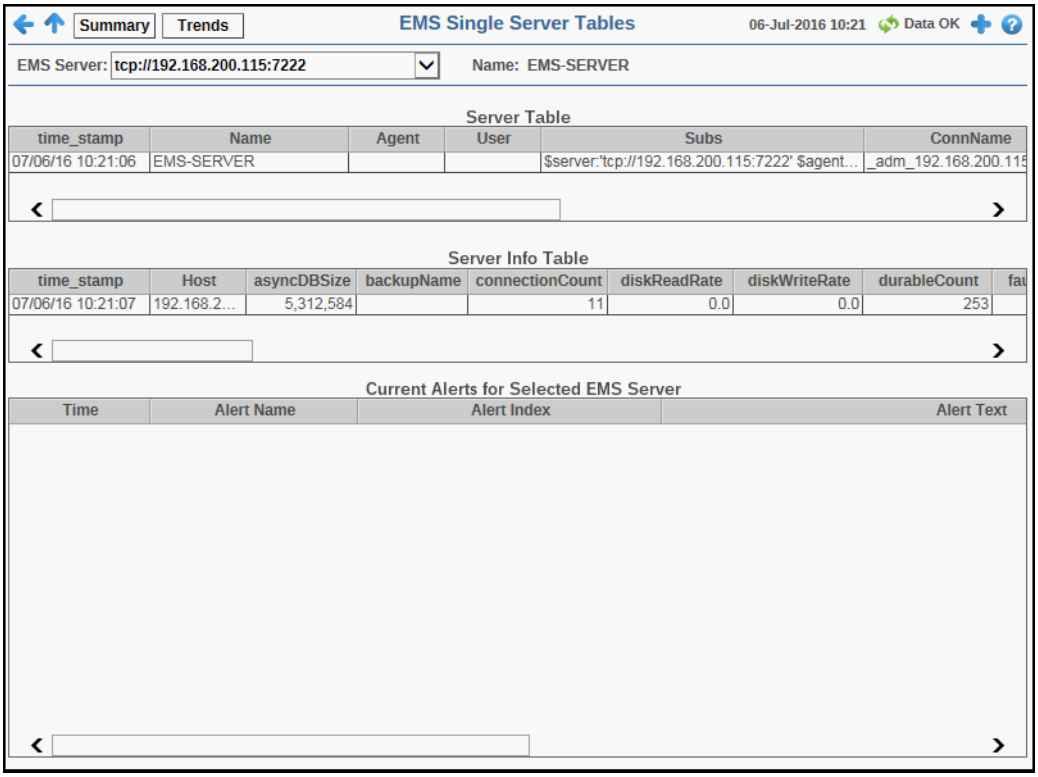
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

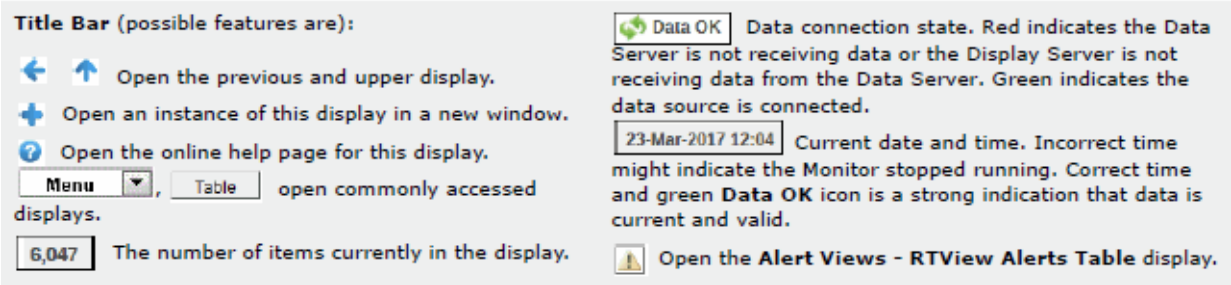
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single Server Tables

View all available utilization and performance data for specific servers.





Fields and Data

This display includes:

EMS Server Select the EMS server for which you want to view data from this drop-down menu. The selection made here populates this display

Name The name of the EMS Server selected from the EMS Server drop-down menu.

Server Table This table shows information about how the monitor is connected to the server.

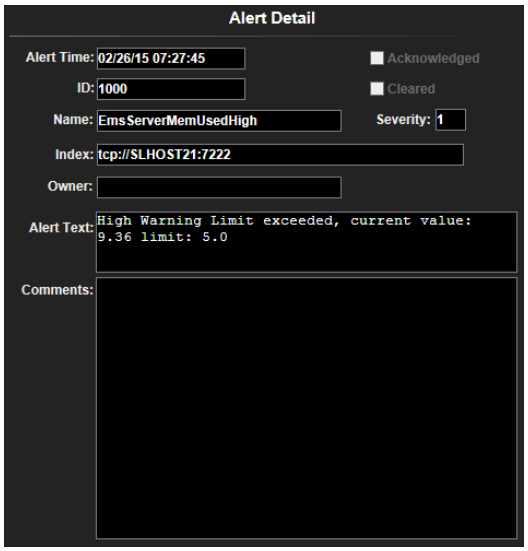
- **time_stamp** The date and time this row of data was last updated.
- **Name** The name of the server.

	Agent	If used, the name of the RTView agent connecting to the EMS server.
	User	The user name for gaining access to the server.
	Password	The password associated with user name for gaining access to the server.
	Subs	RTView substitutions used when connecting to this server.
	ConnName	The name of the RTView connection to this server.
	Active	When checked, indicates that the server is currently running.
	FaultTolerantStandbyMode	When checked, indicates that the server is running as a backup server.
	FaultTolerantURL	The IP address and port number for the backup server assigned to this server.
	BackupName	The name of the backup server assigned as backup to this server.
	Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Server Info Table	Select an EMS Server from the EMS Server drop-down menu. This table shows server metrics queried from the server.	
	time_stamp	The date and time this row of data was last updated.
	Host	The name or IP address for the host server.
	asyncDBSize	The amount of database space, in bytes, used by asynchronous data on the server.
	backupName	The name of the backup server assigned as backup to this server.
	connectionCount	The number of currently connected clients.
	diskReadRate	The speed at which the server reads disk data.
	diskWriteRate	The speed at which the server writes data to disk.
	durableCount	The number of currently active durables.
	FaultTolerantURL	The IP address and port number, or the hostname and port number, of the fault tolerant standby server assigned to this server.
	inboundBytesRate	The rate of inbound messages in bytes per second.
	inboundMessageCount	The number of inbound messages received by the server since the server was started.
	inboundMessageRate	The rate of inbound messages in number of messages per second.
	maxMessageMemory	The maximum amount of memory, in bytes, allocated for use by messages on the server.
	messageMemory	The amount of memory, in bytes, currently used by messages on the server.

	messageMemoryPct	The amount of memory, in percent, used by messages on the server.
	messageMemoryPooled	The currently allocated pool size for messages in bytes.
	outboundBytesRate	The rate of outbound messages in bytes per second.
	outboundMessageCount	The number of outbound messages sent by the server since the server was started.
	outboundMessageRate	The rate of outbound messages in number of messages per second
	pendingMessageCount	The number of currently pending messages on the server.
	pendingMessageSize	The amount of space, in bytes, pending messages use on the server.
	processId	The process ID of the EMS server.
	queueCount	The number of message queues.
	serverName	The name of the server.
	startTime	The date and time that the server was started.
	state	The server status: **Active** -- The server is currently processing requests. **Inactive** --The server is not currently processing requests. **Standby** -- The server is functioning as a backup for a primary server.
	syncDBSize	The amount of database space, in bytes, used by synchronous data on the server.
	topicCount	The number of currently active topics.
	upTime	The amount of time, in milliseconds, since the server was started.
	versionInfo	The TIBCO EMS software version currently running.
	Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Current Alerts Table for Selected EMS Server	Select an EMS Server from the EMS Server drop-down menu. This table lists all available data for currently active alerts. Click an alert to view details in the Alert Detail Window.	
	Time	The time the alert was first activated.
	Alert Name	The name of the alert.
	Alert Index	The EMS server that activated the alert.
	Alert Text	The text that is displayed for the alert.
	Package	The RTView package reporting the alert.
	Category	The alert category: Server, Queue or Topic.

ID	The unique identifier for this alert instance.
Clr'd	When checked, the alert thresholds are no longer out of bounds and the alert has cleared.
Ack'd	When checked, a user has indicated that they have acknowledged the alert.
Owner	The user who has accepted ownership of this alert.
Source	The source of the alert.

Alert Detail Window



Alert Time	The time the alert was first activated.
ID	The unique identifier for this alert instance.
Name	The name of the alert.
Index	The EMS server which activated the alert.
Owner	The user who has accepted ownership of this alert.
Alert Text	The text that is displayed for the alert.
Comments	User-supplied comments about this alert.
Acknowledged	When checked, a user has indicated that they have acknowledged the alert.
Cleared	When checked, the alert thresholds are no longer out of bounds and the alert has cleared.
Severity	Severity of the alert.

EMS Topics

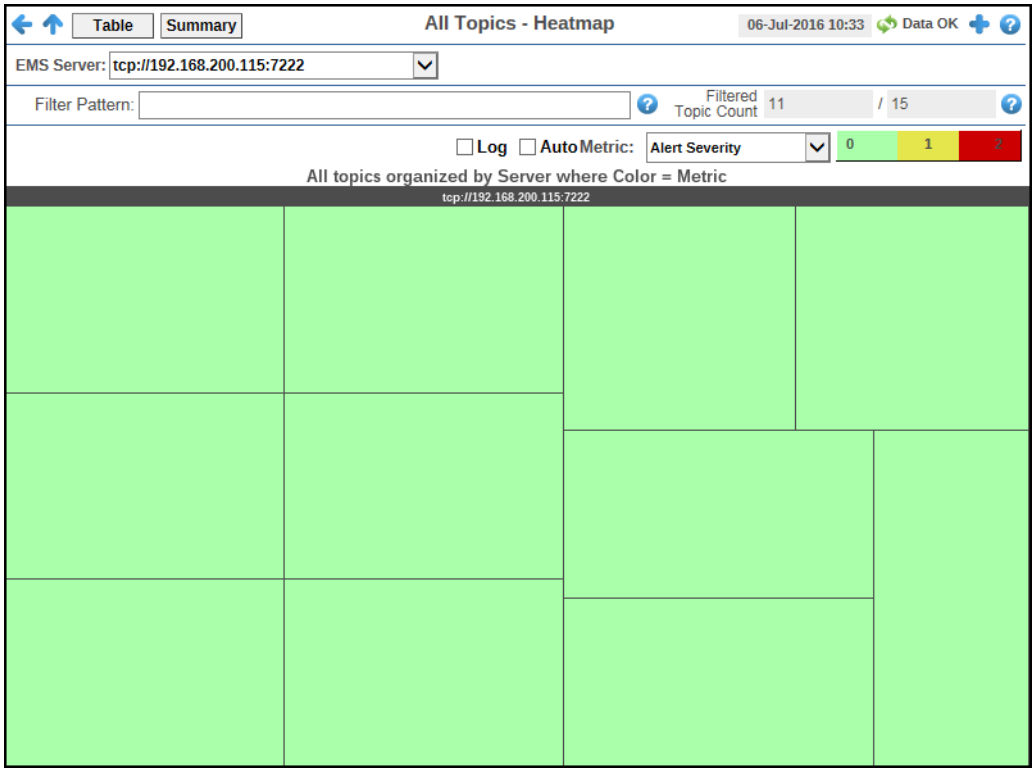
These displays present several views of performance metrics for topics. You can view all topics that are defined on a specific server in the "All Topics Table" display, or you can view all servers that have a specific topic defined in the "Single Topic Summary" display. The "Single Topic By Server" display provides a list of all the servers on which those topics are defined.

- "All Topics Heatmap": A heatmap representation of a selected set of metrics from Topics organized by Server that allows you to track performance and utilization metrics and trends for all topics on a single server.
- "All Topics Table": Shows performance and utilization metrics and trends for all topics defined on a specified server, including consumer and subscriber count, memory utilization, and message performance metrics.
- "All Topics Summary": Shows performance and utilization metrics and trends for all topics defined on a specified server, including consumer and subscriber count, memory utilization, and message performance metrics.
- "Single Topic Summary": Shows detailed performance and utilization metrics and trends for a specified topic on a single server, including producer and consumer counts, and message performance metrics.
- "Single EMS Topic-Clients": View data for all consumers and producers associated with the selected topic.
- "Single Topic By Server": Table shows performance and utilization metrics for all servers that have a specified topic defined, including consumer and subscriber count, and message performance metrics.

All Topics Heatmap

A heatmap representation of a selected set of metrics from Topics organized by Server that allows you to track performance and utilization metrics and trends for all topics on a single server. View status and alerts of all topics for a server. Use the **Metric** drop-down menu to view to **Alert Severity**, **Alert Count**, **Consumers**, **Receivers**, **Pending Messages**, **Inbound Message Rate**, **Inbound Total Messages**, **Outbound Message Rate**, or **Outbound Total Messages**.

The heatmap is organized so that each rectangle represents a Topic on the selected Server. The rectangle color indicates the value of the selected metric in the **Metric** drop down list. You can mouse-over rectangles to view more details about the performance and status of each topic or click on a rectangle to drill-down to the "Single Topic Summary" display and view metrics for that particular Topic. You can click **Table** on this display to navigate to the "All Topics Table" display.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Table** in the Title Bar takes you to the "All Topics Table" display. Clicking **Summary** in the Title Bar takes you to the "All Topics Summary" display.

Fields and Data

This display includes:

EMS Server	The EMS Server selected from this drop-down menu populates all associated Topic data in this display.
Filter Pattern	Enter a string to show only topics with names that contain the string. For example, if you enter the string Madrid, all topics with Madrid in the topic name are shown in the table. If no entry is made, all topic names are shown. For most use cases, you can enter a portion of the topic name.

Filtered Topic Count

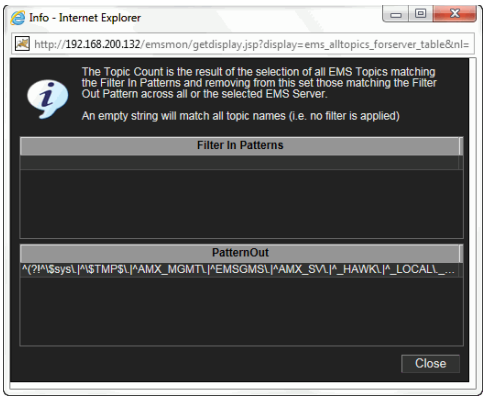
This field is broken into two different values. The first value is the total number of currently active topics on the selected server, which is filtered by the **Filter Pattern** field and by the default value specified in the **$emsTopicFilterOutPattern** property in the **emsmon/conf/rtvapm.properties** file. The second value is the total number of topics on the selected server. In other words, the filtered number of topics/the total number of topics on the server.

The default value for the **$emsTopicFilterOutPattern** property is:

```
collector.sl.rtview.sub=$emsTopicFilterOutPattern:'^(?!^\\$sys\\.|^\\$TMP\$
\\.|^AMX_MGMT\\.|^EMSGMS\\.|^AMX_SV\\.|^_HAWK\\.|^_LOCAL\\._HAWK\\.|^TMP\\.
EMS)'
```

You can modify the filter value by editing the **$emsTopicFilterOutPattern** property in the "sample.properties File", which will override the default value.

Clicking the associated Help button displays the **Info** dialog, which displays the defined filter in and filter out properties used by the **Filtered Topic Count**.



Log

This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

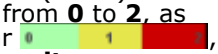
Auto

When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting Auto helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric

Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the topics by server, where each rectangle represents a Topic. Mouse-over any rectangle to display the current values of the metrics for the Topic. Click on a rectangle to drill-down to the associated "Single Topic Summary" display for a detailed view of metrics for that particular topic.

Alert Severity

The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

2 -- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 -- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count

The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Consumers

The total number of consumers in a given item (index) associated with the rectangle. The color gradient bar  shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of consumers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Durables

The total number of active durables in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of durables in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Subscribers

The total number of subscribers in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of subscribers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Pending Msgs

The total number of pending messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsTopicssPendingMsgsHigh**, which is **3000**. The middle value in the gradient bar indicates the middle value of the range (the default is **1500**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

In Msg /sec

The number of inbound messages per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsTopicsInMsgRateHigh**, which is **9**. The middle value in the gradient bar indicates the middle value of the range (the default is **4.5**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Note: This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.

In Total Msg

The total number of inbound messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of receivers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Out Msg/sec

The number of outbound messages per second in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsTopicsOutMsgRateHigh**, which is **9**. The middle value in the gradient bar indicates the middle value of the range (the default is **4.5**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Note: This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.

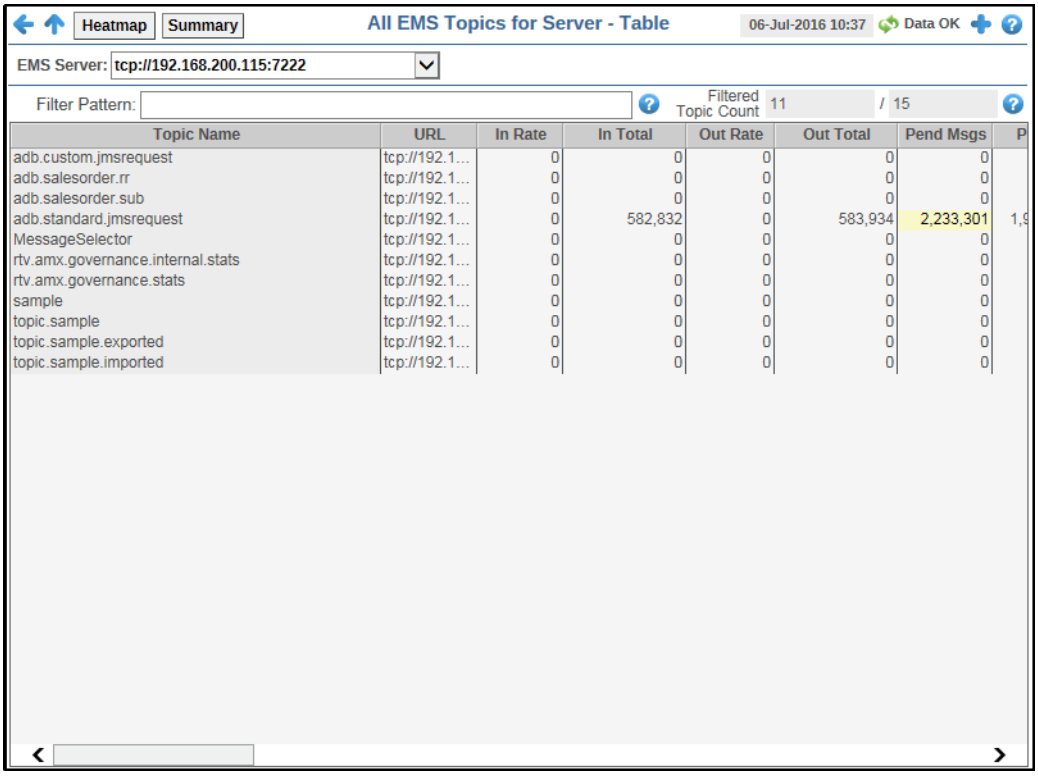
Out Total Msgs

The total number of outbound messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of receivers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

All Topics Table

Track performance and utilization metrics for all topics on a single server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Heatmap** in the Title Bar takes you to the "All Topics Heatmap" display. Clicking **Summary** in the Title Bar takes you to the "All Topics Summary" display.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates all associated Topic data in this display.

Filter Pattern Enter a string to show only topics with names that contain the string. For example, if you enter the string Madrid, all topics with Madrid in the topic name are shown in the table. If no entry is made, all topic names are shown. For most use cases, you can enter a portion of the topic name.

Filtered Topic Count This field is broken into two different values. The first value is the total number of currently active topics on the selected server, which is filtered by the **Filter Pattern** field and by the default value specified in the **$emsTopicFilterOutPattern** property in the **emsmon/conf/rtvapm.properties** file. The second value is the total number of topics on the selected server. In other words, the filtered number of topics/the total number of topics on the server.

The default value for the **$emsTopicFilterOutPattern** property is:

```
collector.sl.rtview.sub=$emsTopicFilterOutPattern:'^(?!^\\$sys\\.|^\\$TMP\$\\.|^AMX_MGMT\\.|^EMSGMS\\.|^AMX_SV\\.|^_HAWK\\.|^_LOCAL\\._HAWK\\.|^TMP\\.EMS)'
```

You can modify the filter value by editing the **$emsTopicFilterOutPattern** property in the "sample.properties File", which will override the default value.

Clicking the associated Help button displays the **Info** dialog, which displays the defined filter in and filter out properties used by the **Filtered Topic Count**.

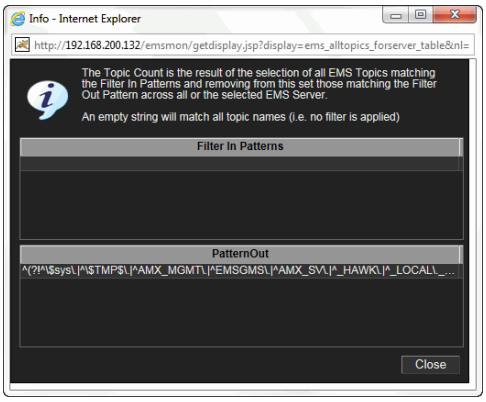


Table This table describes all topics on the selected server. Click a row to view metrics for a single topic in the "Single Topic Summary" display.

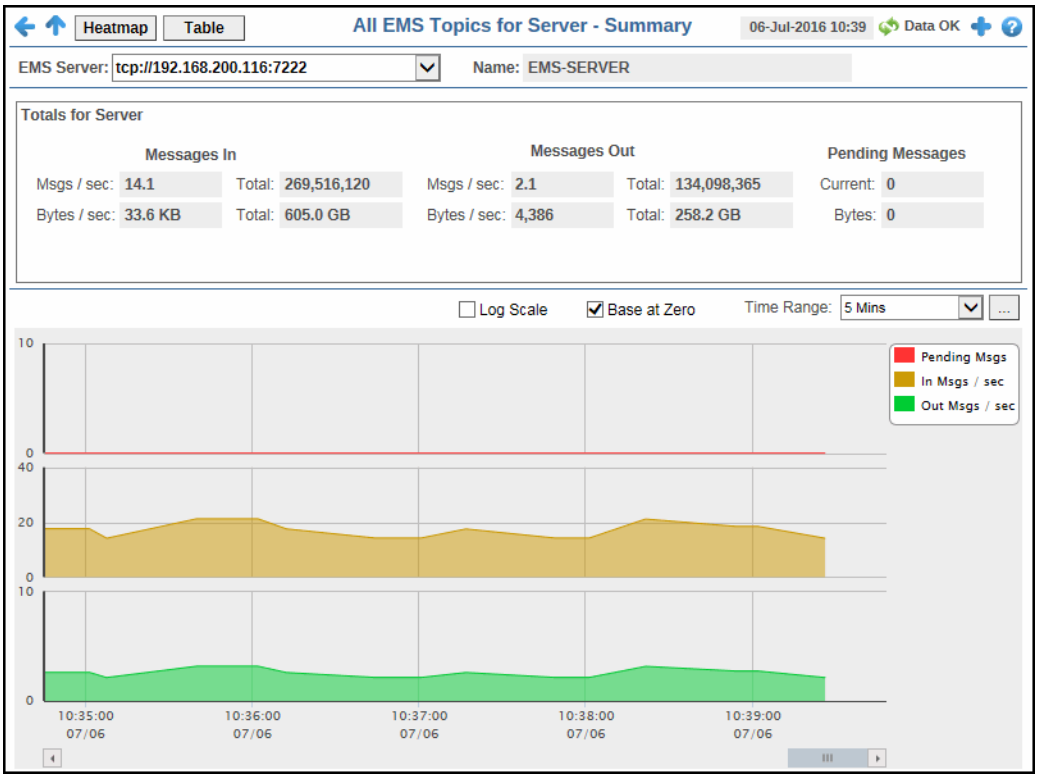
Topic Name	The name of the topic.
URL	The IP address and port number for the server.
In Rate	The number of inbound messages for the topic, per second. **Note:** This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.
In Total	The total number of inbound messages for the topic.
Out Rate	The number of outbound messages for the topic, per second. **Note:** This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.
Out Total	The total number of outbound messages for the topic.
Pend Msgs	The number of currently pending messages for the topic.
Pend Size	The amount of space, in bytes, used by pending messages for the topic.
activeDurableCount	The number of currently active durables or the topic.

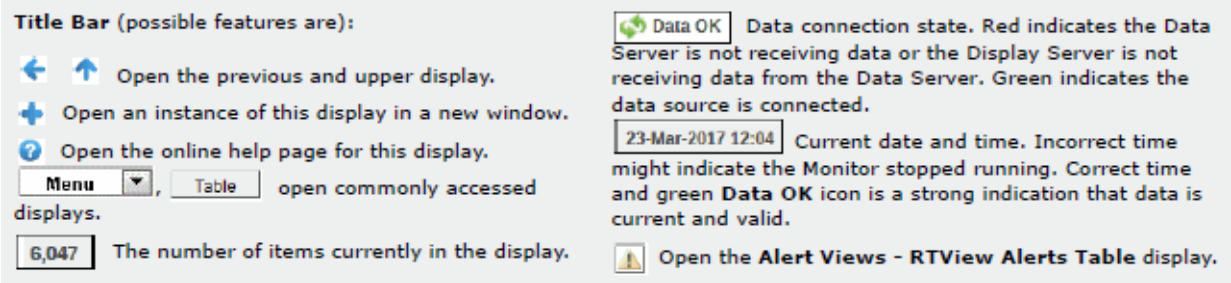
consumerCount	The number of consumers for the topic.
durableCount	The number of durables for the topic.
failSafe	When checked, the message is marked as failsafe delivery.
fcMaxBytes	The maximum number of bytes allocated for use by flow control.
global	When checked, the message is global and is routed to other servers.
inboundByteRate	The amount of inbound messages for the topic, in bytes per second.
inboundTotalBytes	The total amount of inbound messages for the topic, in bytes, since the server started.
maxBytes	The maximum size, in bytes, that the topic can store for delivery to each durable or non-durable online subscriber on that topic.
maxMsgs	The maximum number of messages before the server indicates an error and overflow policies are activated.
outboundByteRate	The amount of outbound messages for the topic, in bytes per second.
outboundTotalBytes	The total amount of outbound messages for the topic, in bytes.
overflowPolicy	Indicates whether an overflow policy is set for the topic: **0** = No policy is set. **1** = A policy is set.
secure	When checked, the topic is designated as secure and enforces permission policies.
static	When checked, the topic has a static destination.
subscriberCount	The number of subscribers for the topic.
description	Descriptive text to help the administrator identify this resource.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
time_stamp	The date and time this row of data was last updated.
DeltainboundTotalMessages	Displays the change (delta) in inboundTotalMessages from the previous cache refresh to the current cache refresh.
DeltainboundTotalBytes	Displays the change (delta) in inboundTotalBytes from the previous cache refresh to the current cache refresh.
DeltaoutboundTotalMessages	Displays the change (delta) in outboundTotalMessages from the previous cache refresh to the current cache refresh.

DeltaoutboundTotalBytes	Displays the change (delta) in outboundTotalBytes from the previous cache refresh to the current cache refresh.
prefetch	Lists the maximum number of messages consumers can fetch.
expiryOverride	If set to a non-zero value for a destination and the server delivers a message to the destination, the server replaces the producer's expiration value with this value.
store	Provides the store for this destination where persistent messages are stored.
URLTopic	The topic's URL.

All Topics Summary

Track performance and utilization metrics and trends for all topics on a single server.





Note: Clicking **Heatmap** in the Title Bar takes you to the "All Topics Heatmap" display. Clicking **Table** in the Title Bar takes you to the "All Topics Table" display.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates all associated Topic data in this display.

Name The name of the server selected in the **EMS Server** drop down list.

Totals for Server Shows metrics for all topics on the selected server.

- **Messages In**
  - **Msgs/sec** -- The number of inbound messages for all topics on the server, per second.
  - **Total** -- The total number of inbound messages for all topics on the server since the server was started.
  - **Bytes/sec** -- The size of inbound messages, in bytes per second, for all topics on the server.
  - **Total** -- The total size of inbound messages, in kilobytes, for all topics on the server since the server was started.
- **Messages Out**
  - **Msgs/sec** -- The number of outbound messages for all topics on the server, per second.
  - **Total** -- The total number of outbound messages for all topics on the server since the server was started.
  - **Bytes/sec** -- The size of outbound messages, in bytes per second, for all topics on the server.
  - **Total** -- The total size of outbound messages for all topics on the server, in kilobytes, since the server was started.
- **Pending Messages**
  - **Current** -- The total number of messages for all topics on the server currently waiting to be processed.
  - **Bytes** -- The total size of messages, in bytes, for all topics on the server currently waiting to be processed.

Trend Graphs Shows metrics for all topics on the selected server.

- **Pend Msgs** -- Traces the total number of messages for all topics on the server currently waiting to be processed.
- **In Msgs / sec** -- Traces the number of inbound messages for all topics, per second.
- **Out Msgs / sec** -- Traces the number of outbound messages for all topics, per second.

Log Scale

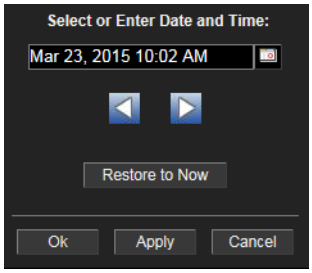
This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



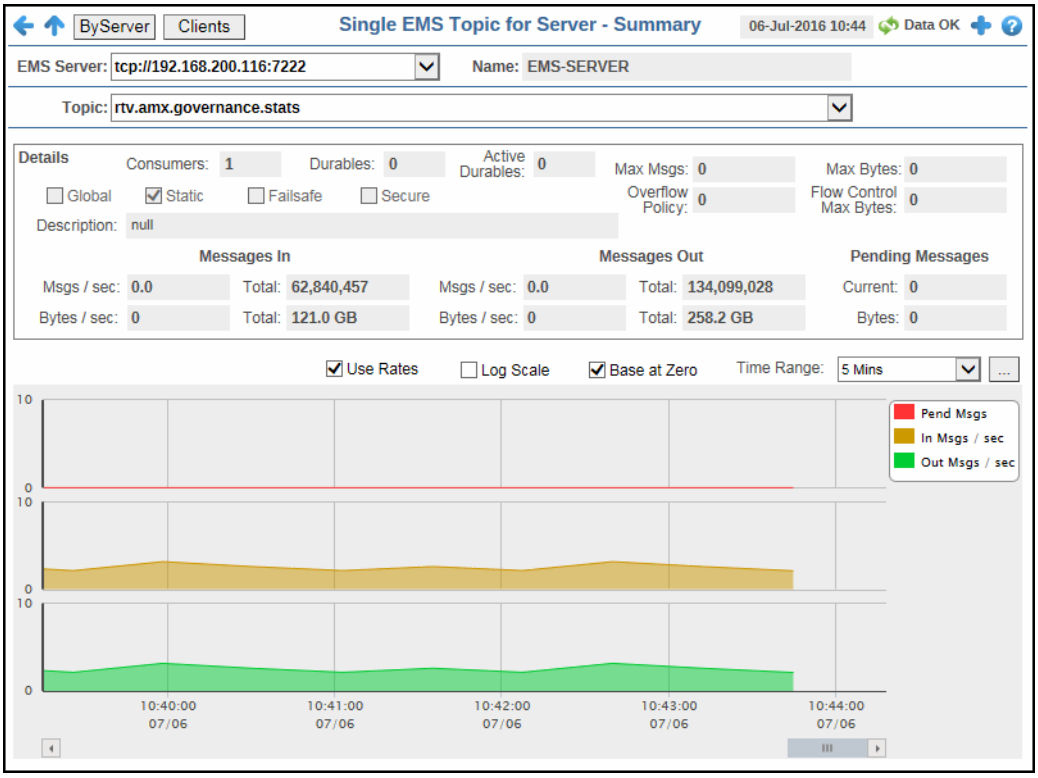
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single Topic Summary

Track performance and utilization metrics for a single topic on a single server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Clients** in the Title Bar takes you to the "Single EMS Topic-Clients" display for the selected topic.

Fields and Data

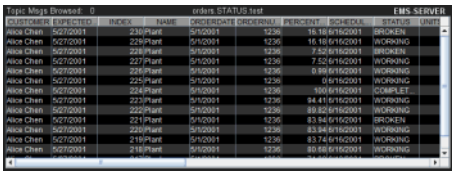
This display includes:

EMS Server The EMS Server selected from this drop-down menu populates the Topics drop-down menu with the Topics belonging to this EMS Server.

Name The name of the EMS server selected from the EMS Server drop-down menu.

Topic Select a Topic from the drop-down menu to view details for the selected Topic.

Browse Click to browse the contents of the selected topic in a separate window. The topic browser table displays up to 100,000 rows of messages.



By default, this button is disabled due to the fact that use of this option could significantly impact performance. To enable it, add the following substitution to the properties file with which you execute the Display Server and/or Viewer:

sl.rtview.sub=$emsDestBrowseButtonVisFlag:1

Details Shows metrics for the topic selected from the Topic drop-down menu.

	Consumers	The current number of consumers for the topic.
	Durables	The number of durable subscribers (active and inactive) to the topic.
	Active Durables	The number of active durable subscribers to the topic.
	Max Msgs	The maximum number of messages allocated for the topic.
	Max Bytes	The maximum of memory, in bytes, allocated for use by the topic.
	Global	When checked, the message is global and is routed to other servers.
	Static	When checked, the topic has a static destination.
	Failsafe	When checked, the message is marked as failsafe delivery.
	Secure	When checked, the topic is designated as secure and enforces permission policies.
	Overflow Policy	Indicates whether an overflow policy is set for the topic: **0** = No policy is set. **1** = A policy is set.
	Flow Control Max Bytes	The maximum amount of memory, in bytes, allocated for flow control use by the topic.
	Description	Description of the Topic.
Messages In	**Msgs/sec**	The number of inbound messages, per second, for the selected topic.
	Total	The total number of inbound messages for the selected topic since the server was started.
	Bytes/sec	The size of inbound messages, in bytes per second, for the selected topic.
	Total	The total size of inbound messages, in bytes, for the selected topic since the server was started.
Messages Out	**Msgs/sec**	The number of outbound messages, per second, for the selected topic.
	Total	The total number of outbound messages for the selected topic since the server was started.
	Bytes/sec	The size of outbound messages, in bytes per second, for the selected topic.

	Total	The total size of outbound messages, in bytes, for the selected topic since the server was started.
Pending Messages	**Current**	The number of messages for the selected topic currently waiting to be processed.
	Bytes	The size of the messages for the selected topic, in bytes, currently waiting to be processed.

Trend Graphs

Shows message data for the selected topic.

Pend Msgs -- Traces the number of messages currently waiting to be processed.

In Msgs / sec -- Traces the number of inbound messages, per second. This trend graph only displays when **Use Rates** is selected.

Out Msgs / sec -- Traces the number of outbound messages, per second. This trend graph only displays when **Use Rates** is selected.

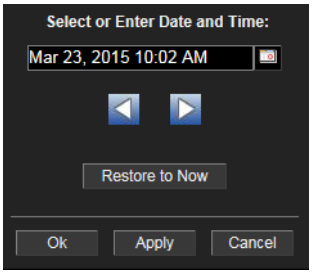
Delta In Msgs -- Traces the change in total inbound messages since the last update. This trend graph only displays when **Use Rates** is not selected.

Delta Out Msgs -- Traces the change in total inbound messages since the last update. This trend graph only displays when **Use Rates** is not selected.

Use Rates	When this check box is selected, the inbound and outbound message rates (**In Msgs/sec** and **Out Msgs/sec**) display in the trend graph. When this check box is not selected, the delta inbound and outbound messages (**Delta In Msgs** and **Delta Out Msgs**) display in the trend graph.
Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



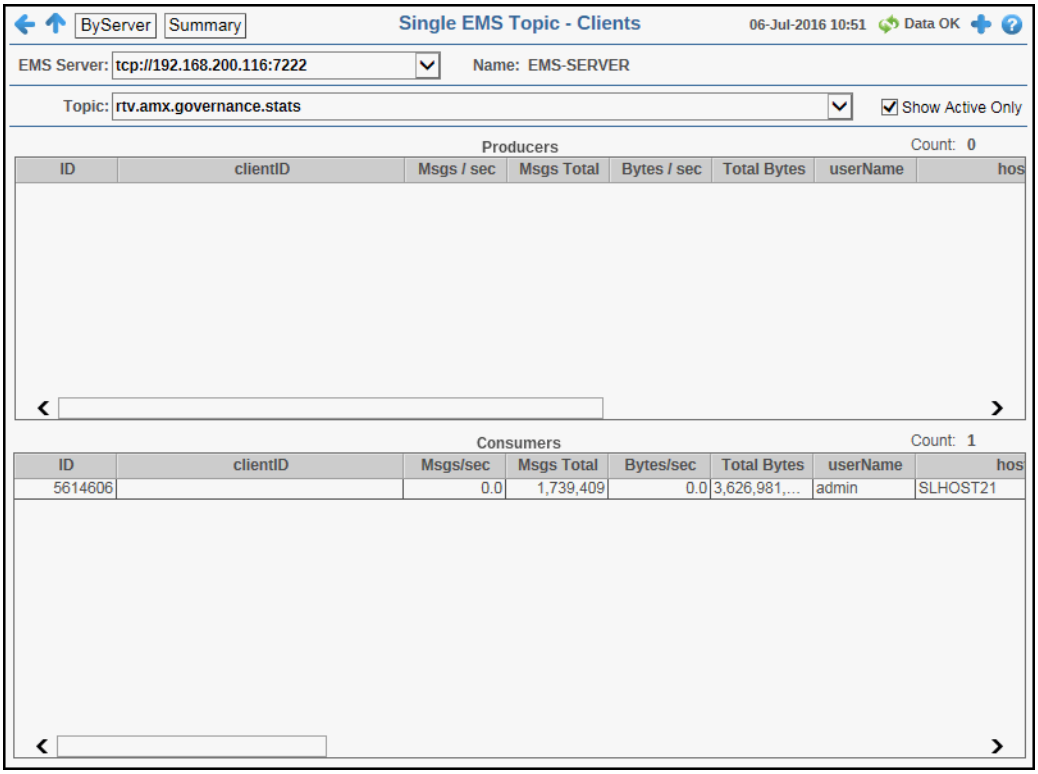
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single EMS Topic-Clients

View data for all consumers and producers associated with the selected topic.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Summary** in the Title Bar takes you to the "Single Topic Summary" display. Clicking ByServer in the Title Bar takes you to the "Single Topic By Server" display.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates the Topics drop-down menu with the Topics belonging to this EMS Server.

Name The name of the EMS Server selected from the EMS Server drop-down menu.

Topic	Select a Topic from the drop-down menu to view details for the selected Topic.
Show Active Only	Select this check box to view only the active producers and consumers for the selected Server/ Topic combination.
Producers	Shows data for all producers for the selected topic.

ID	A unique string identifier assigned to each producer.
clientID	A unique string identifier assigned to each client.
Msgs / sec	The number of messages, per second, emitted by the producer.
Msgs Total	The total number of messages emitted by the producer since the server was started.
Bytes / sec	The size of messages, in bytes per second, emitted by the producer.
Total Bytes	The total size of messages, in bytes, emitted by the producer since the server was started.
userName	The user name.
host	The name of the host.
sessionID	A unique string identifier assigned to each session.
connection ID	A unique string identifier assigned to each connection.
createTime	The amount of time, in milliseconds, since the producer was created.
time_stamp	The date and time this row of data was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Consumers	Shows data for all consumers of messages for the selected topic.

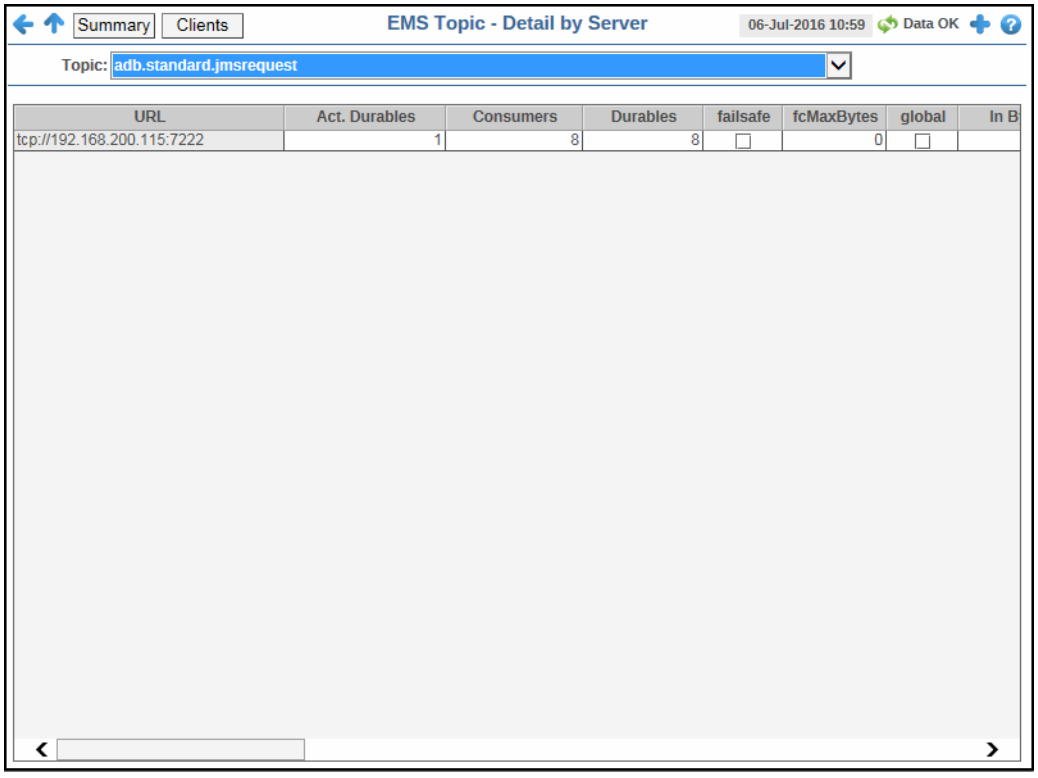
ID	A unique string identifier assigned to each consumer.
clientID	A unique string identifier assigned to each client.
Msgs / sec	The number of messages, per second, processed by the consumer.
Msgs Total	The total number of messages processed by the consumer.
Bytes / sec	The size of messages, in bytes per second, processed by the consumer.
Total Bytes	The total size of messages, in bytes, processed by the consumer since the server was started.
userName	The user name.
host	The name of the host machine.
Msgs Sent	The number of messages sent to the consumer that were not yet acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.

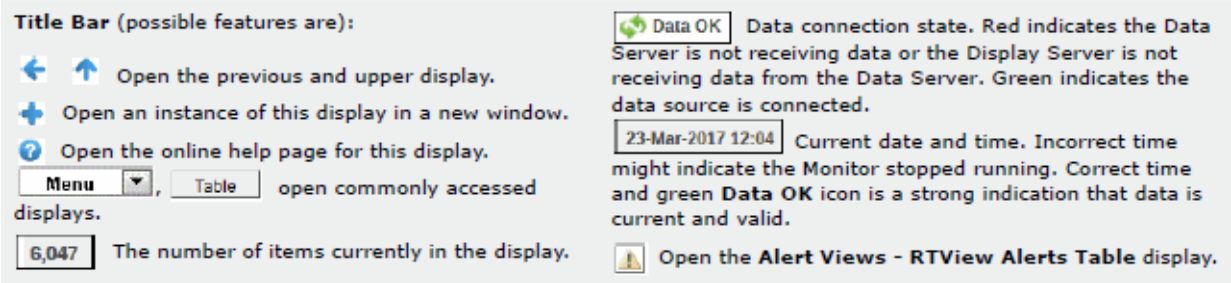
Size Msg Sent	The combined size of messages sent to the consumer that were not yet acknowledged by the consumer's session. **The sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Ack Msgs	The total number of messages that have been sent to the consumer and have been acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Sent Msgs	The total number of messages sent to the consumer since the consumer was created. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Elap. Since Last Ack	The amount of time (in milliseconds) that has elapsed since the last time a message sent to the consumer was acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Elap. Since Last Sent	The amount of time (in milliseconds) that has elapsed since the last time the server sent a message to the consumer. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
destination Prefetch	The actual destination prefetch value used by the server at runtime. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
prefetch Delivered Count	The number of prefetch messages delivered to the consumer by the server. For consumers receiving messages on any destination with positive prefetch value, this value is never more than the prefetch value of the destination. This value cannot be used to identify the status of the consumer, but it can be used in conjunction with other consumer information values to identify consumers who stopped receiving messages due to application-specific problems. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
durable Name	The name of the durable.
routeName	The queue owner server name if the consumer's destination is a routed queue. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
isActive	When checked, the consumer is active and can receive messages from the server. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
isSystem	This check box is checked if the consumer was automatically created by the system. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
sessionAck Mode	Lists the consumer's session acknowledge mode as a constant defined in **TibjmsAdmin**. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
session ID	A unique string identifier assigned to each session.

connection ID	A unique string identifier assigned to each connection.
createTime	The amount of time, in milliseconds, since the consumer was created.
time_stamp	The date and time this row of data was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Single Topic By Server

Track performance and utilization metrics of a single topic across all servers that have the topic defined on it. Compare topic activity among servers.





Note: Clicking **Clients** in the Title Bar takes you to the "Single EMS Topic-Clients" display for the selected topic. Clicking **Summary** in the Title Bar takes you to the "Single Topic Summary" display.

Fields and Data

This display includes:

Topic The Topic selected from this drop-down menu populates this display.

Table Shows details about the selected Topic for each server that has the Topic defined. Select a server from the list to view details in the "Single Topic Summary" display.

URL	The IP address and port number for the server.
Act. Durables	The number of currently active durables.
Consumers	The current number of consumers.
Durables	The number of active and inactive durables.
failsafe	When checked, the message is marked as failsafe delivery.
fcMaxBytes	The maximum number of bytes allocated for use by flow control.
global	When checked, the message is global and is routed to other servers.
In Byte Rate	The amount of inbound messages for the topic, in bytes per second.
In Msgs Rate	The amount of inbound messages for the topic, in number of messages per second.
In Total Bytes	The total number of inbound bytes for the topic.
In Total Msgs	The total number of inbound messages for the topic.
maxBytes	The maximum size, in bytes, that the topic can store for delivery to each durable or non-durable online subscriber on the topic.
maxMsgs	The maximum number of messages allocated for use by the topic.
Out Byte Rate	The amount of outbound messages (in bytes) per second.
Out Msg Rate	The number of outbound messages per second.
Out Total Bytes	The total amount of outbound messages for the topic, in bytes, since the server was started.

Out Total Msgs	The total number of outbound messages for the topic since the server was started.
overflowPolicy	Policy Indicates whether an overflow policy is set for the topic: **0** = No policy is set. **1** = A policy is set.
Pending Msgs	The number of currently pending messages for the topic.
Pending Msgs Size	The amount of space, in bytes, pending messages use for the topic.
secure	When checked, the topic is designated as secure and enforces permission policies.
static	When checked, the topic has a static destination.
Subscribers	The number of subscribers for the topic.
time_stamp	The date and time this row of data was last updated.
description	Descriptive text to help the administrator identify this resource.

EMS Queues

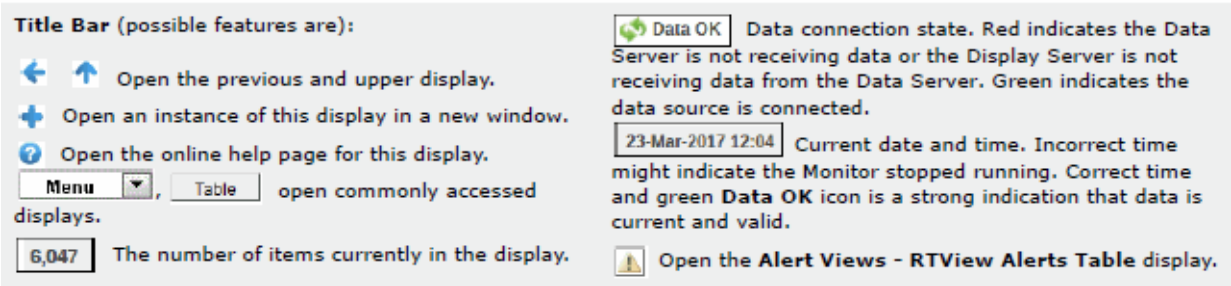
These displays present several views of performance metrics for queues. You can view all queues that are defined on a specific server in the "All Queues Heatmap" display, or you can view all servers that have a specific queue defined in the "Single Queue Summary" display. The "Single EMS Queue-Clients" display provides a list of all the servers on which those queues are defined.

- "All Queues Heatmap": A heatmap representation of a selected set of metrics that shows performance and utilization metrics and trends for all queues defined on a specified server, including message performance metrics.
- "All Queues Table": Shows performance and utilization metrics for all queues defined on a specified server.
- "All Queues Summary": Shows performance and utilization metrics and trends for all queues defined on a specified server, including message performance metrics.
- "Single Queue Summary": Shows detailed performance and utilization metrics and trends for a specified queue on a single server, including producer and consumer counts, and message performance metrics.
- "Single EMS Queue-Clients": View data for all consumers and producers associated with the selected queue.
- "Single Queue By Server": Table shows performance and utilization metrics for all servers that have a specified queue defined, including consumer and receiver count, and message performance metrics.

All Queues Heatmap

A heatmap representation of the "All Queues Table" display that allows you to track performance and utilization metrics and trends for all queues on a single server. View status and alerts of all queues for a server. Use the **Metric** drop-down menu to view to **Alert Severity**, **Alert Count**, **Consumers**, **Receivers**, **Pending Messages**, **Inbound Message Rate**, **Inbound Total Messages**, **Outbound Message Rate**, or **Outbound Total Messages**.

The heatmap is organized so that each rectangle represents a queue on the selected server. The rectangle color indicates the most critical alert state. Click on a node to drill-down to the "Single Queue Summary" display and view metrics for a particular queue. Toggle between the commonly accessed **Table** (link to the "All Queues Table" display) and **Heatmap** displays. Mouse-over rectangles to view more details about the performance and status of each queue.



Note: Clicking **Table** in the Title Bar takes you to the "All Queues Table" display. Clicking **Summary** in the Title Bar takes you to the "All Queues Summary" display.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates all the associated Queue data in this display.

Filter Pattern Enter a string to show only queues with names that contain the string. For example, if you enter the string Madrid, all queues with Madrid in the queue name are shown in the table. If no entry is made, all queue names are shown. For most use cases, you can enter a portion of the queue name.

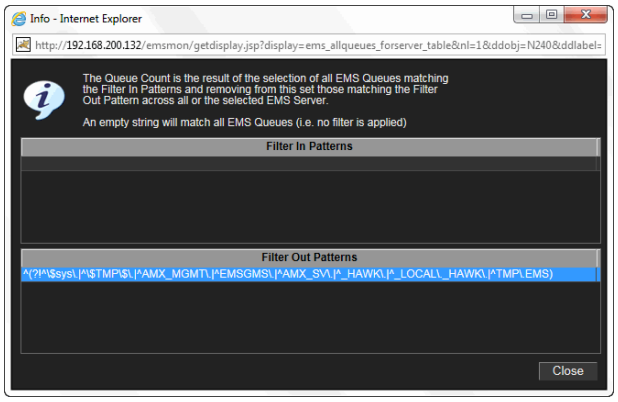
Filtered Queue Count This field is broken into two different values. The first value is the total number of currently active queues on the selected server, which is filtered by the **Filter Pattern** field and by the default value specified in the **$emsQueueFilterOutPattern** property in the **emsmon/conf/rtvapm.properties** file. The second value is the total number of queues on the selected server. In other words, the filtered number of queues/the total number of queues on the server.

The default value for the **$emsQueueFilterOutPattern** property is:

```
collector.sl.rtview.sub=$emsQueueFilterOutPattern:'^(?!^\\$sys\\.|^\\$TMP\\
$\\.|^AMX_MGMT\\.|^EMSGMS\\.|^AMX_SV\\.|^_HAWK\\.|^_LOCAL\\._HAWK\\.|^TMP\\
.EMS)'
```

You can modify the filter value by editing the **$emsQueueFilterOutPattern** property in the "sample.properties File", which will override the default value.

Clicking the associated Help button displays the **Info** dialog, which displays the defined filter in and filter out properties used by the **Filtered Queue Count**.

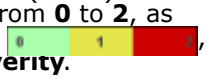


Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting Auto helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is **Alert Severity**. Each Metric has a color gradient bar that maps values to colors. The heatmap organizes the topics by server, where each rectangle represents a Queue. Mouse-over any rectangle to display the current values of the metrics for the Queue. Click on a rectangle to drill-down to the associated "Single Queue Summary" display for a detailed view of metrics for that particular queue.

Alert Severity

The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

-- Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 -- Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

-- Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count

The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

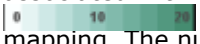
The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

Consumers

The total number of consumers in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of receivers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Receivers

The total number of receivers in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of receivers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

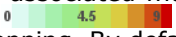
The **Auto** option does not impact this metric.

Pending Msgs

The total number of pending messages in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsQueuesPendingMsgsHigh**, which is **3000**. The middle value in the gradient bar indicates the middle value of the range (the default is **1500**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

In Msgs /sec

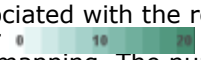
The number of inbound messages per second in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsQueuesInMsgRateHigh**, which is **9**. The middle value in the gradient bar indicates the middle value of the range (the default is **4.5**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Note: This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.

In Total Msg

The total number of inbound messages in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of receivers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

Out Msgs/sec

The number of outbound messages per second in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. By default, the numerical values in the gradient bar range from **0** to the alert threshold of **EmsQueuesOutMsgRateHigh**, which is **9**. The middle value in the gradient bar indicates the middle value of the range (the default is **4.5**).

When **Auto** is checked, the numeric values in the color gradient bar show the range of the data being displayed rather than the default values. The middle value changes accordingly to indicate the color of the middle value of the range.

Note: This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.

Out Total Msgs

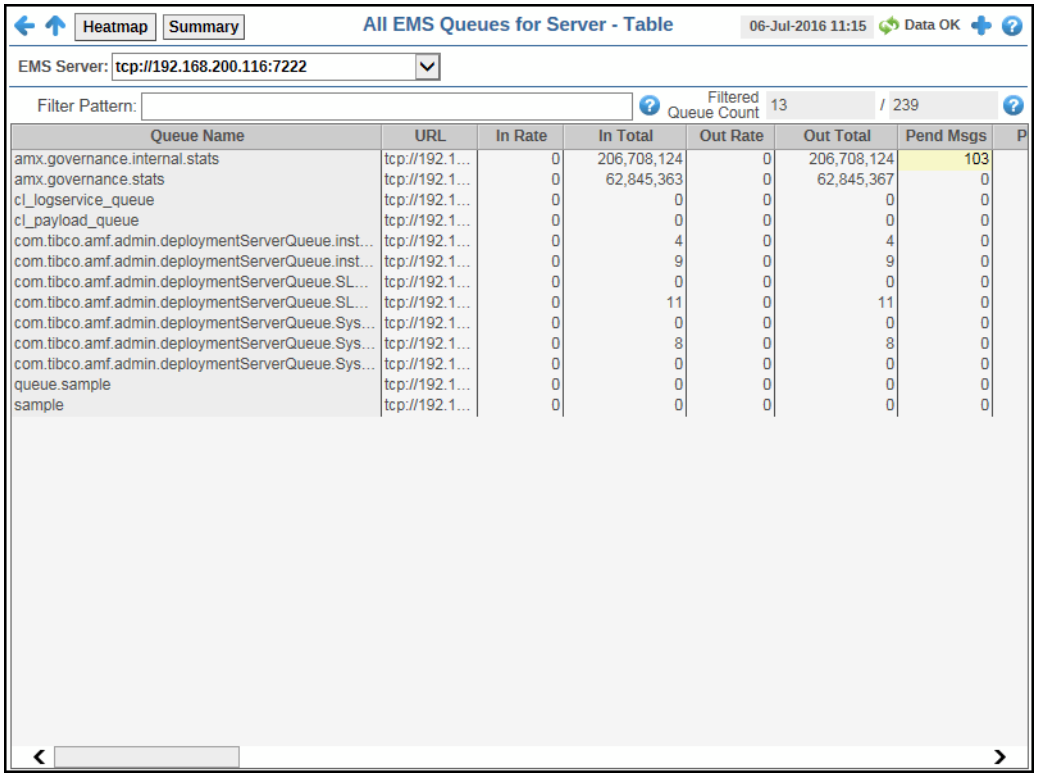
The total number of outbound messages in a given item (index) associated with the rectangle. The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of receivers in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

The **Auto** option does not impact this metric.

All Queues Table

Track performance and utilization metrics for all queues on a single server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Heatmap** in the Title Bar takes you to the "All Queues Heatmap" display. Clicking **Summary** in the Title Bar takes you to the "All Queues Summary" display.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates all associated Queue data in this display.

Filter Pattern Enter a string to show only queues with names that contain the string. For example, if you enter the string Madrid, all queues with Madrid in the queue name are shown in the table. If no entry is made, all queue names are shown. For most use cases, you can enter a portion of the queue name.

Filtered Queue Count This field is broken into two different values. The first value is the total number of currently active queues on the selected server, which is filtered by the **Filter Pattern** field and by the default value specified in the **$emsQueueFilterOutPattern** property in the **emsmon/conf/rtvapm.properties** file. The second value is the total number of queues on the selected server. In other words, the filtered number of queues/the total number of queues on the server.

The default value for the **$emsQueueFilterOutPattern** property is:

```
collector.sl.rtview.sub=$emsQueueFilterOutPattern:'^(?!^\\$sys\\.|^\\$TMP\\$\\.|^AMX_MGMT\\.|^EMSGMS\\.|^AMX_SV\\.|^_HAWK\\.|^_LOCAL\\._HAWK\\.|^TMP\\.EMS)'
```

You can modify the filter value by editing the **$emsQueueFilterOutPattern** property in the "sample.properties File", which will override the default value.

Clicking the associated Help button displays the **Info** dialog, which displays the defined filter in and filter out properties used by the **Filtered Queue Count**.

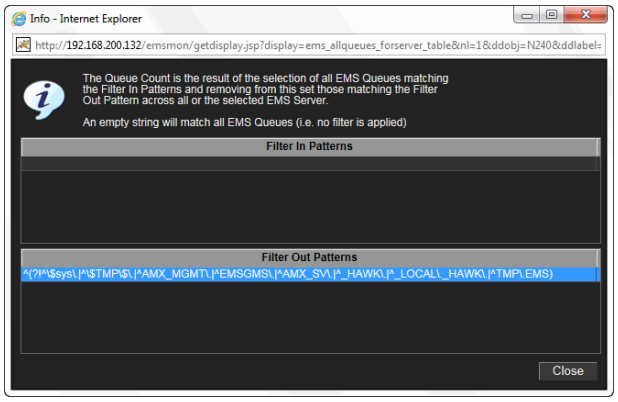


Table This table describes all queues on the selected server. Click a row to view metrics for a single queue in the "Single Queue Summary" display.

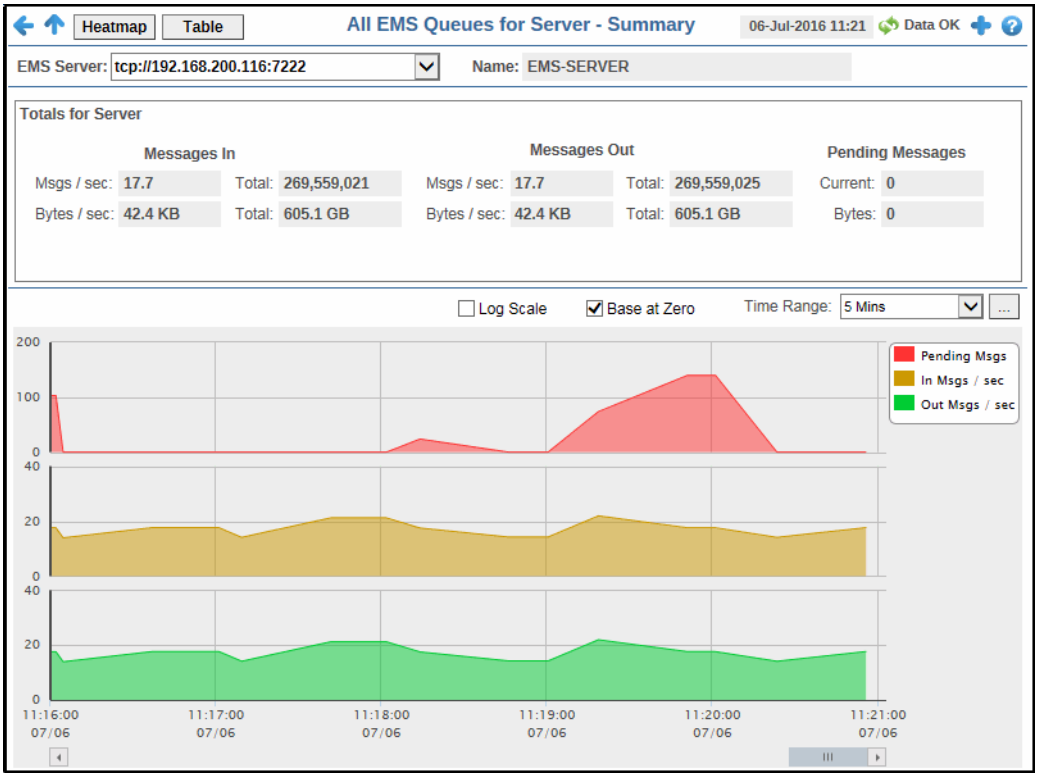
Queue Name	The name of the queue.
URL	The IP address and port number for the server.
In Rate	The number of inbound messages for the queue, per second. **Note:** This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.
In Total	The total number of inbound messages for the queue.
Out Rate	The number of outbound messages for the queue, per second. **Note:** This metric comes directly from the **tibjms.admin.DestinationInfo** class from TIBCO.
Out Total	The total number of outbound messages for the queue.
Pend Msgs	The number of currently pending messages for the queue.

Pend Size	The amount of space, in bytes, used by pending messages for the queue.
activeDurableCount	The current number of active durables.
consumerCount	The number of active and inactive consumers.
durableCount	The number of active and inactive durables.
failSafe	When checked, the message is marked as failsafe delivery.
fcMaxBytes	The maximum number of bytes allocated for use by flow control.
global	When checked, the message is global and is routed to other servers.
inboundByteRate	The amount of inbound messages for the queue, in bytes per second.
inboundTotalBytes	The total amount of inbound messages for the queue, in bytes.
maxBytes	The maximum amount of bytes allocated for use by the queue.
maxMsgs	The maximum number of messages allocated for use by the queue.
outboundByteRate	The amount of outbound messages for the queue, in bytes per second.
outboundTotalBytes	The total amount of outbound messages for the queue, in bytes.
overflowPolicy	Indicates whether an overflow policy is set for the queue: **0** = No policy is set. **1** = A policy is set.
secure	When checked, the queue is designated as secure and enforces permission policies.
static	When checked, the queue has a static destination.
subscriberCount	The number of subscribers that receive queue message.
description	Descriptive text to help the administrator identify this resource.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

time_stamp	The date and time this row of data was last updated.
DeltainboundTotalMessages	The change in total inbound messages since the last update.
DeltainboundTotalBytes	The change in total inbound message bytes since the last update.
DeltaoutboundTotalMessages	The change in total outbound messages since the last update.
DeltaoutboundTotalBytes	The change in total outbound message bytes since the last update.
prefetch	Lists the maximum number of messages consumers can fetch.
expiryOverride	If set to a non-zero value for a destination and the server delivers a message to the destination, the server replaces the producer's expiration value with this value.
store	Provides the store for this destination where persistent messages are stored.
deliveredMessageCount	Indicates the total number of messages that have been delivered and acknowledged.
URLQueue	The IP address and port for the queue.
exclusive	When checked, the server sends all messages on this queue to one consumer.
maxRedelivery	The maximum number of attempts for attempting redelivery of a message.
receiverCount	The number of receivers that receive queue message.

All Queues Summary

Track performance and utilization metrics and trends for all queues on a single server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Heatmap** in the Title Bar takes you to the "All Queues Heatmap" display. Clicking **Table** in the Title Bar takes you to the "All Queues Table" display.

Fields and Data

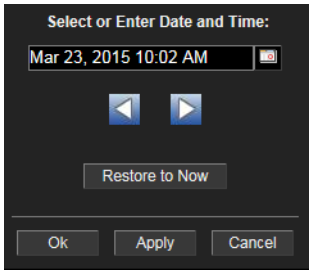
This display includes:

EMS Server	The EMS Server selected from this drop-down menu populates all associated queue data in this display.
Name	The name of the server selected in the **EMS Server** drop down list.
Totals For Server	Shows metrics for all queues on the selected server.

	Messages In	**Msgs/sec** -- The total number of inbound messages for all queues on the server, per second. **Total** -- The total number of inbound messages for all queues on the server since the server was started. **Bytes/sec** -- The amount of inbound messages, in bytes per second, for all queues on the server. **Total** -- The amount of inbound messages, in kilobytes, for all queues on the server since the server was started.
	Messages Out	**Msgs/sec** -- The total number of outbound messages for all queues on the server, per second. **Total** -- The total number of outbound messages for all queues on the server since the server was started. **Bytes/sec** -- The amount of outbound messages, in bytes per second, for all queues on the server. **Total** -- The amount of outbound messages for all queues on the server, in kilobytes, since the server was started.
	Pending Messages	**Current** -- The total number of messages currently waiting to be processed. **Bytes** -- The amount of messages, in bytes, currently waiting to be processed.
Trend Graphs	Shows metrics for all queues on the selected server. **Pending Msgs** -- Traces the number of messages currently waiting to be processed. **In Msgs / sec** -- Traces the number of inbound messages for all queues, per second. **Out Msgs / sec** -- Traces the number of outbound messages for all queues, per second.	
	Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



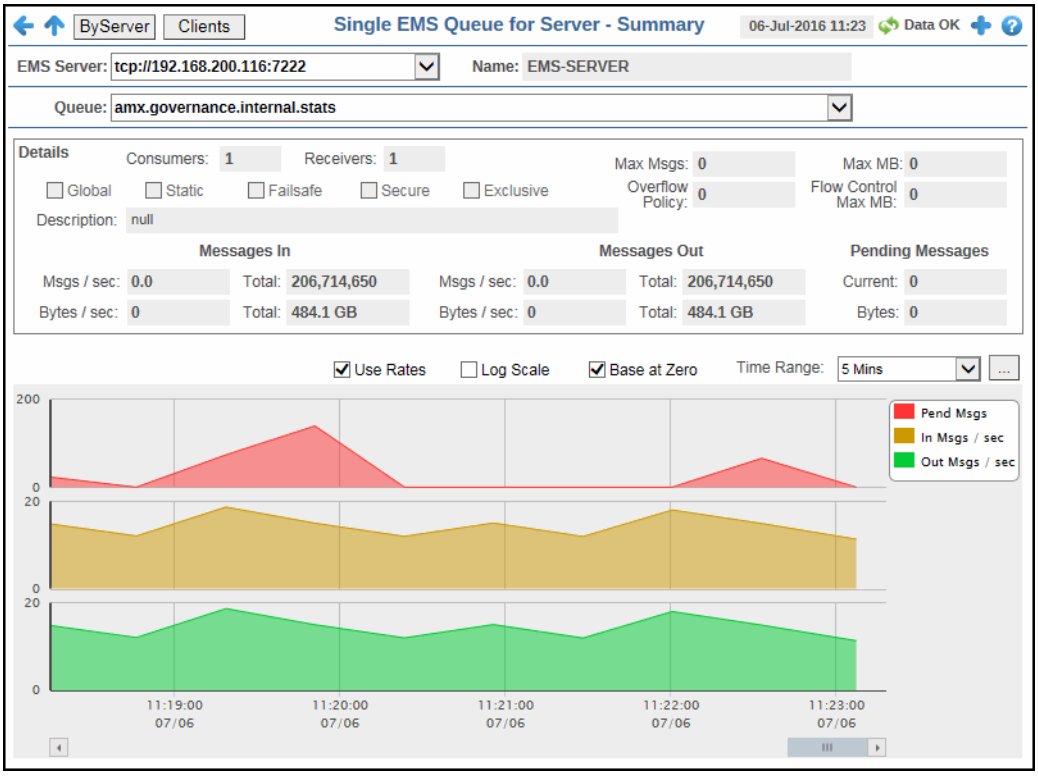
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single Queue Summary

Track performance and utilization metrics for a single queue on a single server.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **Clients** in the Title Bar takes you to the "Single EMS Queue-Clients" display. Clicking **By Server** in the Title Bar takes you to the "Single Queue By Server".

Fields and Data

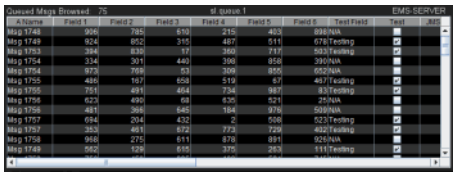
This display includes:

EMS Server The EMS Server selected from this drop-down menu populates the **Queues** drop-down menu with the queues belonging to this EMS Server.

Name The name of the EMS Server selected from the **EMS Server** drop-down menu.

Queue Select a queue from the drop-down menu. The selection made here populates this display.

Browse Click to browse the contents of the selected queue in a separate window. The queue browser table displays up to 100,000 rows of messages.



By default, this button is disabled due to the fact that use of this option could significantly impact performance. To enable it, add the following substitution to the properties file with which you execute the Display Server and/or Viewer:

sl.rtview.sub=$emsDestBrowseButtonVisFlag:1

Details Shows metrics for the queue selected from the **Queue** drop-down menu.

	Consumers	The number of consumers currently interacting with the queue.
	Receivers	The number of consumers currently receiving messages from the queue.
	Max Msgs	The maximum number of messages allocated for the queue.
	Max MB	The maximum amount of memory, in megabytes, allocated for use by the queue.
	Global	When checked, the message is global and is routed to other servers.
	Static	When checked, the queue has a static destination.
	Failsafe	When checked, the message is marked as failsafe delivery.
	Secure	When checked, the queue is designated as secure and enforces permission policies.
	Exclusive	When checked, the server sends all messages on this queue to one consumer.
	Overflow Policy	Indicates whether an overflow policy is set for the queue: **0** = No policy is set. **1** = A policy is set.
	Flow Control Max MB	The maximum amount of memory, in megabytes, allocated for flow control use by the queue.
	Description	Description of the Queue.
Messages In	**Msgs/sec**	The number of inbound messages, per second, for the selected queue.
	Total	The total number of inbound messages for the selected queue since the server was started.
	Bytes/sec	The size of the inbound messages, in bytes per second, for the selected queue.
	Total	The total size of inbound messages, in bytes, for the selected queue since the server was started.

Messages Out	**Msgs/sec**	The number of outbound messages, per second, for the selected queue.
	Total	The total number of outbound messages for the selected queue since the server was started.
	Bytes/sec	The size of outbound messages, in bytes per second, for the selected queue.
	Total	The total size of outbound messages, in bytes, for the selected queue since the server was started.
Pending Messages	**Current**	The total number of messages for the selected queue currently waiting to be processed.
	Bytes	The size, in bytes, of messages for the selected queue currently waiting to be processed.

Trend Graphs

Shows metrics for the selected queue on the specified server.

Pending Msgs -- Traces the number of messages currently waiting to be processed.

In Msgs / sec -- Traces the number of inbound messages, per second. This trend graph only displays when **Use Rates** is selected.

Out Msgs / sec -- Traces the number of outbound messages, per second. This trend graph only displays when **Use Rates** is selected.

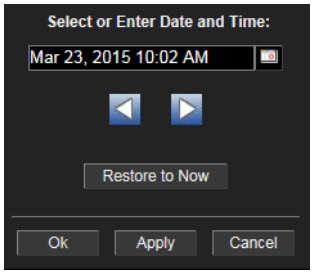
Delta In Msgs -- Traces the change in total inbound messages since the last update. This trend graph only displays when **Use Rates** is not selected.

Delta Out Msgs -- Traces the change in total inbound messages since the last update. This trend graph only displays when **Use Rates** is selected.

Use Rates	When this check box is selected, the inbound and outbound message rates (**In Msgs/sec** and **Out Msgs/sec**) display in the trend graph. When this check box is not selected, the delta inbound and outbound messages (**Delta In Msgs** and **Delta Out Msgs**) display in the trend graph.
Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



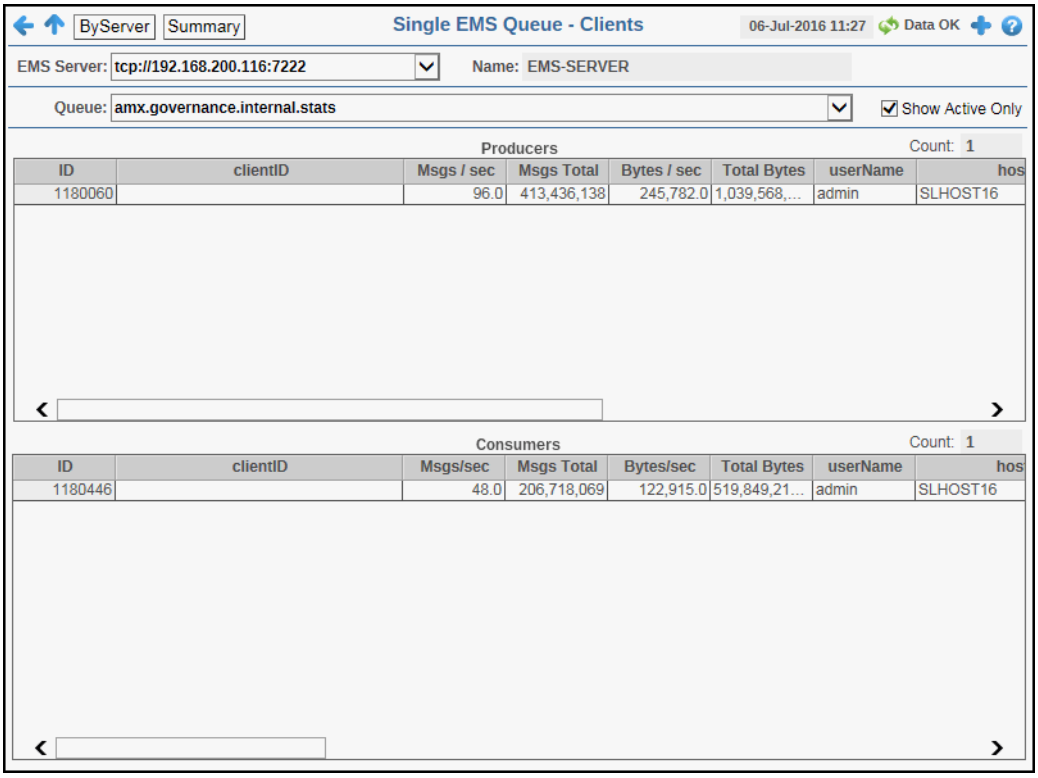
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Single EMS Queue-Clients

View data for all consumers and producers associated with the selected queue.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking **By Server** in the Title Bar takes you to the "Single Queue By Server". Clicking **Summary** in the Title Bar takes you to the "Single Queue Summary" display.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates the Queue drop-down menu with the Queues belonging to this EMS Server.

Name The name of the EMS Server selected from the EMS Server drop-down menu.

Queue Select a Queue from the drop-down menu to view details for the selected Queue.

Show Active Only Select this check box to view only the active producers and consumers for the selected EMS Queue.

Producers Shows data for all producers for the selected queue.

- **ID** A unique string identifier assigned to each producer.
- **clientID** A unique string identifier assigned to each client.
- **Msgs / sec** The number of messages, per second, that are emitted by the producer.
- **Msgs Total** The total number of messages emitted by the producer since the server was started.
- **Bytes / sec** The size of messages, in bytes per second, that are emitted by the producer.
- **Total Bytes** The total size of messages, in bytes, emitted by the producer since the server was started.
- **userName** The user name.
- **host** The name of the host.
- **sessionID** A unique string identifier assigned to each session.
- **connection ID** A unique string identifier assigned to each connection.
- **createTime** The amount of time, in milliseconds, since the producer was created.
- **time_stamp** The date and time this row of data was last updated.
- **Expired** When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Consumers Shows data for all consumers associated with the selected queue.

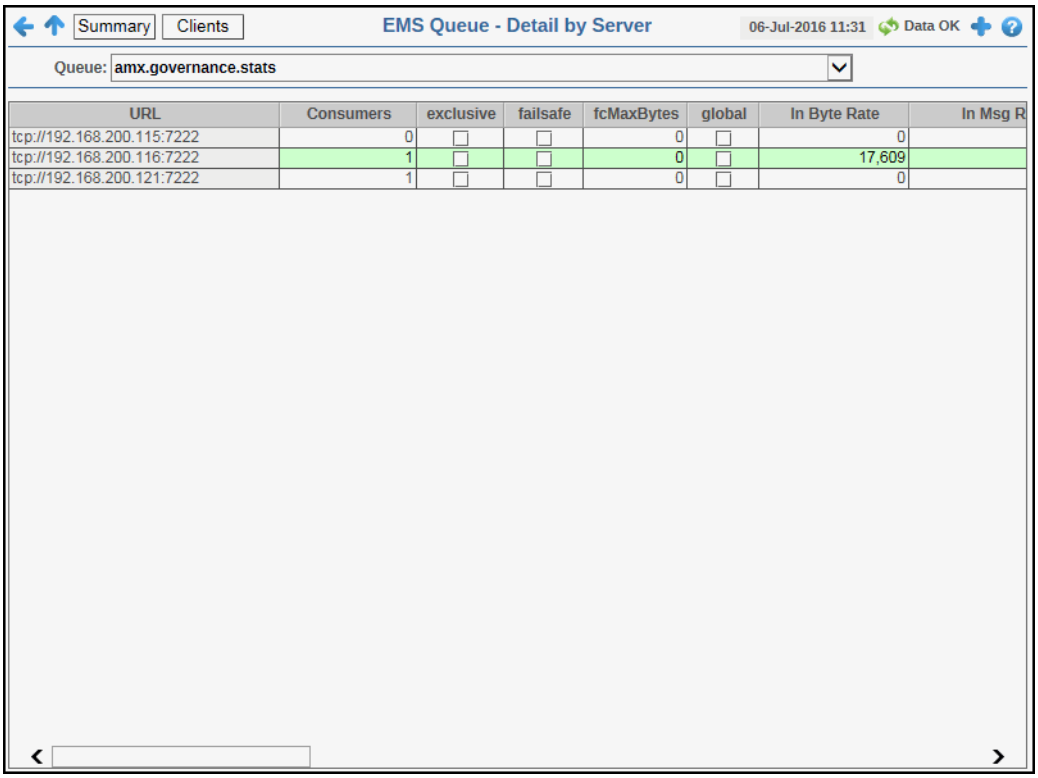
- **ID** A unique string identifier assigned to each consumer.
- **clientID** A unique string identifier assigned to each client.
- **Msgs / sec** The number of messages, per second, that are processed by the consumer.
- **Msgs Total** The total number of messages that have been processed by the consumer.
- **Bytes / sec** The size of messages, in bytes per second, that are processed by the consumer.
- **Total Bytes** The total size of messages, in bytes, processed by the consumer since the server was started.
- **userName** The user name.
- **host** The name of the host machine.

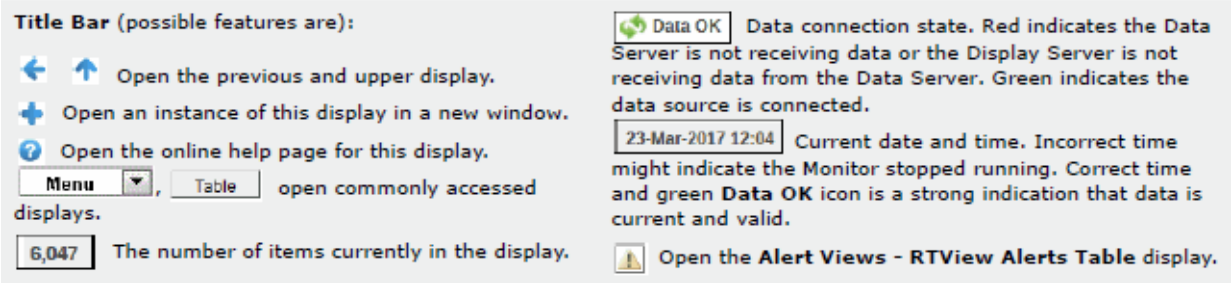
Msgs Sentt	The number of messages sent to the consumer that were not yet acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
Size Msg Sent	The combined size of messages sent to the consumer that were not yet acknowledged by the consumer's session. **The sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
Ack Msgs	The total number of messages that have been sent to the consumer and have been acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
Sent Msgs	The total number of messages sent to the consumer since the consumer was created. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
Elap. Since Last Ack	The amount of time (in milliseconds) that has elapsed since the last time a message sent to the consumer was acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
Elap. Since Last Sent	The amount of time (in milliseconds) that has elapsed since the last time the server sent a message to the consumer. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
destination Prefetch	The actual destination prefetch value used by the server at runtime. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
prefetch Delivered Count	The number of prefetch messages delivered to the consumer by the server. For consumers receiving messages on any destination with positive prefetch value, this value is never more than the prefetch value of the destination. This value cannot be used to identify the status of the consumer, but it can be used in conjunction with other consumer information values to identify consumers who stopped receiving messages due to application-specific problems. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
durable Name	The name of the durable.
routeName	The queue owner server name if the consumer's destination is a routed queue. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
isActive	When checked, the consumer is active and can receive messages from the server. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.
isSystem	This check box is checked if the consumer was automatically created by the system. The **sl.rtview.jmsadm.queryClDetails** property must be set to **true** in your **sample.properties** file to see this column.

sessionAck Mode	Lists the consumer's session acknowledge mode as a constant defined in **TibjmsAdmin**. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
session ID	A unique string identifier assigned to each session.
connection ID	A unique string identifier assigned to each connection.
createTime	The amount of time, in milliseconds, since the consumer was created.
time_stamp	The date and time this row of data was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Single Queue By Server

Track performance and utilization metrics of a single queue across all servers. Compare queue activity among servers.





Note: Clicking **Summary** in the Title Bar takes you to the "Single Queue Summary". Clicking **Clients** in the Title Bar takes you to the "Single EMS Queue-Clients" display.

Fields and Data

This display includes:

Queue The Queue selected from this drop-down menu populates this display.

Table Shows details about the selected Queue for each server that has the queue defined. Select a server to view details in the "Single Queue Summary" display.

URL	The URL of the server.
Consumers	The number of active and inactive consumers.
exclusive	When checked, the server sends all messages on this queue to one consumer.
failSafe	When checked, the message is marked as failsafe delivery.
fcMaxBytes	The maximum number of bytes allocated for use by flow control.
global	When checked, the message is global and is routed to other servers.
In Byte Rate	The amount of inbound messages for the queue, in bytes per second.
In Msg Rate	The amount of inbound messages for the queue, in number of messages per second.
In Total Bytes	The total number of inbound bytes for the queue.
In Total Msgs	The total number of inbound messages for the queue.
maxBytes	The maximum amount of bytes allocated for use by the queue.
maxMsgs	The maximum number of messages allocated for use by the queue.
maxRedelivery	The maximum number of attempts for attempting redelivery of a message.

Out Byte Rate	The amount of outbound messages (in bytes) per second.
Out Msg Rate	The number of outbound messages per second.
Out Total Bytes	The total amount of outbound messages, in bytes, since the server was started.
Out Total Msgs	The total number of outbound messages since the server was started.
overflowPolicy	Indicates whether an overflow policy is set for the queue: **0** = No policy is set. **1** = A policy is set.
Pending Msgs	The number of currently pending messages.
Pending Msgs Size	The amount of space, in bytes, pending messages use for the queue.
Receivers	The number of receivers of queue messages.
secure	When checked, the topic is designated as secure and enforces permission policies.
static	When checked, the topic has a static destination.
time_stamp	The date and time this row of data was last updated.
description	Descriptive text to help the administrator identify this resource.

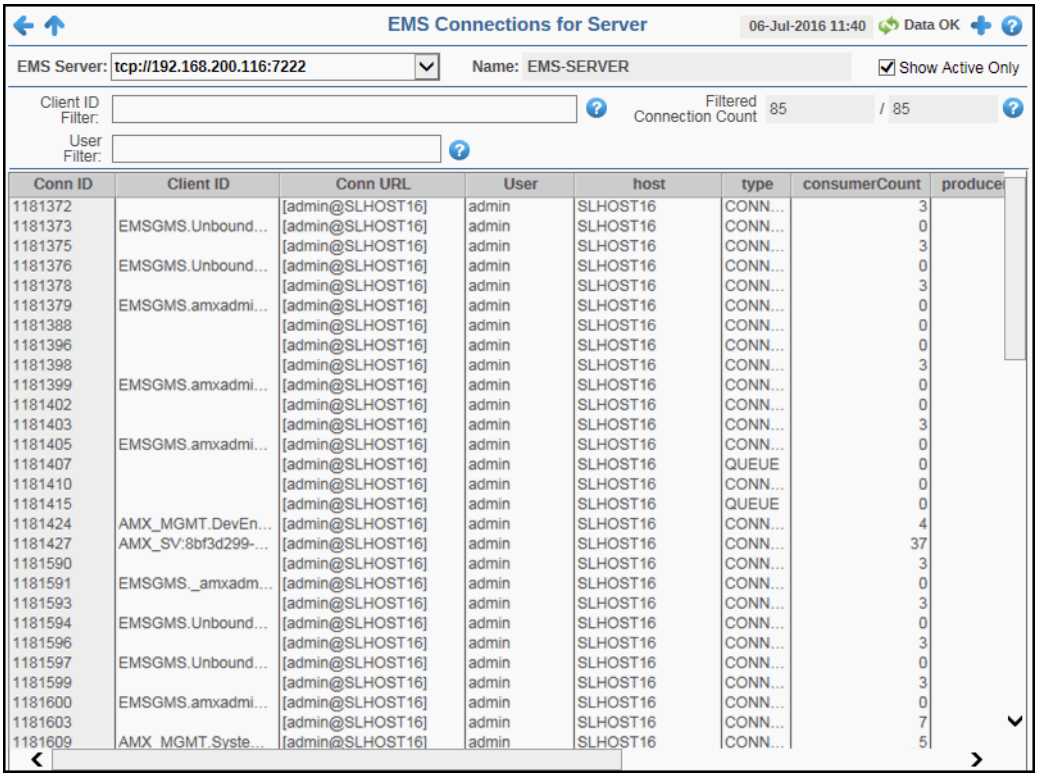
EMS Clients

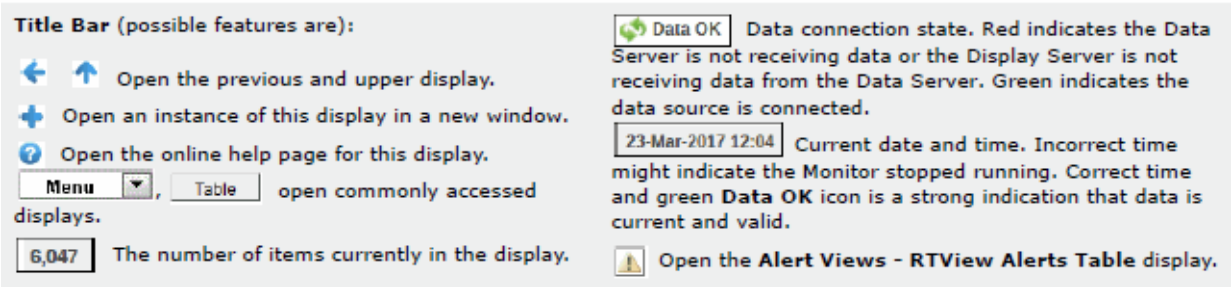
These displays present performance metrics for all server connections, including users, routes between servers, producers, consumers and durables connected to a specific EMS server.

- "Connections": Shows connection information on a single server.
- "Bridges, Users, Ports": Shows utilization metrics for bridges, users and ports on a single server.
- "Routes": Shows bridges for server routes on a single server.
- "Producers": Shows utilization metrics for producers on a single server.
- "Producer Summary": Shows utilization metrics for producers on a single server.
- "Consumers": Shows utilization metrics for consumers on a single server.
- "Consumer Summary": Shows utilization metrics for consumers on a single server.
- "Durables": Shows utilization metrics for durables on a single server.

Connections

View connections on a single server.





Fields and Data

This display includes:

EMS Server	The EMS Server selected from this drop-down menu populates all associated Connections data in this display.
Name	The name of the EMS Server selected from the EMS Server drop-down menu.
Show Active Only	Select this check box to display only active connections.
Client ID Filter	Filter field that allows you to filter the list of connections by client ID.

Filtered Connection Count

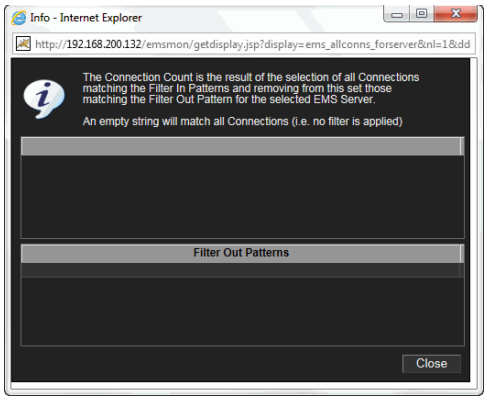
This field is broken into two different values. The first value is the total number of currently active connections on the selected server, which is filtered by the **Filter Pattern** field and by the default value specified in the **$emsConnectionFilterOutPattern** property in the **emsmon/conf/rtvapm.properties** file. The second value is the total number of connections on the selected server. In other words, the filtered number of connections/the total number of connections on the server.

The default value for the **$emsConnectionFilterOutPattern** property is:

```
collector.sl.rtview.sub=$emsConnectionFilterOutPattern:'^(?!^\\[admin\\@
)'
```

You can modify the filter value by editing the **$emsConnectionFilterOutPattern** property in the "sample.properties File", which will override the default value.

Clicking the associated Help button displays the **Info** dialog, which displays the defined filter in and filter out properties used by the **Filtered Connection Count**.



User Filter Filter field that allows you to filter the list of connections by user name.

Connections This table describes the current connections on the selected server.

Conn ID	The unique numeric ID assigned to this connection that can be used for deletion.
Client ID	The unique string identifier assigned to the client.
Conn URL	The connection URL.
User	The user name.
host	The name of the host to which the server is connected.
type	The type of connection: Queue, Topic or System.
consumerCount	The total number of consumers currently connected.
producerCount	The total number of producers currently connected.
sessionCount	The total number of sessions currently connected.
startTime	The date and time the server was started
upTime	The amount of time, in milliseconds, since the server was started.

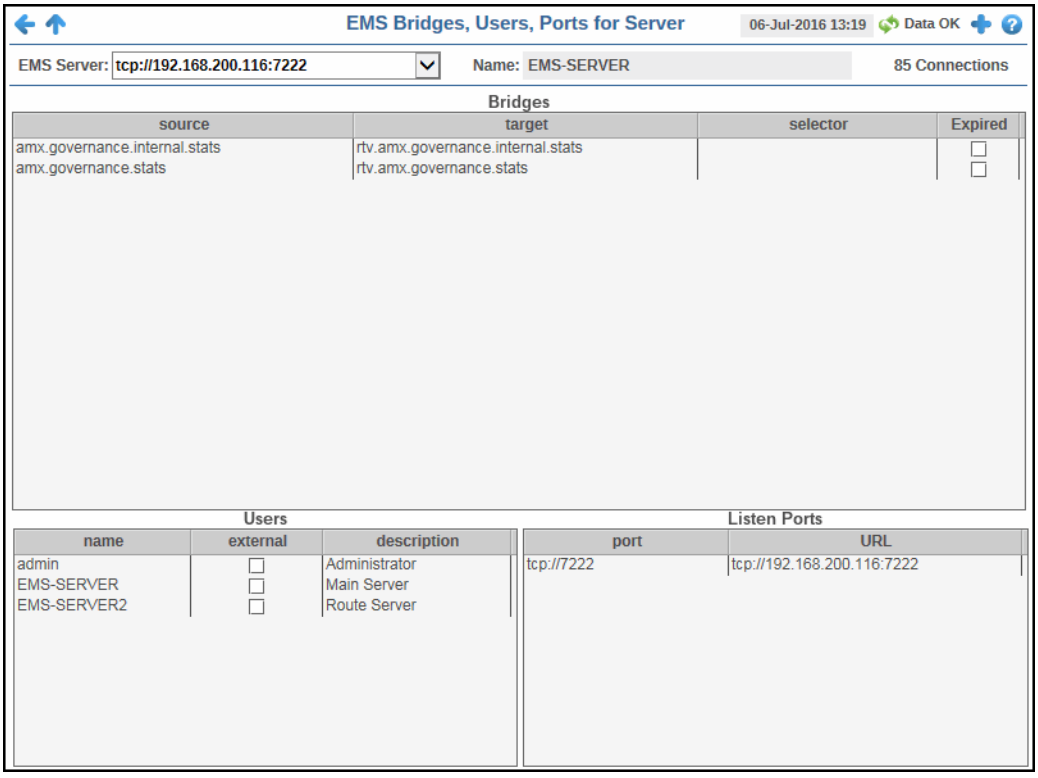
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
time_stamp	The date and time this row of data was last updated.

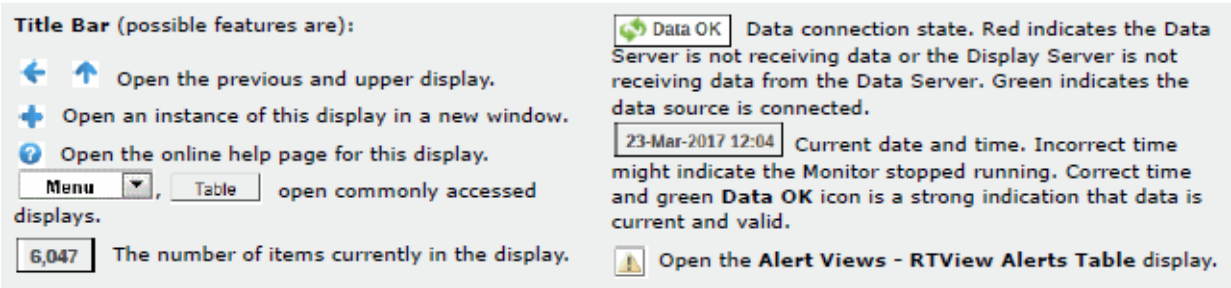
Bridges, Users, Ports

View bridges configured on an EMS Server, as well as their associated users and ports. You can right-click in the **Bridges** table and select **Go To Source** to view bridged source information in the "Single Queue Summary" if the source is a queue, or "Single Topic Summary" if the source is a topic. You can right-click in the **Bridges** table and select **Go To Target** to view bridged target information in the "Single Queue Summary" if the target is a queue, or "Single Topic Summary" if the target is a topic.

Note: The **Go To Source** option will not enabled if the source side of the bridge is wildcarded.

Note: .The functionality of the **Drop Down** option in the drop down list that displays when you right-click in the **Bridges** table is replaced by the **Go To Source** and **Go To Target** options, and no additional functionality exists for the **Drop Down** option.





Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down menu populates all associated Bridges, Users, and Ports data in this display.

Name The name of the EMS Server selected from the **EMS Server** drop-down menu.

Bridges This table describes the bridges for the selected server.

- **source** The topic or queue which is the source of the bridge.
- **target** The topic or queue which is the target of the bridge.
- **selector** The message selector string or blank if none has been set.
- **Expired** When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.

Users This table describes the users on the selected server.

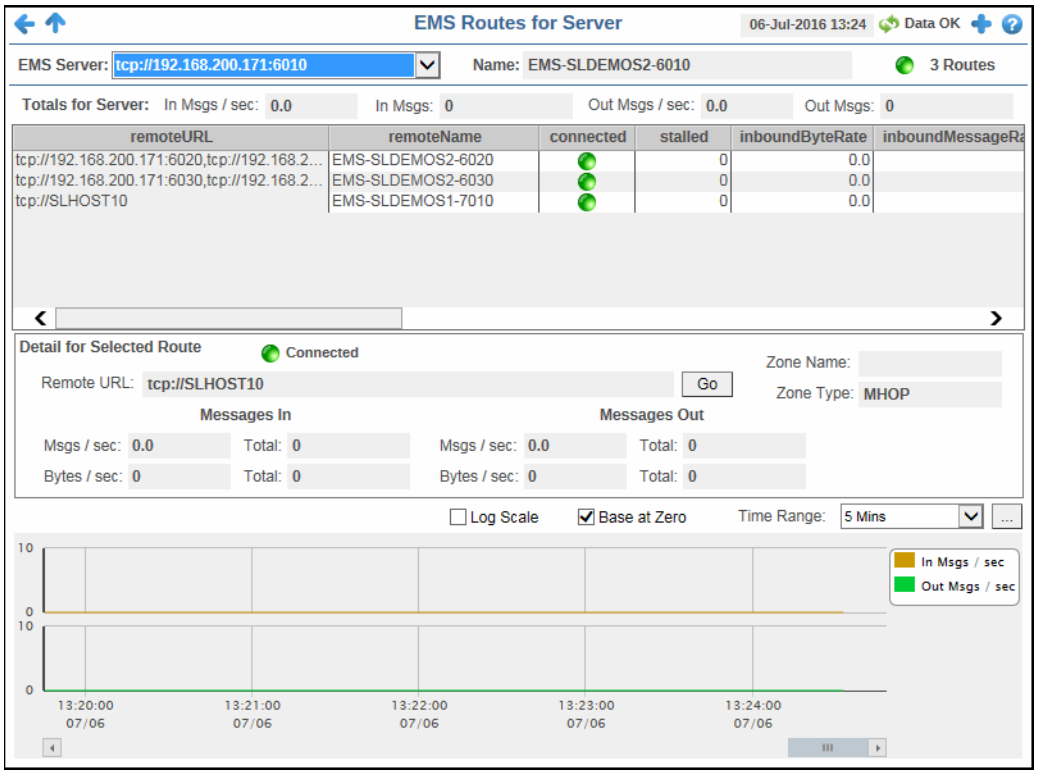
- **name** The name of the connected user.
- **external** When checked, the user is defined in an external system.
- **description** Textual description of the user.

Listen Ports This table describes the connections the selected server is to listen for.

- **port** The IP address and port number on which the server is to listen for connections.
- **URL** The URL on which the server is to listen for connections.

Routes

Track utilization metrics for server routes on a single server. Inbound metrics, such as **inboundByteRate**, indicate an in route to the server. Outbound metrics, such as **outboundByteRate**, indicate an out route to the server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

EMS Server	The EMS Server selected from this drop-down menu populates all associated Routes data in this display.
Name	The name of the EMS server selected from the **EMS Server** drop-down menu.
Routes	The number of server routes and the connection state.

-- One or more routes for this server are disconnected.

-- All routes for this server are connected.

-- There are no routes for this server.

Totals For Server Shows metrics for all server routes on the selected server.

In Msgs / sec	The number of inbound messages, per second.
In Msgs	The total number of inbound messages.
Out Msgs / sec	The number of outbound messages, per second.
Out Msgs	The total number of outbound messages.

Table This table shows metrics for each server route on the selected server. Select a route to view details.

remoteURL	The URL of the remote server.
remoteName	The name of the remote server.
connected	When checked, the server route is connected.
stalled	Indicates whether the IO flow stalled on the route. A value of **0** (zero) = not stalled. A value of **1** = stalled.
inboundByteRate	The rate of inbound data in bytes, per second.
inboundMessageRate	The rate of inbound messages in number of messages per second.
inboundTotalBytes	The total number of inbound bytes.
inboundTotalMessages	The total number of inbound messages.
outboundByteRate	The rate of outbound data in bytes per second.
outboundMessageRate	The rate of outbound messages in number of messages per second.
outboundTotalBytes	The total number of outbound bytes.
outboundTotalMessages	The total number of outbound messages.
zoneName	The name of the zone for the route.
zoneType	Indicates a multi-hop or one-hop zone.
active	Indicates whether the server route is currently transferring data: **1** = true **0** = false

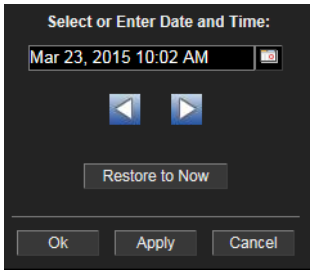
	inactive	Indicates whether the server route is currently transferring data: **1** = true **0** = false
	suspended	Indicates whether outbound messages to the route have been suspended: **1** = true **0** = false
	remoteURLName	The IP address and name for the remote connection.
Detail for Selected Route	Shows metrics for the server route selected from the table.	
	Connected	The server route connection state. -- The server route is disconnected -- The server route is connected.
	Zone Name	The name of the zone for the route.
	Remote URL	The IP address and port number for the server route connection. Click the Go button to open the selected server in the EMS Single Server Summary display.
	Zone Type	Indicates a multi-hop or one-hop zone.
	Messages In	**Msgs/sec** -- The number of inbound messages, per second. **Total** -- The total number of inbound messages since the connection was established. **Bytes/sec** -- The amount of inbound messages, in bytes per second, for this server route. **Total** -- The amount of inbound messages, in kilobytes, for this server route since the connection was established.
	Messages Out	**Msgs/sec** -- The number of outbound messages, per second. **Total** -- The total number of outbound messages since the connection was established. **Bytes/sec** -- The amount of outbound messages, in bytes per second. **Total** -- The amount of outbound messages, in kilobytes, since the connection was established.
Trend Graphs	Shows message data for the selected route. **In Msgs / sec** -- Traces the number of inbound messages, per second. **Out Msgs / sec** -- Traces the number of outbound messages, per second.	
	Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero

When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



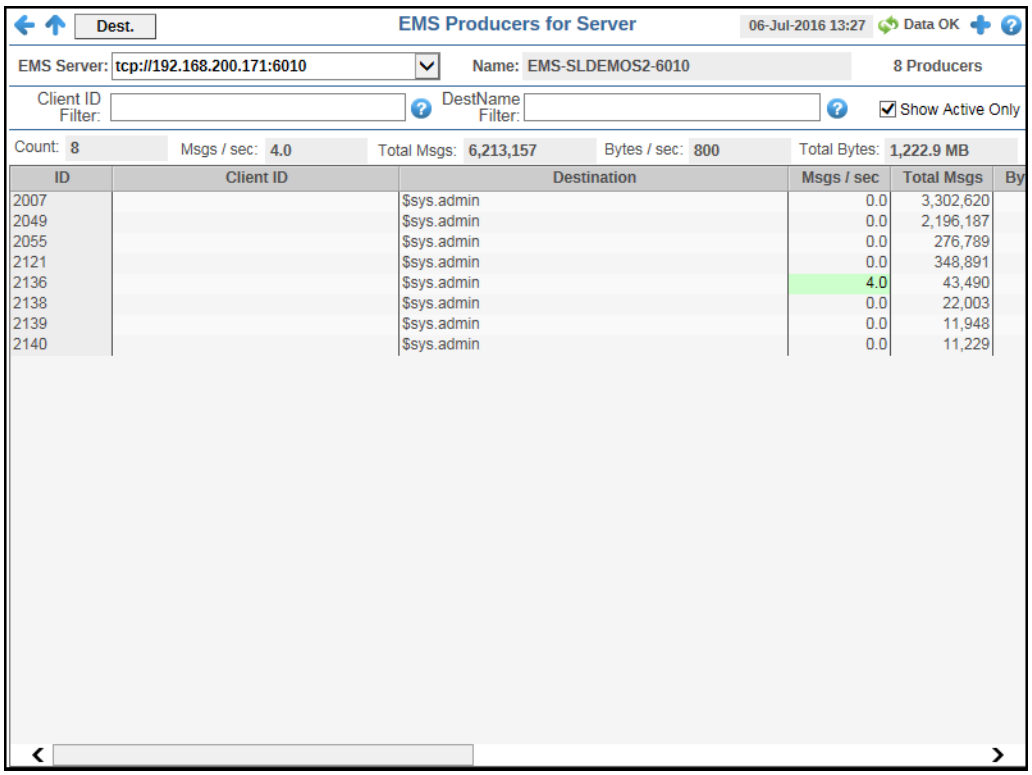
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Producers

Track utilization metrics for producers on a single server.



Title Bar (possible features are):

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking on a row in the Producers table and then clicking the Dest. button in the Title Bar takes you to the "Single Queue Summary" display for the selected producer.

Fields and Data

This display includes:

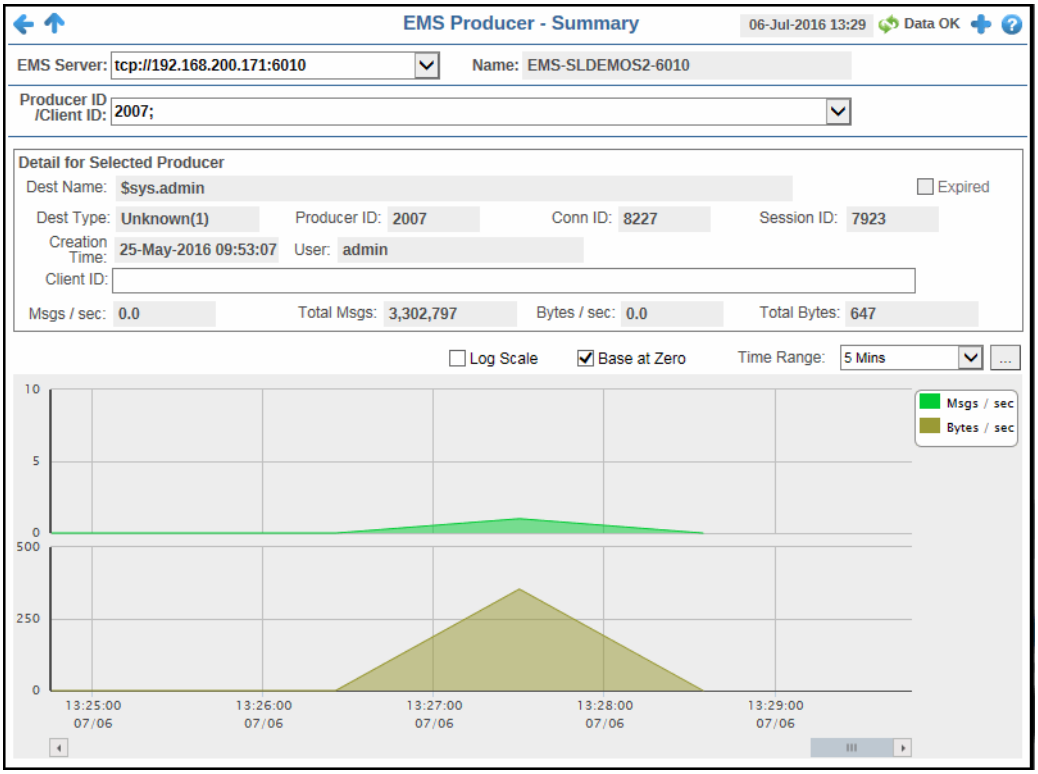
EMS Server	The EMS Server selected from this drop-down list displays a list of the currently connected Producers.
Name	The name of the EMS server selected from the **EMS Server** drop-down menu.

Producers	The number of currently connected producers on the server.
Client ID Filter	Filter field that allows you to filter the list of producers by client ID.
DestName Filter	Filter field that allows you to filter the list of producers by destination name.
Show Active Only	Select this check box to display only active producers.
Count	The number of currently connected producers on the server.
Msgs / sec	The number of messages, per second, for the producer.
Total Msgs	The total number of messages for the producer.
Bytes / sec	The amount of messages, in bytes per second, for the producer.
Total Bytes	The total size of messages, in bytes, for the producer.
Table	This table shows metrics for each producer on the selected server. Double-clicking on a row in the Producers table displays details for the producer in the "Producer Summary" drill-down display.

ID	A unique string identifier assigned to each producer.
Client ID	A unique string identifier assigned to each client.
Destination	The name of the destination.
Msgs / sec	The number of messages, per second, for the producer.
Total Msgs	The total number of messages for the producer.
Bytes / sec	The size of messages, in bytes per second, for the producer.
Total Bytes	The total size of messages, in bytes, for the producer.
User	The user name.
Host	The name of the host.
sessionID	A unique string identifier assigned to each session.
ConnID	A unique string identifier assigned to each connection.
createTime	The amount of time, in milliseconds, since the producer was created.
time_stamp	The date and time this row of data was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
destinationType	The configured destination type.

Producer Summary

Displays details for an individual producer. You can access this display by double-clicking on a producer in the "Producers" display.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

EMS Server	The selected EMS Server populates the Producer ID/ Client ID drop-down menu with associated Producer IDs/Client IDs. This drop down list defaults to the EMS Server that was selected on the previous display.
Name	The name of the EMS server selected from the **EMS Server** drop-down menu.
Producer ID/ Client ID	Drop-down menu containing the Producer IDs/Client IDs. This drop down list defaults to the Producer ID/Client ID that was selected on the previous display.

Detail for Selected Producer Shows metrics for the producer selected from the table.

Dest Name	The name of the destination.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Dest Type	The configured destination type.
Producer ID	A unique string identifier assigned to each producer.
Conn ID	A unique string identifier assigned to each connection.
Session ID	A unique string identifier assigned to each session.
Creation Time	The amount of time, in milliseconds, since the producer was created.
User	The user name.
Client ID	A unique string identifier assigned to each client.
Msgs/sec	The number of messages, per second, for the producer.
Total Msgs	The total number of messages for the producer.
Bytes/sec	The size of messages, in bytes per second, for the producer.
Total Bytes	The total size of messages, in bytes, for the producer.

Trend Graphs Shows message data for the selected producer.

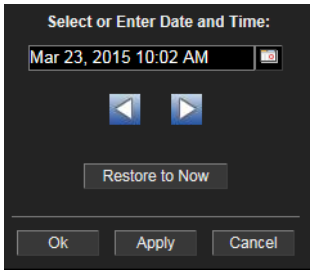
Msgs / sec -- Traces the number of messages for the producer, per second.

Bytes / sec -- Traces the size of messages for the producer, in bytes.

Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



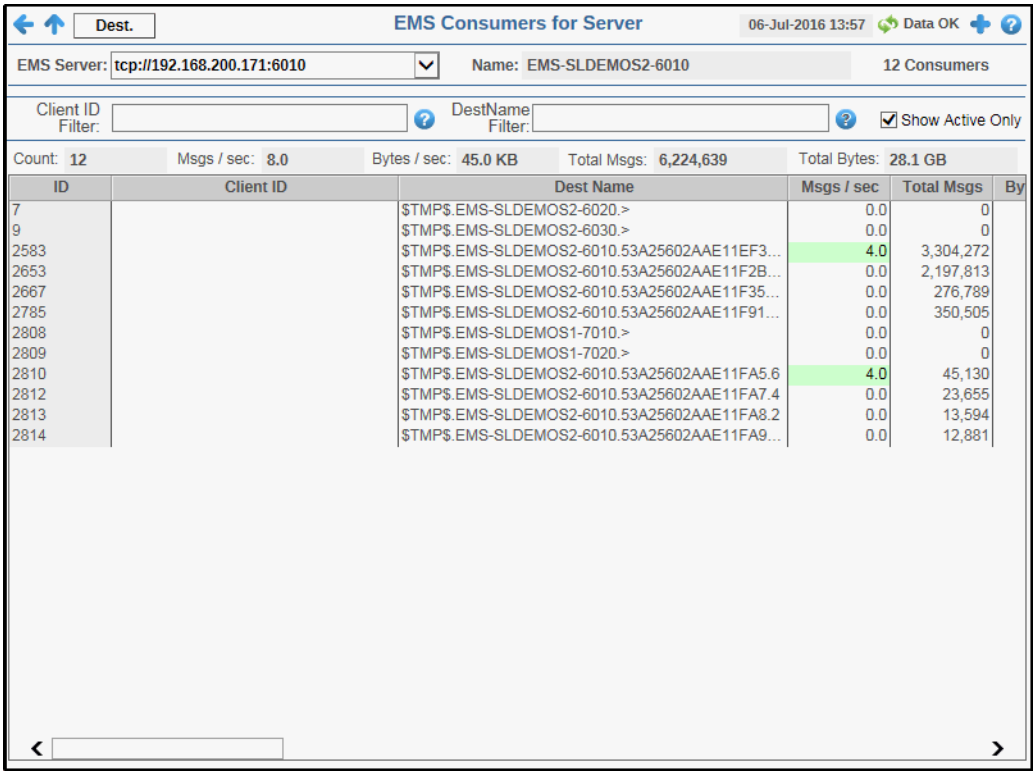
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Consumers

Track utilization metrics for consumers on a single server.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Clicking on a row in the Consumers table and then clicking the **Dest.** button in the Title Bar takes you to the "Single Topic Summary" display for the selected consumer.

Fields and Data

This display includes:

EMS Server The EMS Server selected from this drop-down list displays a list of the currently connected Consumers.

Name The name of the EMS Server selected from the EMS Server drop-down menu.

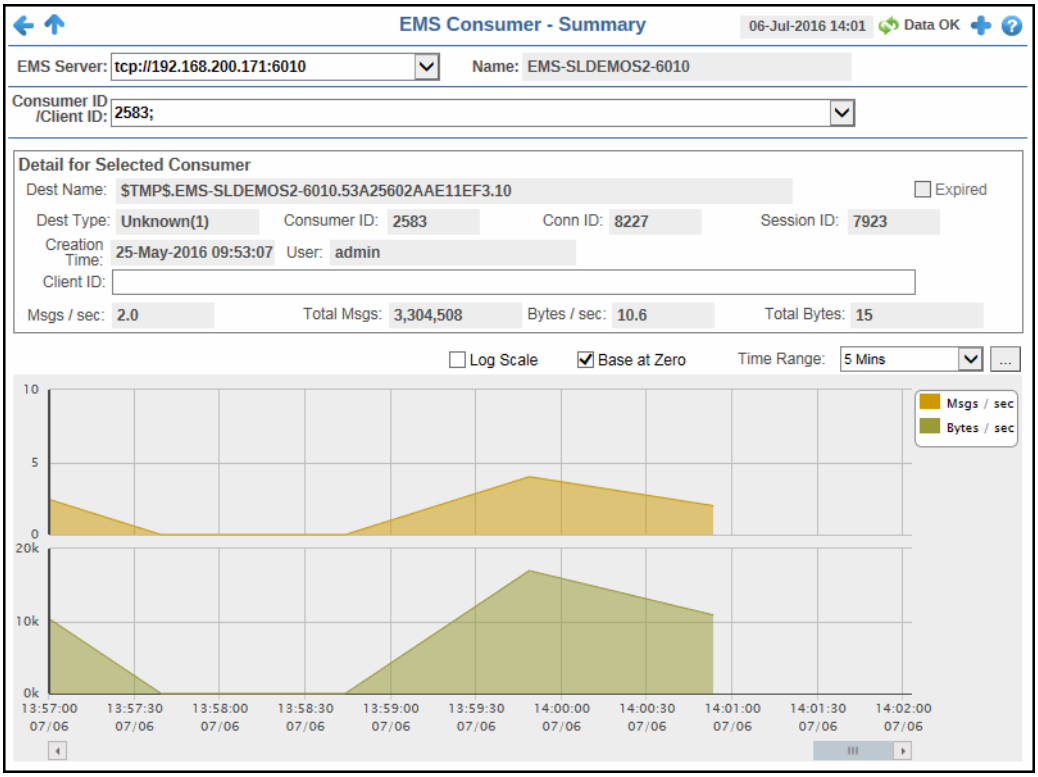
Consumers	The number of currently connected consumers on the server.
Client ID Filter	Filter field that allows you to filter the list of consumers by client ID. This filter works in conjunction with the **DestName Filter** to display the list of consumers.
DestName Filter	Filter field that allows you to filter the list of consumers by destination name. This filter works in conjunction with the **Client ID Filter** to display the list of consumers.
Show Active Only	Select this check box to display only active consumers.
Count	The number of currently connected consumers on the server.
Msgs / sec	The number of messages, per second, for the consumer.
Bytes / sec	The amount of messages, in bytes per second, for the consumer.
Total Msgs	The total number of messages for the consumer.
Total Bytes	The total size of messages, in bytes, for the consumer.
Table	This table shows metrics for each consumer on the selected server. Double-clicking on a row in the Consumers table displays details for the consumer in the "Consumer Summary" drill-down display.

ID	A unique string identifier assigned to each consumer.
Client ID	A unique string identifier assigned to each client.
Dest Name	The name of the destination.
Msgs / sec	The number of messages, per second, for the consumer.
Total Msgs	The total number of messages for the consumer.
Bytes / sec	The size of messages, in bytes per second, for the consumer.
Total Bytes	The total size of messages, in bytes, for the consumer.
User	The user name.
Host	The name of the host machine.
Session ID	A unique string identifier assigned to each session.
Conn ID	A unique string identifier assigned to each connection.
Curr Msg Sent Count	The number of messages sent to the consumer that were not yet acknowledged by the consumer's session. The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Curr Msg Sent Size	The combined size of messages sent to the consumer that were not yet acknowledged by the consumer's session. **Note: The sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Total Msg Ack Count	The total number of messages that have been sent to the consumer and have been acknowledged by the consumer's session. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Total Msg Sent Count	The total number of messages sent to the consumer since the consumer was created. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.

Elapsed Since Last Ack	The amount of time (in milliseconds) that has elapsed since the last time a message sent to the consumer was acknowledged by the consumer's session. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Elapsed Since Last Sent	The amount of time (in milliseconds) that has elapsed since the last time the server sent a message to the consumer. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Destination Prefetch	The actual destination prefetch value used by the server at runtime. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Prefetch Deliv Count	The number of prefetch messages delivered to the consumer by the server. For consumers receiving messages on any destination with positive prefetch value, this value is never more than the prefetch value of the destination. This value cannot be used to identify the status of the consumer, but it can be used in conjunction with other consumer information values to identify consumers who stopped receiving messages due to application-specific problems. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Durable Name	The name of the durable.
Route Name	The queue owner server name if the consumer if the consumer's destination is a routed queue. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Is Active	When checked, the consumer is active and can receive messages from the server. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Is System	This check box is checked if the consumer was automatically created by the system. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Session Ack Mode	Lists the consumer's session acknowledge mode as a constant defined in **TibjmsAdmin**. **Note:** The **sl.rtview.jmsadm.queryCIDetails** property must be set to **true** in your **sample.properties** file to see this column.
Create Time	The amount of time, in milliseconds, since the consumer was created.
time_stamp	The date and time this row of data was last updated.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Dest Type	The configured destination type.

Consumer Summary

Displays details for an individual consumer. You can access this display by double-clicking on a producer in the "Consumers" display.



Title Bar (possible features are):

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- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

This display includes:

EMS Server	The selected EMS Server populates the Consumer ID/ Client ID drop-down menu with Consumer IDs/Client IDs belonging to this EMS Server. This drop down list defaults to the EMS Server that was selected on the previous display.
Name	The name of the EMS Server selected from the **EMS Server** drop-down menu.
Consumer ID/ Client ID	Drop-down menu containing the Consumer IDs/Client IDs. This drop down list defaults to the Consumer ID/Client ID that was selected on the previous display.

Detail for Selected Consumer Shows metrics for the consumer selected from the table.

Dest Name	The name of the destination.
Expired	When checked, performance data has not been received within the time specified (in seconds) in the **Expire Time** field in the **Duration** region in the RTView Configuration Application > (**Project Name**) > **Solution Package Configuration** > **TIBCO Enterprise Message Service** > **DATA STORAGE** tab. The **Delete Time** field (also in the **Duration** region) allows you to define the amount of time (in seconds) in which the row will be removed from the table if there is no response.
Dest Type	The configured destination type.
Consumer ID	A unique string identifier assigned to each consumer.
Conn ID	A unique string identifier assigned to each connection.
Session ID	A unique string identifier assigned to each session.
Creation Time	The amount of time, in milliseconds, since the consumer was created.
User	The user name.
Client ID	A unique string identifier assigned to each client.
Msgs/sec	The number of messages, per second, for the consumer.
Total Msgs	The total number of messages for the consumer.
Bytes/sec	The size of messages, in bytes per second, for the consumer.
Total Bytes	The total size of messages, in bytes, for the consumer.

Trend Graphs Shows message data for the selected producer.

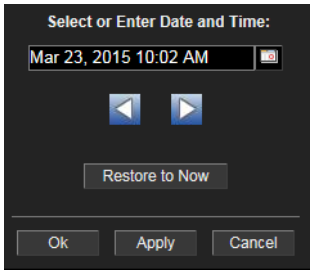
Msgs / sec -- Traces the number of messages for the consumer, per second.

Bytes / sec -- Traces the size of messages for the consumer, in bytes.

Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



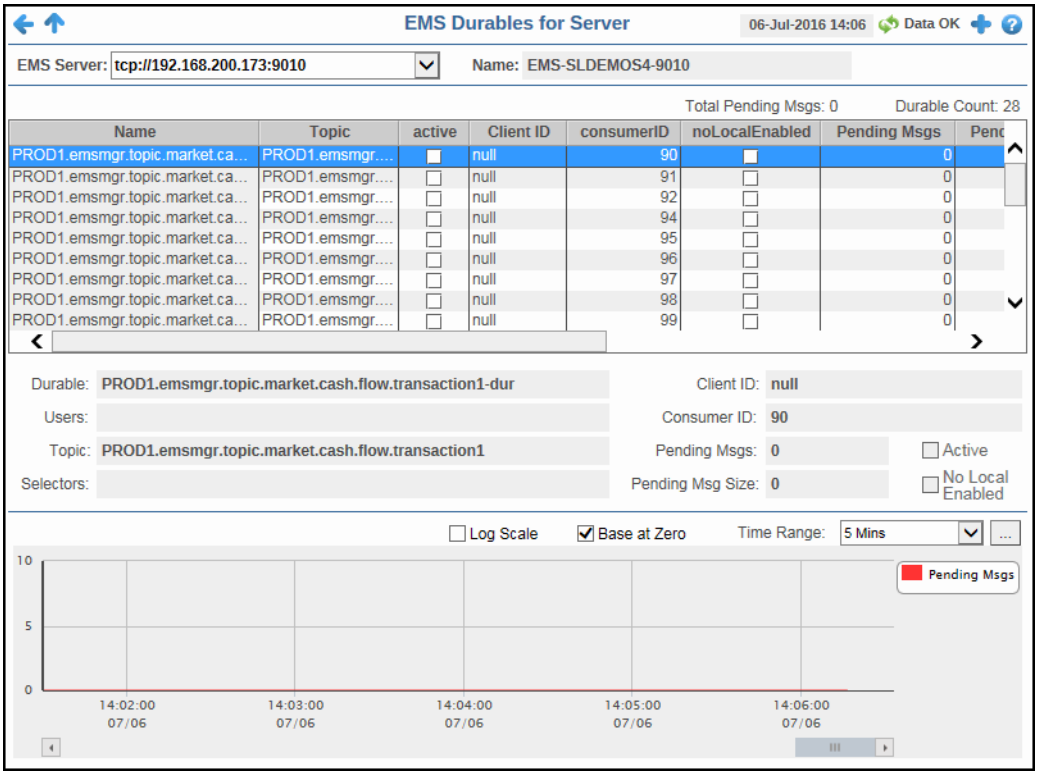
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

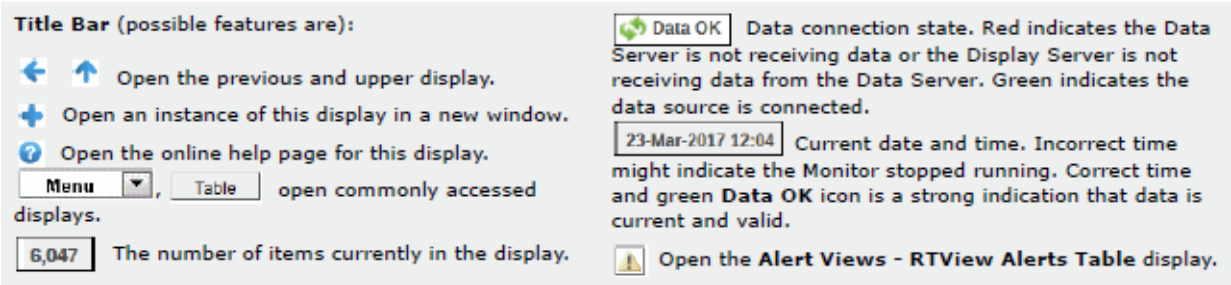
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Durables

Track utilization metrics for durables on a single server.





Fields and Data

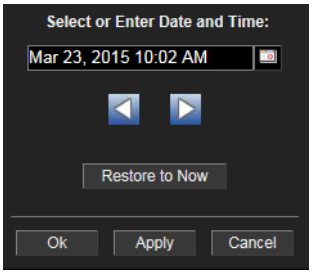
This display includes:

EMS Server	The EMS Server selected from this drop-down menu populates all associated Durables data in this display.
Name	The name of the EMS Server selected from the **EMS Server** drop-down menu.
Total Pending Msgs	The total number of pending messages for the durable.
Durable Count	The number of currently connected durables on the server.
Table	This table shows metrics for each durable on the selected server.

	Name	The name of the durable.
	Topic	The name of the topic.
	Active	Indicates whether the durable is active.
	Client ID	A unique string identifier assigned to each client.
	consumerID	A unique string identifier assigned to each consumer.
	NoLocalEnabled	Indicates whether the subscriber receives messages from all connections its local connection. **Enabled** -- The subscriber does not receive messages sent from its local connection. **Disabled** -- The subscriber receives messages from all connections.
	Pending Msgs	The total number of pending messages for the selected durable.
	Pending Size	The total amount of pending messages, in bytes, for the selected durable.
	Selector	Indicates that the subscriber only receives messages that match this selector.
	userName	The name of the user of this durable subscriber.
	time_stamp	The date and time this row of data was last updated.
Durable	The name of the durable selected from the table.	
Users	The names of the users of this durable subscriber.	
Topic	The name of the topic.	
Selectors	Indicates that the subscriber only receives messages that match this selector.	
Client ID	A unique string identifier assigned to each client.	
Consumer ID	A unique string identifier assigned to each consumer.	
Pending Msgs	The total number of pending messages for the selected durable.	
Pending Msg Size	The total size of pending messages, in bytes, for the selected durable.	
Active	Indicates whether the durable is active.	
No Local	Indicates whether the subscriber receives messages from all connections its local connection.	
	Enabled	The subscriber does not receive messages sent from its local connection.
	Disabled	The subscriber receives messages from all connections.
Trend Graphs	Shows message data for the selected consumer. **Pending Msgs** -- Traces the number of pending messages for the durable.	
	Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

TIBCO Spotfire Reports

There are two TIBCO Spotfire reports that are provided with EMS Monitor, the **EMS Queue Message Metrics Report** and the **EMS Server Message Metrics Report**. Each of the reports can be configured using Oracle or MySQL. This section includes:

System Requirements

This section describes the minimum system requirements necessary to use these reports.

TIBCO Spotfire

Version 7.0 for Oracle and MySQL reports

Clients

Microsoft Windows 64-bit

Databases Supported

Oracle (version 11G) and MySQL (version 5.6)

Configuring Spotfire Reports

Though similar, there are two slightly different flows for configuring the TIBCO Spotfire reports:

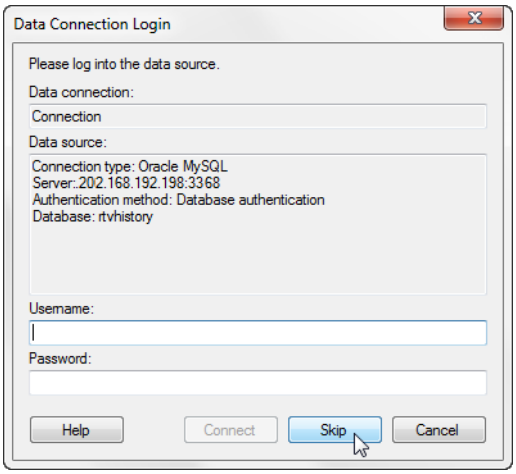
- "MySQL Report Configuration" on page 1451
- "Oracle Report Configuration" on page 1456.

MySQL Report Configuration

You can generate the following reports using Oracle MySQL: **EMS Server Message Metrics Report** (using **ems_serverinfo_mysql.dxp** and **ems_serverinfo_mysql.txt**) and **EMS Queue Message Metrics Report** (using **ems_queues_mysql.dxp** and **ems_queues_mysql.txt**).

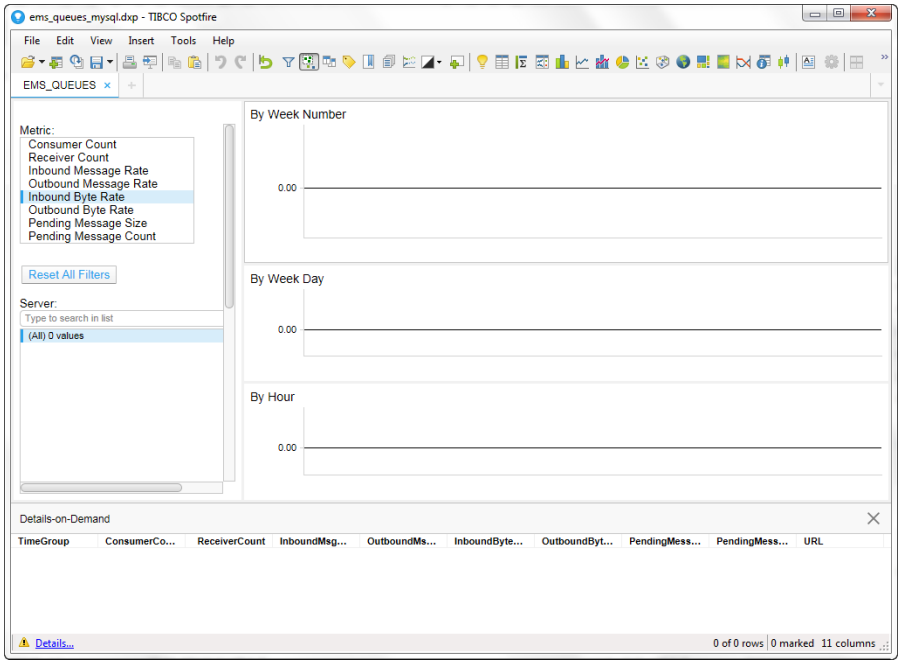
1. Open the **ems_queues_mysql.dxp** Spotfire Analysis file in the **rtvapm/emsmon/projects/reports/Spotfire** directory that was created during the EMS Monitor installation.

   The **Data Connection Login** window displays.



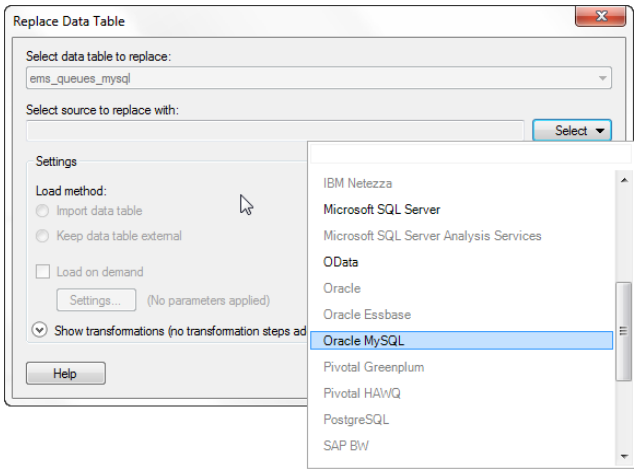
2. Click the **Skip** button (there is no need to log in at this point).

   The **TIBCO Spotfire** dashboard displays.



3. Click **File> Replace Data Table**.

The **Replace Data Table** window displays.



Note: When connecting the **ems_queues_mysql** dashboard to your MySQL data, Spotfire's **Replace Data Table** functionality may run very slowly, or even time-out, if the dataset is too large.

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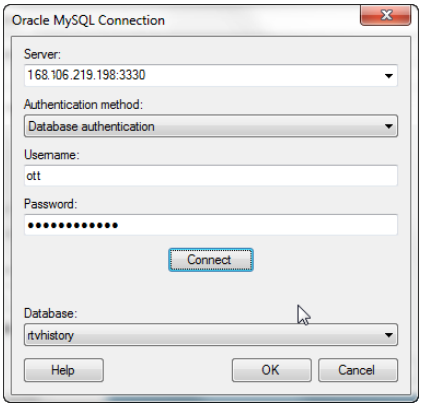
4. Click the **Select** button (associated with the **Select source to replace with** field) and select **Oracle MySQL**.

The **Oracle MySQL Connection** window displays.

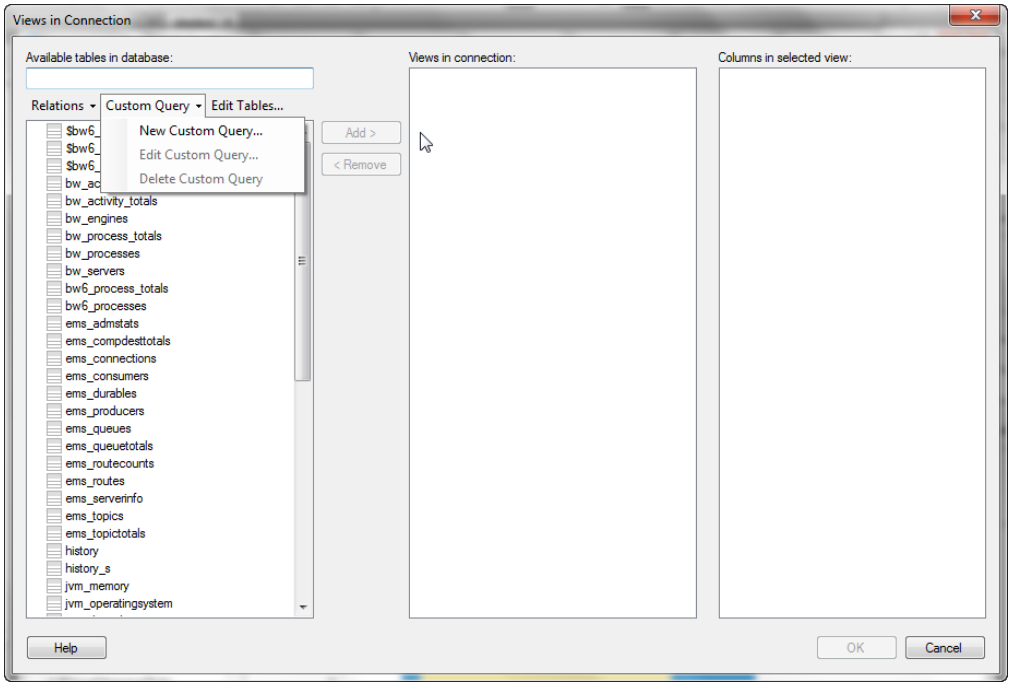


5. Enter the **Server**, **Username**, **Password**, select **Database authentication** as the **Authentication Method**, and click the **Connect** button.

The **Database** drop down should be populated.

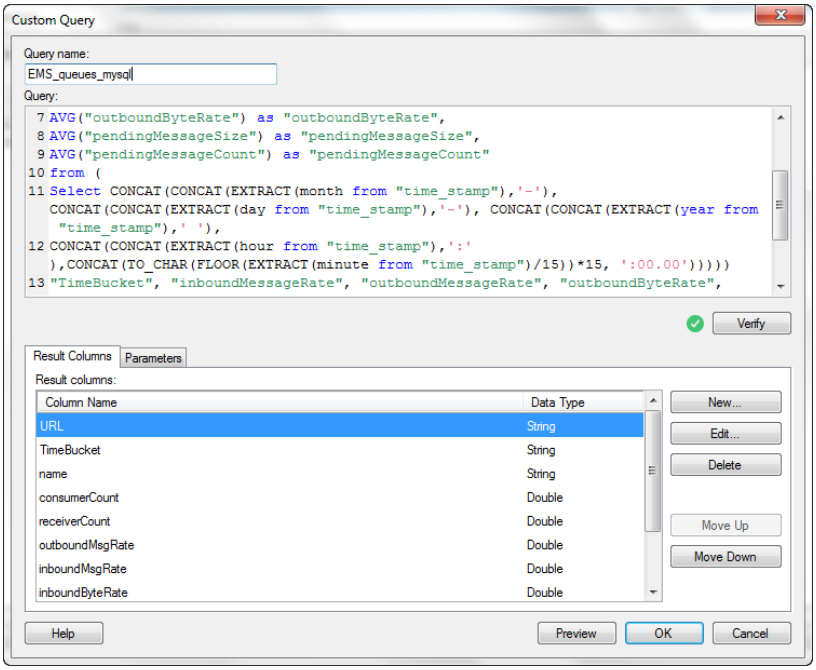
6. Select **rtvhistory** from the **Database** drop down and click the **OK** button.

The **Views in Connection** window displays.



7. Select the **Custom Query** drop down list and select **New Custom Query**.

The **Custom Query** window displays.



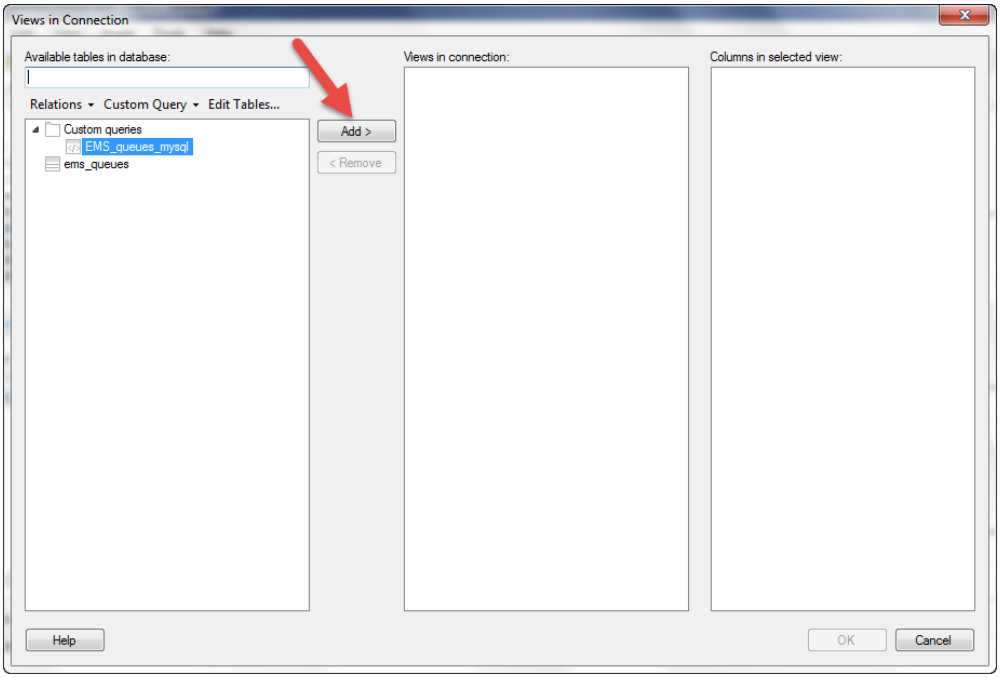
8. Enter the desired name (whatever name is meaningful for you) into the **Query_name** field, open the text file in your installation directory associated with your table (for example, if you are selected **ems_queues_mysql.dxp** initially, then open **ems_queues_mysql.txt**), copy and paste the SQL code in the file into the **Query** field on the **Custom Query** window, and click the **Verify** button.

Note: This step is required because the database contains data that has been compacted as well as data that has not yet been compacted. The SQL code compacts the data that has not been compacted and adds the newly compacted data to the already compacted data so that all the "bucket" values are the same. For example, let's say the compacted data is compacted so that the oldest data is contained in 15 minute buckets, but the more recent data is contained in 5 or 10 minute buckets. The SQL code takes the data contained in the 5 and 10 minute buckets and compacts it into 15 minute buckets so that all the data is consistently bucketed.

Once the SQL has been verified, the column names display in the **Result Columns** tab.

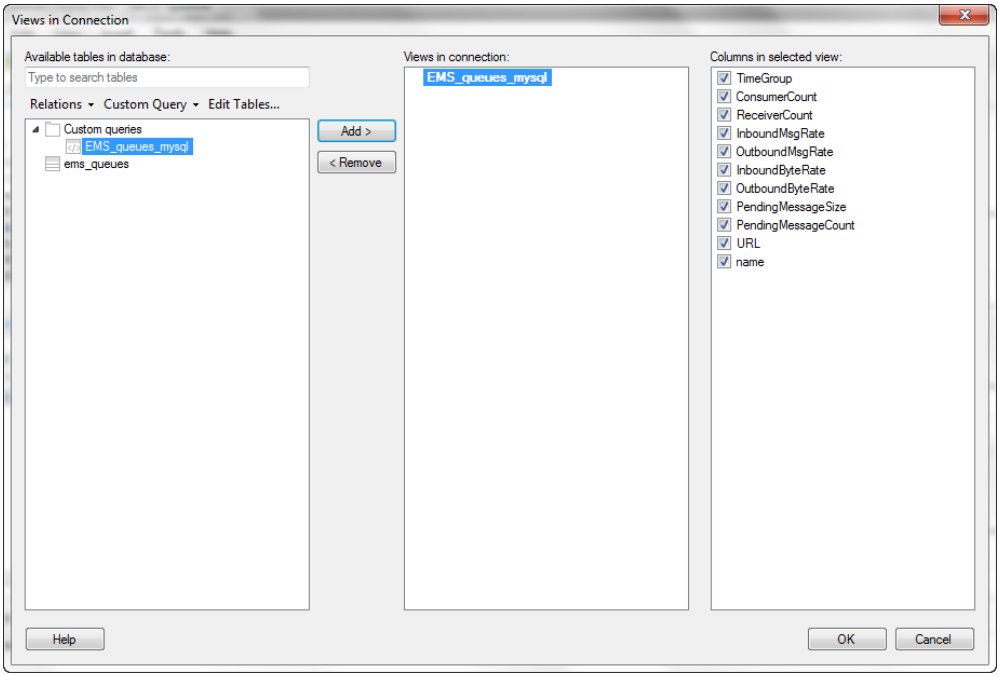
9. Click the **OK** button on the **Custom Query** window.

The new query (for example, **EMS_queues_mysql)** should display in the list of **Custom queries** on the **Views in Connection** window.



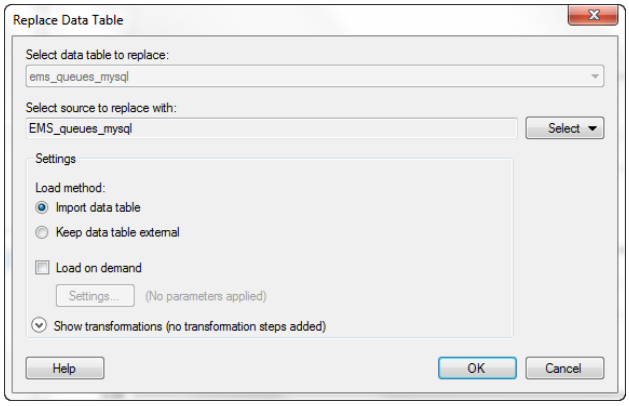
10. Select your new custom query and click the **Add** button.

Your new custom query should display in the **Views in connection** region and the query's associated columns should display in the **Columns in selected view** region.



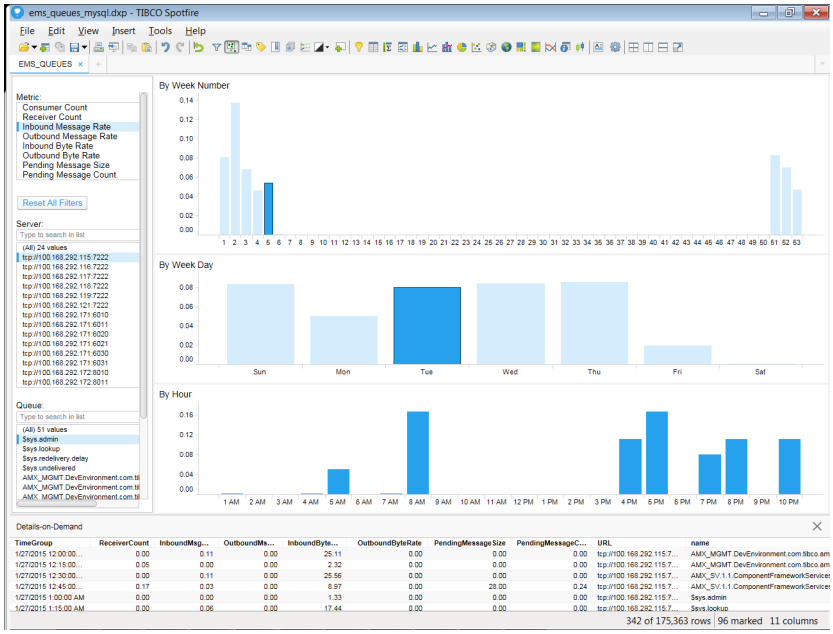
11. Click the **OK** button on the **Views in Connection** window.

The **Replace Data Table** window displays.



12. Select the **Import data table** radio button and click the **OK** button.

Your data should display in TIBCO Spotfire.



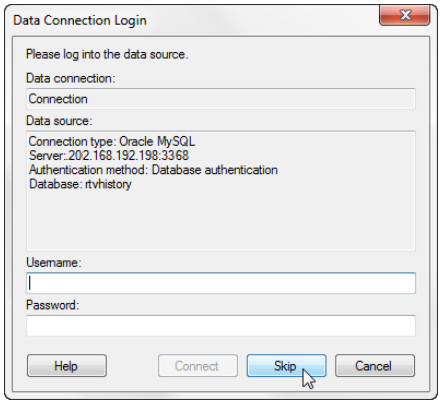
13. Repeat the same steps above for the **ems_serverinfo_mysql.dxp** Spotfire Analysis file and the **ems_serverinfo_mysql.txt** file to create the **EMS Server Message Metrics Report**.

Oracle Report Configuration

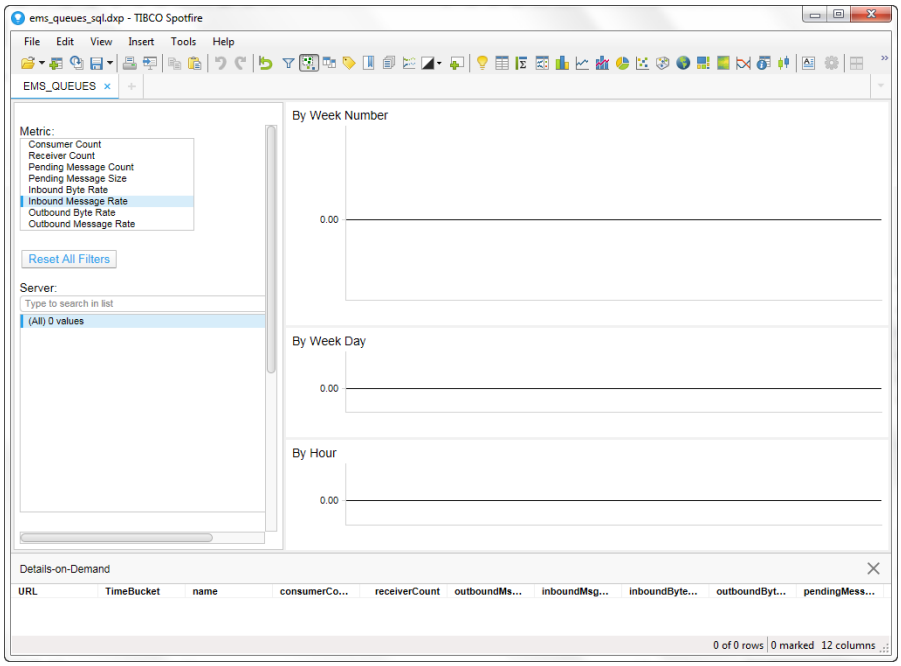
There are two different Oracle reports that can be generated: **EMS Server Message Metrics Report** (using **ems_serverinfo_sql.dxp** and **ems_serverinfo_sql.txt**) and **EMS Queue Message Metrics Report** (using **ems_queues_sql.dxp** and **ems_queues_sql.txt**).

1. Open the **ems_queues_sql.dxp** Spotfire Analysis file in the **rtvapm/emsmon/projects/reports/Spotfire** directory that was created during the EMS Monitor installation.

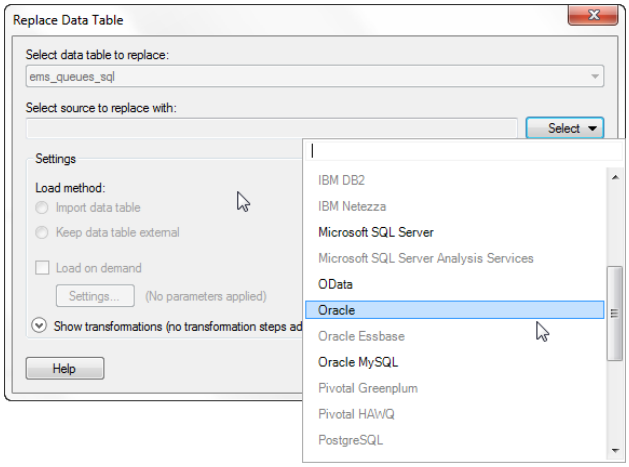
The **Data Connection Login** window displays.



2. Click the **Skip** button (there is no need to log in at this point).
The **TIBCO Spotfire** dashboard displays.

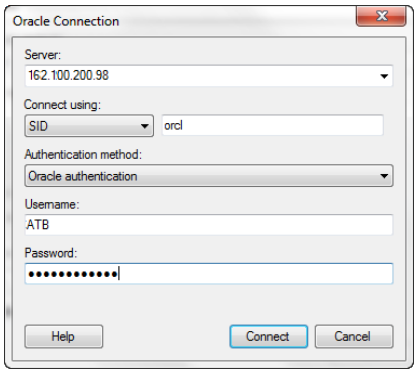


3. Click **File> Replace Data Table**.
The **Replace Data Table** window displays.



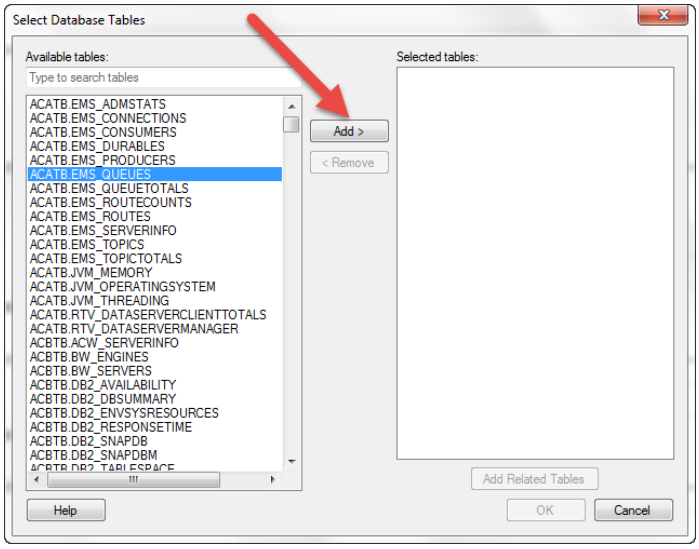
4. Click the **Select** button (associated with the **Select source to replace with** field) and select **Oracle**.

The **Oracle Connection** window displays.



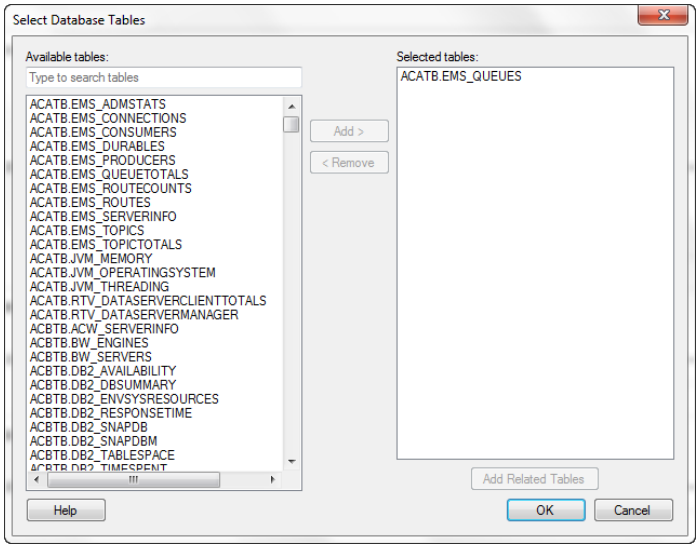
5. Enter the **Server**, select **SID** in the **Connect using** drop down (and enter **orcl** in the associated field if not defaulted), select **Oracle authentication** as the **Authentication Method**, enter the **Username** and **Password**, and click the **Connect** button.

The **Select Database Tables** window displays.



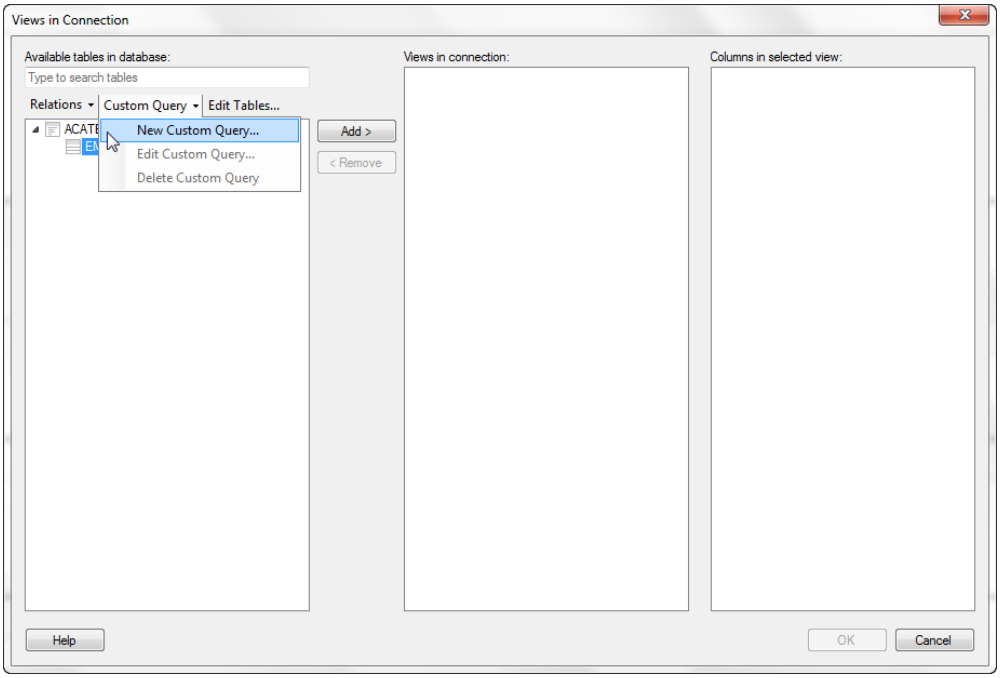
6. Select **ACATB.EMS_QUEUES** from the **Available Tables** select list and click the **Add** button.

The table displays in the **Selected tables** region.

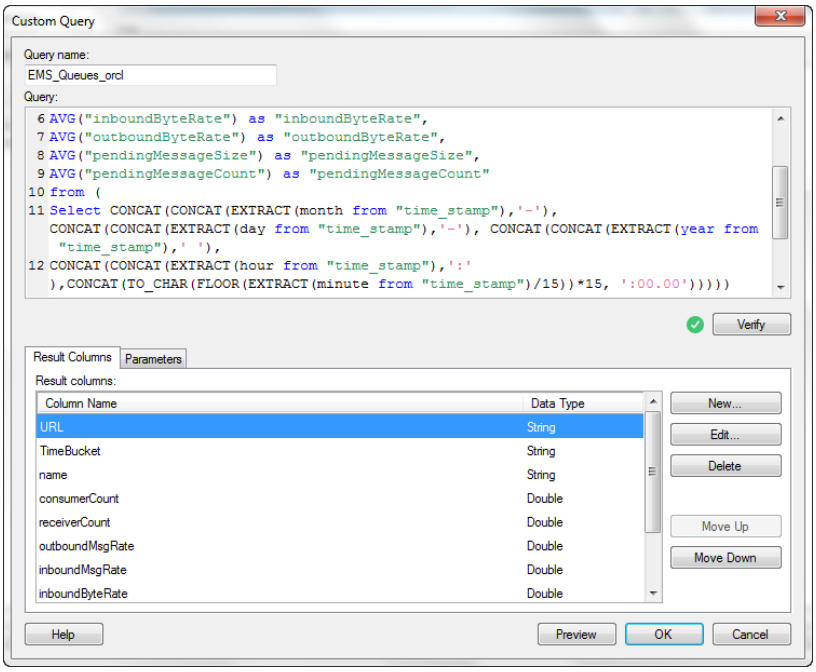


7. Click the **OK** button.

The **Views in Connection** window displays with the selected table listed in the **Available tables in the database** region.



8. Select the **EMS_QUEUES** table from the list and click **Custom Query > New Query**. The **Custom Query** window displays.



9. Enter the desired name (whatever name is meaningful for you) into the **Query_name** field, open the text file in your installation directory associated with your table (for example, if you selected **ems_queues_sql.dxp** initially, then open

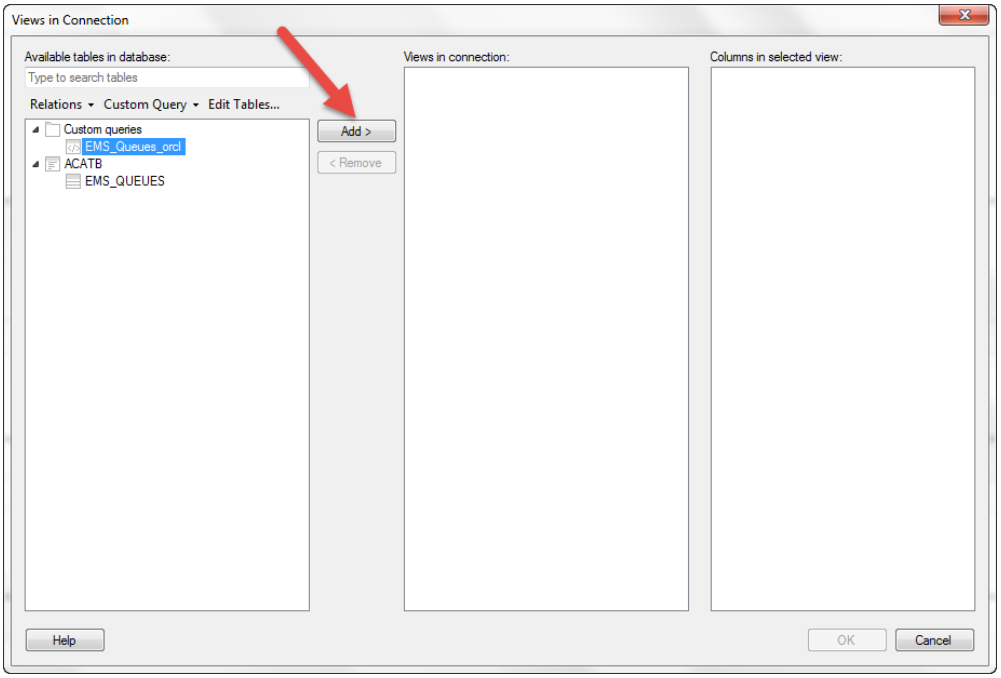
ems_queues_sql.txt), copy and paste the SQL code in the file into the **Query** field on the **Custom Query** window, and click the **Verify** button.

Note: This step is required because the database contains data that has been compacted as well as data that has not yet been compacted. The SQL code compacts the data that has not been compacted and adds the newly compacted data to the already compacted data so that all the "bucket" values are the same. For example, let's say the compacted data is compacted so that the oldest data is contained in 15 minute buckets, but the more recent data is contained in 5 or 10 minute buckets. The SQL code takes the data contained in the 5 and 10 minute buckets and compacts it into 15 minute buckets so that all the data is consistently bucketed.

Once the SQL script has been verified, the column names display in the **Result Columns** tab.

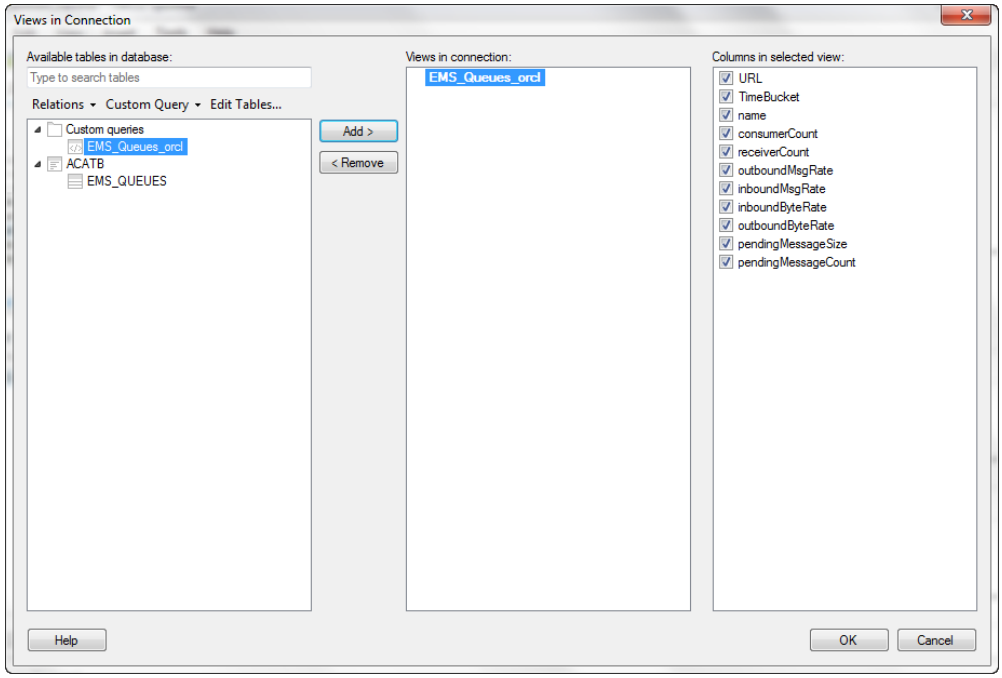
10. Click the **OK** button.

The new query displays under **Custom queries** in the **Available tables in database** list on the **Views in Connection** window.



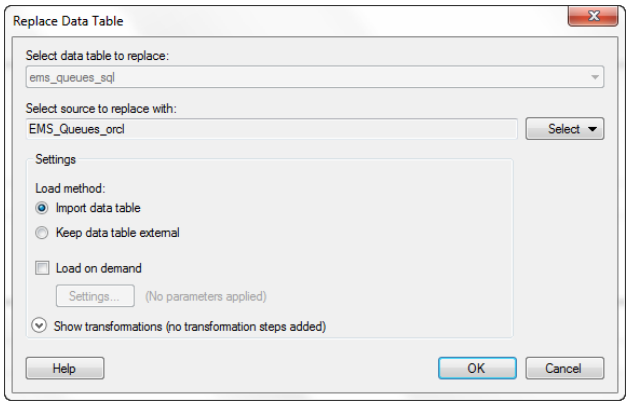
11. Select your newly added query/view and click the **Add** button.

The new query displays in the **Views in connection** list and the associated columns display in the **Columns in selected view** region.



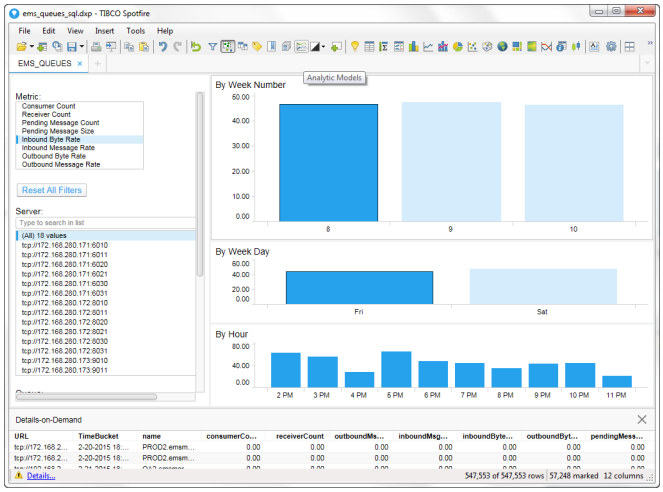
12. Click the **OK** button.

The **Replace Data Table** window displays.



13. Select **Import data table** as the **Load Method** and click **OK**.

Your report should display in the TIBCO Spotfire dashboard.



14. Repeat the above steps using the **ems_serverinfo_sql.dxp** Spotfire Analysis file and the **ems_serverinfo_sql.txt** files to create the **EMS Server Message Metrics** Report.

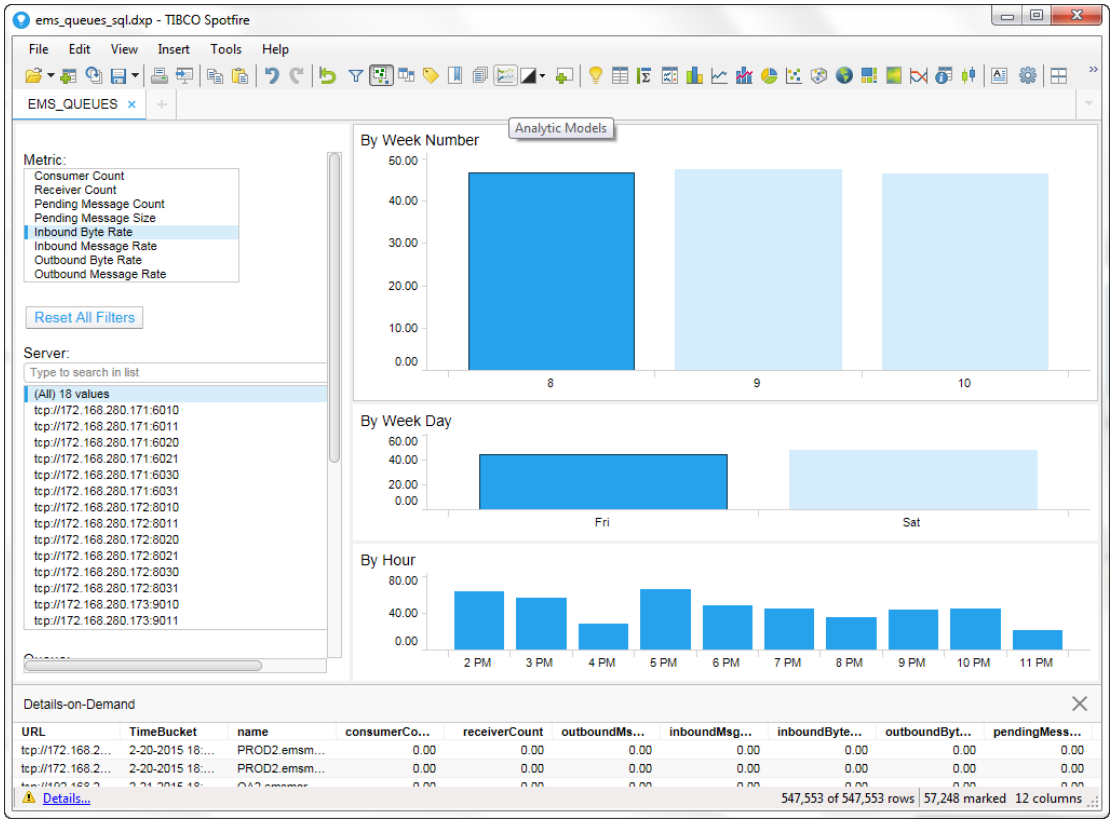
Reports

The following reports are available:

- "EMS Queue Message Metrics Report" on page 1464
- "EMS Server Message Metrics Report" on page 1465

EMS Queue Message Metrics Report

The **EMS Queue Message Metrics Report** allows you to details for various metrics for one or more selected servers.



Metrics and Data
This report includes:

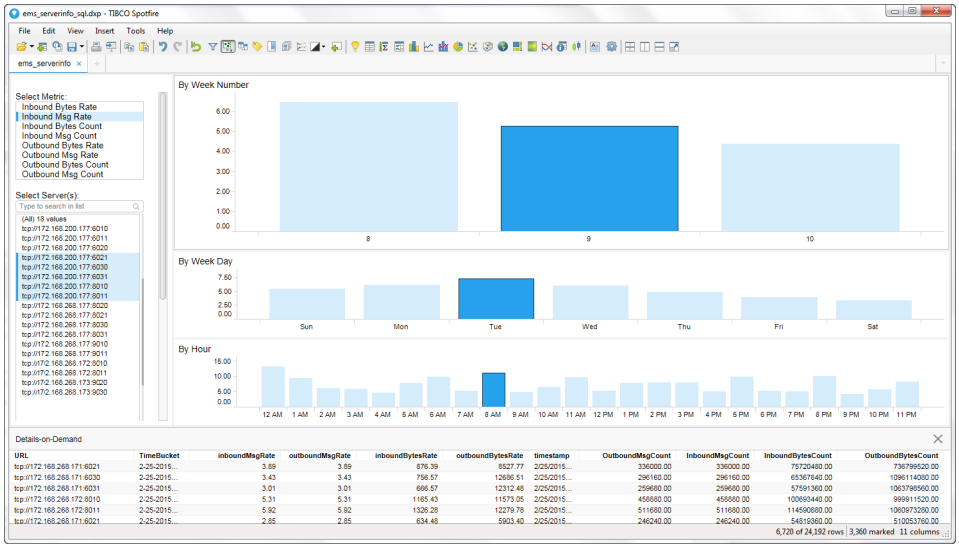
Metric Lists the metrics available for the report.

Consumer Count	The total number of consumers.
Receiver Count	The number of active receivers on the queue
Pending Message Count	Number of currently pending messages on the server.
Pending Message Size	Amount of space, in bytes, that the pending messages use on the server.
Inbound Byte Rate	The rate of inbound bytes per second.
Inbound Msg Rate	The rate of inbound messages per second.
Outbound Byte Rate	The rate of outbound bytes per second.

Outbound Msg Rate	The rate of outbound messages per second.
Reset All Filters	Resets any defined filters from the report.
Server	Select the server or servers for which you want to view data in the report. You can use the **Search** field to find a particular server. Selecting a server or servers from this list automatically updates the list of available queues in the **Queues** select list.
Queue	Select the queue or queues for which you want to view data in the report.You can use the **Search** field to find a particular queue.
By Week Number	Displays the averages (for the Rate metrics) or sums (for the Count metrics) for the selected server(s) for each week. You can hover over each week to view the exact counts or rates for that week. Clicking on a particular week displays data for each day for that particular week in the **By Week Day** region.
By Week Day	Displays the averages (for the Rate metrics) or sums (for the Count metrics) for each day in the selected week. Hovering over a particular day displays the exact sum or average for that day. Clicking on a particular day populates data for each hour in the **By Hour** region.
By Hour	Displays the averages (for the Rate metrics) or sums (for the Count metrics) for each hour in the selected day. Hovering over a particular hour displays the exact sum or average for that hour. Clicking on a particular hour updates the **TimeBucket** information in the **Details-on-Demand** region.
Details-on-Demand	Shows all metrics (**Consumer Count**, **Receiver Count**, **Pending Message Count**, **Pending Size Count**, **Inbound Byte Rate**, **Inbound Msg Rate**, **Outbound Byte Rate**, and **Outbound Msg Rate**) for each selected server at a specific time (**TimeBucket** (24 hour clock) and **timestamp**) based on the object selected in the dashboard (**By Week Number, By Week Day,** and **By Hour**).

EMS Server Message Metrics Report

This report displays the sum or average of the selected metric for a server or servers by week number, by week day, and by hour of a particular day. You can hover over the various objects in the report to view more detailed information, or look in the **Details-on-Demand** region to view data details for a specific time bucket.



Metrics and Data
This report includes:

Select Metric Lists the metrics available for the report.

Inbound Bytes Rate	The rate of inbound bytes per second.
Inbound Msg Rate	The rate of inbound messages per second.
Inbound Bytes Count	The number of inbound bytes received by the server since the server was started.
Inbound Msg Count	The number of inbound messages received by the server since the server was started.
Outbound Bytes Rate	The rate of outbound bytes per second.
Outbound Msg Rate	The rate of outbound messages per second.
Outbound Bytes Count	The number of outbound bytes sent by the server since the server was started.
Outbound Msg Count	The number of outbound messages sent by the server since the server was started.

Select Server Select the server or servers for which you want to view data in the report.

By Week Number Displays the averages (for the Rate metrics) or sums (for the Count metrics) for the selected server(s) for each week. You can hover over each week to view the exact counts or rates for that week. Clicking on a particular week displays data for each day for that particular week in the **By Week Day** region.

By Week Day Displays the averages (for the Rate metrics) or sums (for the Count metrics) for each day in the selected week. Hovering over a particular day displays the exact sum or average for that day. Clicking on a particular day populates data for each hour in the **By Hour** region.

By Hour Displays the averages (for the Rate metrics) or sums (for the Count metrics) for each hour in the selected day. Hovering over a particular hour displays the exact sum or average for that hour. Clicking on a particular hour updates the **TimeBucket** information in the **Details-on-Demand** region.

Details-on-Demand Shows all metrics (**Inbound Bytes Rate**, **Inbound Msg Rate**, **Inbound Bytes Count**, **Inbound Msg Count**, **Outbound Bytes Rate**, **Outbound Msg Rate**, **Outbound Bytes Count**, **Outbound Msg Count**) for each selected server at a specific time (**TimeBucket** (24 hour clock) and **timestamp**) based on the object selected in the dashboard (**By Week Number, By Week Day,** and **By Hour**).

CHAPTER 30 Solution Package for TIBCO FTL

This chapter describes how to install, configure, deploy, read and use the Solution Package for TIBCO FTL displays, and also describes other optional features specific to TIBCO FTL Monitor. This chapter includes the following:

This section includes:

Configuration Parameters You Need

- **PackageName=tftlmon**
- **ServerDirectory=tftlmon**
- **AlertPrefix=Tftl**

Configure Data Collection

Then use the RTView Configuration App to do the following in the order provided:

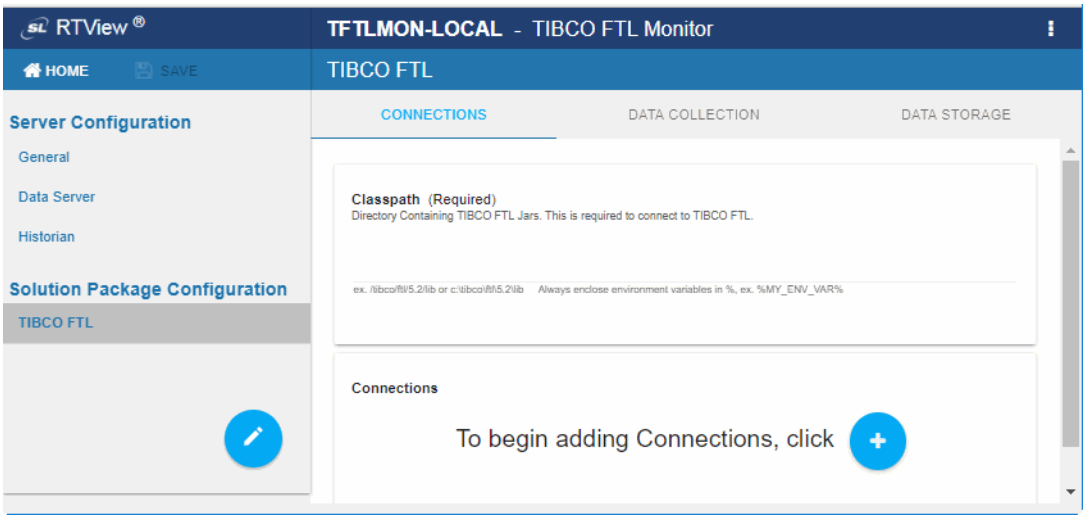
- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Set the poll rate interval for data updates and enable/disable autodiscover. This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

Configure CONNECTIONS

This step is required.

To configure data connections for the Solution Package for FTL:

1. "Open the Solution Package Project" (the project name is **TFTLMON-LOCAL**), then select **TIBCO FTL** from the navigation tree (left panel).



2. On the **CONNECTIONS** tab, provide the full path to the directory containing the TIBCO FTL jar files in the **Classpath** field. Use forward slashes in path name. Enclose environment variables with **%%** (even on UNIX). This is required to connect to TIBCO FTL. For example:

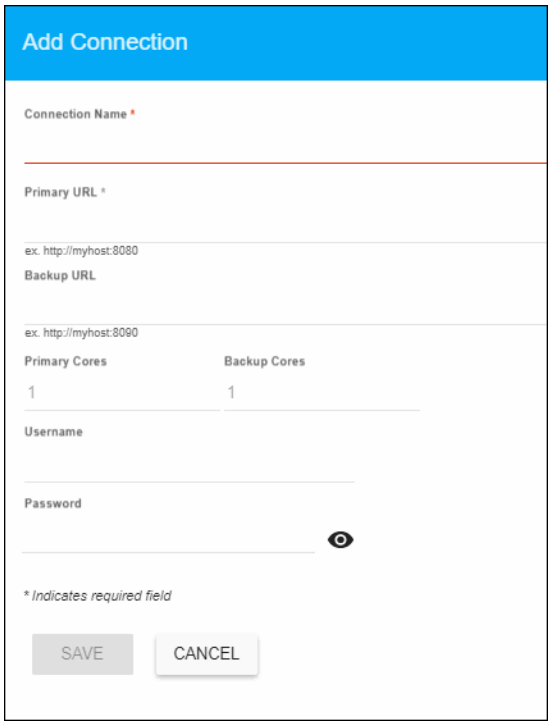
   /tibco/ftl/5.2/lib

   or

   c:\tibco\ftl\5.2\lib

3. In the **Connections** tab, click  .

The **Add Connection** dialog opens.



4. In the **Add Connection** dialog, make the following entries to connect to a TIBCO FTL realm server:
   - **Name**: The name for the connection. This entry is required. Use a semicolon-separated list format for multiple connections.
   - **Primary URL**: The primary URL for the connection (for example, **http://myhost:8080**).
   - **Backup URL**: The failover URL for the primary connection (for example, **http://myhost:8090**).
   - **Primary Cores**: The number of primary cores.
   - **Backup Cores**: The number of backup cores.
   - **Username**: (optional)
   - **Password**: (optional)
5. **Save**.

   The newly created connection displays in the **Connections** section.
6. Repeat these instructions for each TIBCO FTL to be monitored.

Proceed to "Setup DATA COLLECTION," next, to specify the poll rate for data collection. Note that you can also "Setup DATA COLLECTION" later.

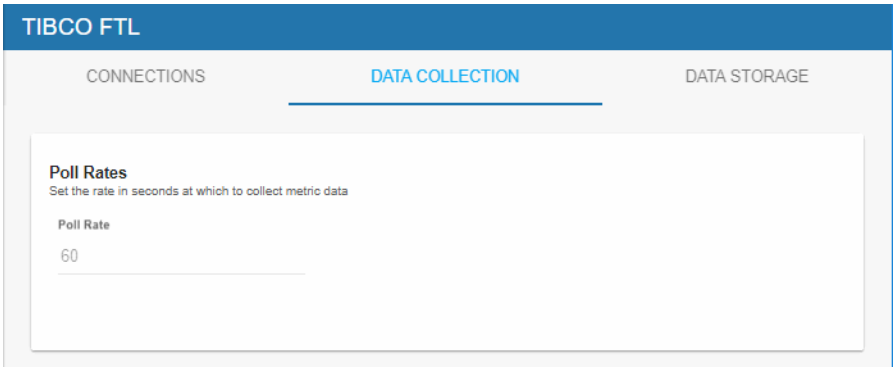
Setup DATA COLLECTION

This step is optional.

Use the RTView Configuration Application to configure data collection for the Solution Package for TIBCO FTL.

To configure data collection for the Solution Package for TIBCO FTL:

1. "Open the Solution Package Project" (the project name is **TFTLMON-LOCAL**), then select **TIBCO FTL** from the navigation tree (left panel)..
2. Choose the **DATA COLLECTION** tab.



3. Enter the **Poll Rate** interval, in seconds, for collecting metric data for all TIBCO FTL caches. The caches impacted by this field are TftlClient, TftlMetrics, TftlServer, TftlSatellite, TftlGroupServer and TftlGroupServerGroup.
4. **Save** your settings.

Proceed to (optionally) "Configure DATA STORAGE," next, to set rules for reducing the amount of cached data. Note that you can also "Configure DATA STORAGE" later.

Configure DATA STORAGE

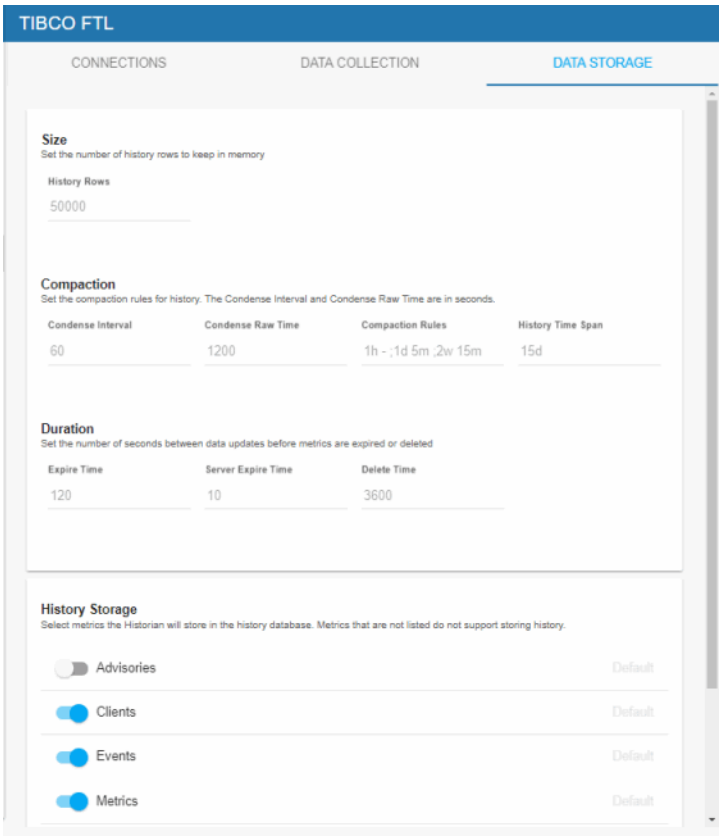
This step is optional.

Use the RTView Configuration Application to configure the reduction of data stored in cache history tables for the Solution Package for TIBCO FTL. You can also set the amount of time to wait for a response before expiring or deleting cached history data.

To configure data storage for the Solution Package for TIBCO FTL:

1. "Open the Solution Package Project" (the project name is **TFTLMON-LOCAL**), then select **TIBCO FTL** from the navigation tree (left panel)..

2. Choose the **DATA STORAGE** tab.



3. Under **Size**, enter the maximum number of **History Rows** to keep in the history table. The caches impacted by this field are TftlClient, TftlServer, TftlEvent, TftlAdvisory and TftlMetrics. Note that this limits the total number of rows in the history table regardless of the specified **History Time Span**.

4. Under **Compaction**, make the following entries to schedule reduction of cached history data:
   - **Condense Interval**: The time interval, in seconds, at which cached history data is condensed. The caches impacted by this field are TftlClient, TftlServer and TftlMetrics.
   - **Condense Raw Time**: The time interval, in seconds, at which raw cached history data is condensed. The caches impacted by this field are TftlClient, TftlServer and TftlMetrics.
   - **Compaction Rules**: Specifies the frequency for condensing data. The caches impacted by this field are TftlClient, TftlServer, TftlMetrics and TftlGroupServer. Use the following format:

     1h - ;1d 5m ;2w 15m
   - **History Time Span**: The duration of time to retain a row of cached data based on its date received timestamp.

     The cache trims its History table by removing rows with timestamps that are older than the limit specified here. Specify the duration in seconds or specify a number followed by a single character indicating the desired time interval (e.g. 15m for 15 minutes). The format is a number followed by one of the following valid characters:

y - years (365 days)

M - months (31 days)

w - weeks (7 days)

d - days

h - hours

m - minutes

s - seconds

Example: **1M**

Note that this setting only determines the duration of rows kept in the History table by the cache data source. It does not affect database storage, if any, associated with the cache.

The caches impacted by this field are TftlClient, TftlServer, TftlEvent, TftlAdvisory and TftlMetrics.

5. Under **Duration**, make the following entries to set the amount of time that must pass before a row in the cache table is marked **Expired** or deleted:

- **Expire Time**: The number of seconds to wait for a cache table row response between data updates before marking a cache table row **Expired**. The default value is blank, which specifies no expiration time. **Note:** The cache data source checks this value at approximately 10 second intervals, therefore the time limit specified could be exceeded by up to 10 seconds. The caches impacted by this field are TftlClient, TftlMetrics, TftlSatellite, TftlGroupServer, TftlGroupServerGroup, TftlClientAvailability and TftlServerAvailability.
- **Server Expire Time**: The number of seconds to wait for a server response between data updates before marking the server **Expired**. The default value is blank, which specifies no expiration time. **Note:** The server data source checks this value at approximately 10 second intervals, therefore the time limit specified could be exceeded by up to 10 seconds. The TftlServer cache is impacted by this field.
- **Delete Time**: The number of seconds to wait for a server response between data updates before deleting a cache table row. This value should specify a longer time interval than that specified for **Expire Time**. The default value is blank, which specifies no deletion time. The caches impacted by this field are TftlClient, TftlAdvisory and TftlMetrics.

6. Under **History Storage**, choose (toggle to enable/disable) the types of data you want the Historian to store for the Solution Package:

7. **History Table Name Prefix**: Enter a prefix that will prepend the data you just chose to store in the history table. The prefix should be descriptive. For example, FTL.

The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under RTVAPM_HOME/tftl/dbconfig and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

8. **SAVE** your project settings (choose  if **SAVE** is not visible, or expand your browser width).

9. Repeat this step for each host you wish to monitor.

Return to "Add Connections".

Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/tftlmon/logs** directory.

Logging is enabled by default.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **TFTLMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with **Tftl**. Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the Display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server.

TIBCO FTL Monitor Views/Displays

The following Solution Package for TIBCO FTL Views (and their associated displays) can be found under **Components** tab **> Middleware > TIBCO FTL** once the Solution Package for TIBCO FTL is installed:

- "FTL Servers"
- "FTL Clients"
- "FTL Events"

FTL Servers

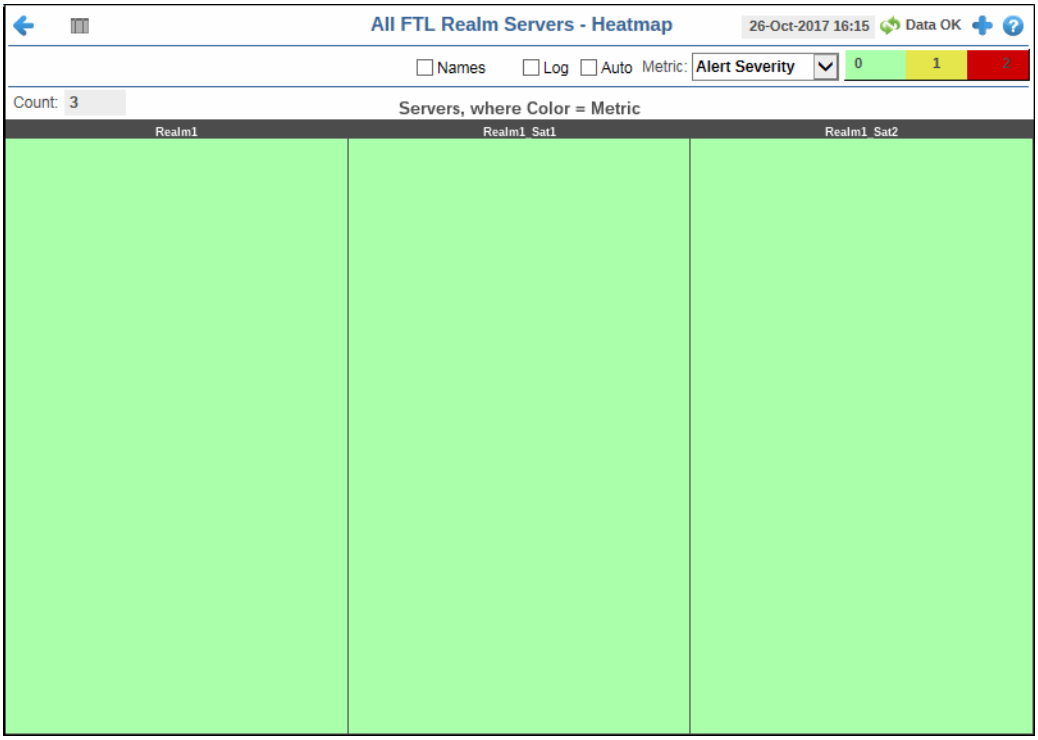
These displays present performance metrics and alert status for all FTL servers. Displays are:

- "All Servers Heatmap": Heatmap shows server and alert status for all FTL servers in all realms.
- "All Servers Table": Table shows all available utilization metrics for all FTL servers.
- "All Group Servers Table": Table shows the status and ID of all FTL Group Servers.
- "All Satellites Table": Table shows the status and ID of all satellites.
- "Server Summary": Current and historical metrics for a single FTL server.

All Servers Heatmap

This heatmap display provides an easy-to-view interface that allows you to quickly identify the current status of each of your servers for each available metric. You can view the servers in the heatmap based on the following metrics: the current alert severity, the current alert count, the total number of clients, the current amount of CPU being used, the current amount of memory being used for processing, the current amount of virtual memory being used for processing, and the number of inbox send faults. By default, this display shows the heatmap based on the **Alert Severity** metric.

Each heatmap rectangle represents a server. The rectangle color indicates the most critical alert state. You can click on a rectangle to drill-down to the "Server Summary" display and view metrics for that server. Clicking on the icon in the upper left hand corner of the display toggles between the commonly accessed **Table** and **Heatmap** displays. You can also mouse-over the rectangles to view more details about host performance and status.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data

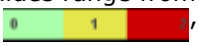
This display includes:

Names Select to display the names of servers on the hosts.

Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting Auto helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. The heatmap organizes the servers by host, where each rectangle represents a server. Mouse-over any rectangle to display the current values of the metrics for the Server. Click on a rectangle to drill-down to the associated "Server Summary" display for a detailed view of metrics for that particular server.

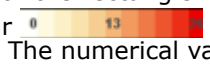
Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar  , where **2** is the greatest **Alert Severity**.

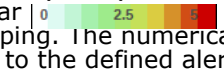
2 Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

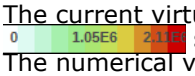
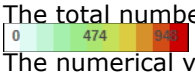
0 Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

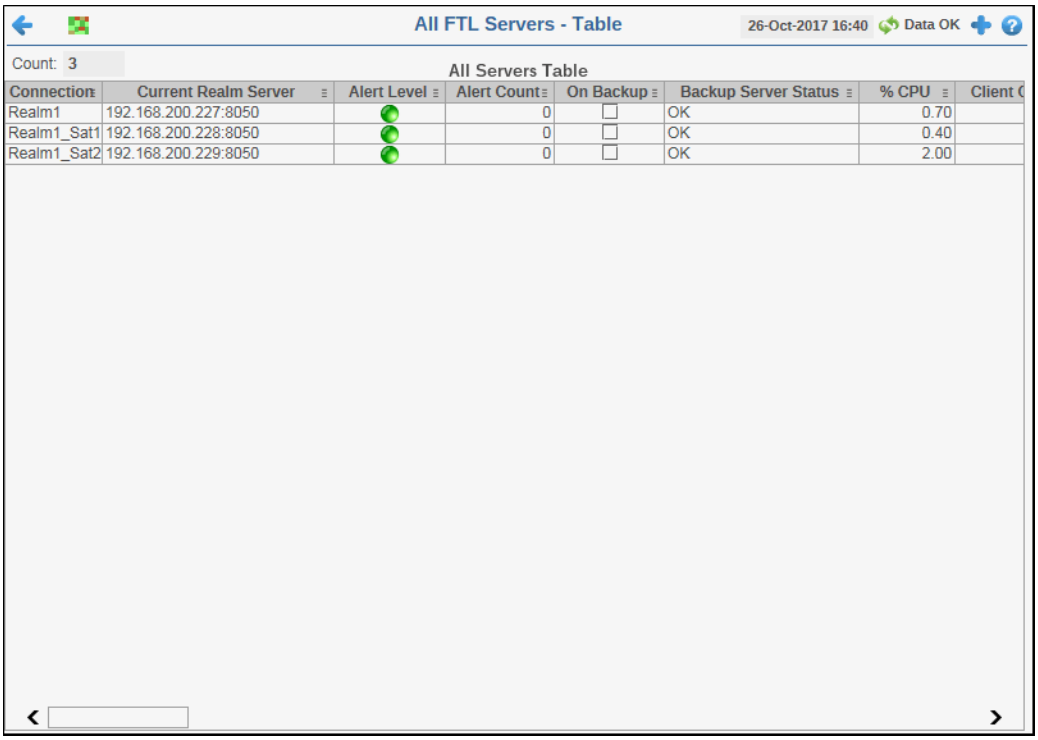
 # Clients The total number of clients in a given item (index) associated with the rectangle. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlServerClientCountHigh**. The middle value in the gradient bar indicates the middle value of the range.

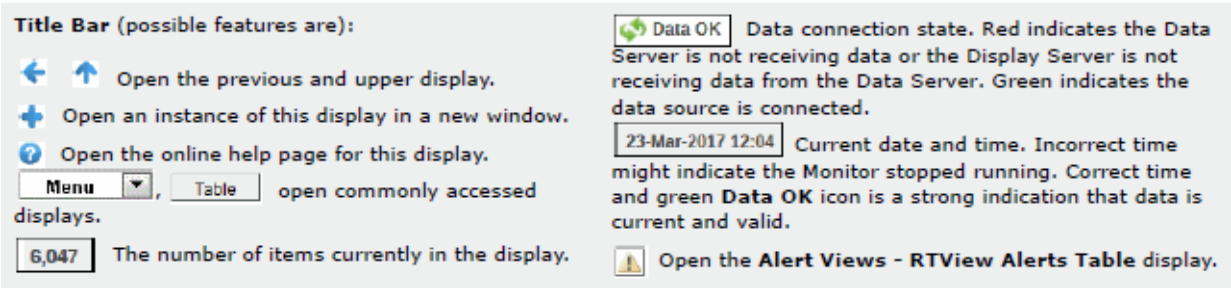
CPU Usage The total amount of CPU used. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlServerCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

Memory	The current memory being used. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlServerMemoryHigh**. The middle value in the gradient bar indicates the middle value of the range.
V(irtual) Memory	The current virtual memory being used. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlServerVirtualMemoryHigh**. The middle value in the gradient bar indicates the middle value of the range.
#Inbox Faults	The total number of inbox faults. The color gradient bar  shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlServerInboxSendFaultsHigh**. The middle value in the gradient bar indicates the middle value of the range.

All Servers Table

Investigate detailed utilization metrics for all FTL servers. The **All Servers Table** contains all metrics available for servers, including the number of current client connections. Each row in the table describes a different server, and clicking on a table row drills-down to the "Server Summary" display allowing you to view metrics for that particular server. Clicking the icon in the upper left hand corner of the display toggles between the commonly accessed **Table** and **Heatmap** displays. You can click a column header to sort column data in numerical or alphabetical order.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Fields and Data

This display includes:

Count The total number of active, inactive, and standby FTL servers. Column values are for the server except where noted. **Inactive Servers** are shown in dark red. **Standby Servers** are shown in blue. **Inactive Servers** are shown in dark gray. **Active Backup Servers** are shown in yellow.

All Servers Table

Connection	The name of the connection.
Current Realm Server	The IP address and port number for the currently connected realm server.
Alert Level	The maximum alert level in the item (index) associated with the rectangle. Values range from 0 to 2, as indicated in the color gradient bar, where **2** is the greatest Alert Severity. One or more alerts have exceeded their specified **ALARMLEVEL** threshold, have an Alert Severity value of **2**, and are shown in red. One or more alerts have exceeded their specified **WARNINGLEVEL** threshold, have an Alert Severity value of **1**, and are shown in yellow. No alerts have exceeded an alert threshold, which have an Alert Severity value of **0**, and are shown in green.
Alert Count	The number of alerts currently on the server.
On Backup	When checked, the server is in backup server mode.*
Backup Server Status	The current backup server status.*
%CPU	The percent CPU used on the server.*

Client Count	The number of clients currently connected to the server.* Note that the client count might not match the number of clients found in the "All Clients Table", possibly due to the following: • One client might have one or more group joins resulting in a higher client count. For example, if a client has two group joins, CLIENT_COUNT equals 3, but will only be listed as a single client in the "All Clients Table". • A TIBCO bridge could have one or more logical bridges running inside the bridge process, which could result in an increased CLIENT_COUNT even though there is actually only one client. • Other FTL services could get a Client ID and, hence, be included in the CLIENT_COUNT even though they are not necessarily clients.
Clients Running	The number of connected clients on the server that currently have a status of RUNNING (which can be less than or equal to the client count).*
Cumulative Client Connects	The total number of clients the server has connected since the server was last started.*
Process Peak RSS (KB)	The maximum RSS memory used, in kilobytes.*
Process RSS (KB)	The current RSS memory used, in kilobytes.*
Process VM (KB)	The current virtual memory used, in kilobytes.*
#Bridge Servers	The number of bridge servers connected.*
#EFTL Clusters	The number of EFTL clusters connected.*
#Group Clients	The number of group clients connected.*
#Group Servers	The number of group servers connected.*
#Persistence Servers	The number of persistence servers connected.*
#Satellites	The number of satellites connected.*
Inbox Send Faults	The total number of faults when sending messages to inbox subscribers.*
Delta Inbox Send Faults	The number of faults when sending messages to inbox subscribers since the last data update.
Rate Inbox Send Faults	The rate of faults when sending messages to inbox subscribers
User CPU Time	Total amount of time the CPU spent, in microseconds, processing object code for users.*
System CPU Time	Total amount of time the CPU spent, in microseconds, processing operating system calls.*
Clients Destroyed	The total number of destroyed clients since the server was last started.*
Client Exceptions	The total number of client exceptions since the server was last started.*
Clients Needing Restart	The total number of clients that had to reconnect since the server was last started.*
Clients Off-line	The number of clients currently offline.*
Clients Out of Sync	The number of clients currently out of sync.*

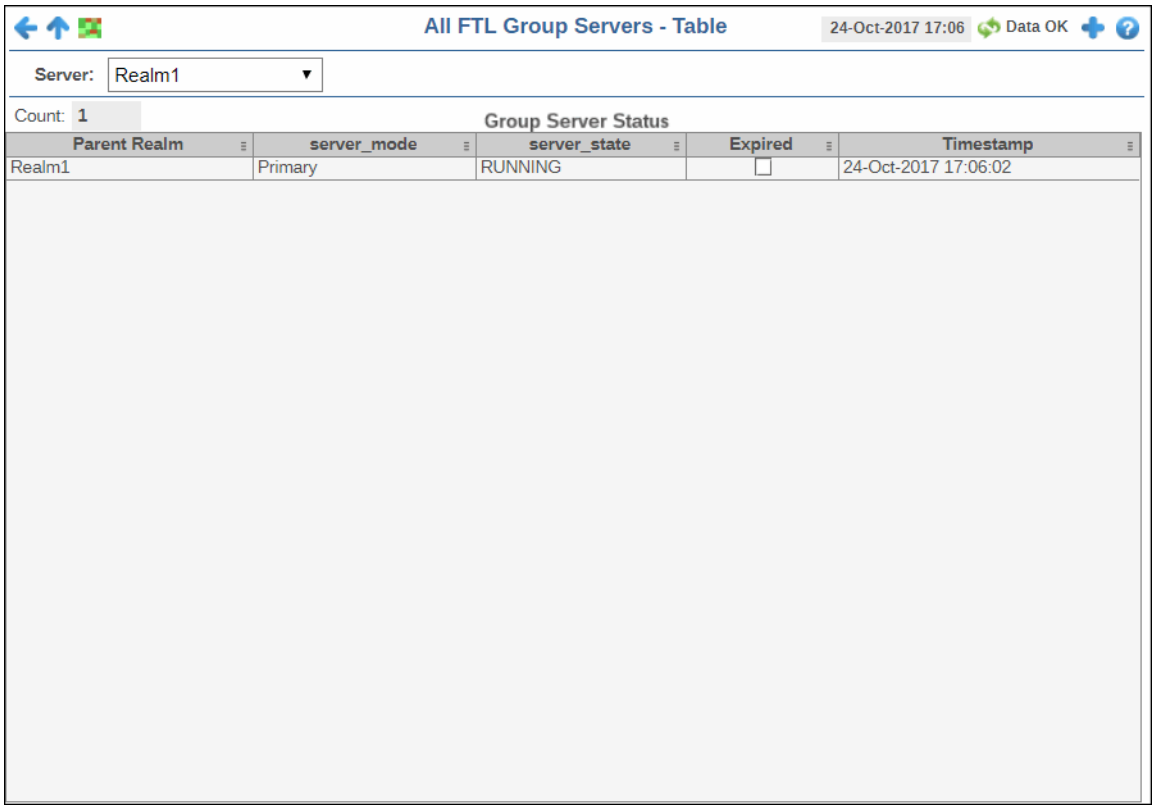
Client Reconnects	The total number of clients that had to reconnect since the server was last started.*
Client Time-outs	The total number of clients connections that time out due to inactivity since the server was last started.*
Primary Realm Server	The configured primary realm server.*
Backup Realm Server	The configured secondary realm server.*
Server ID	The unique server ID.*
Uptime	The number of days, hours and minutes since the server was last started.*
Version	The FTL version on the server.*
Source	The source of the incoming data.

Expired	When checked (Expired=true), monitoring data for the FTL Server row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlServerRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 10 and 3600 seconds respectively, meaning that each of the FTL Server rows will have Expired set to true after 10 seconds of inactivity and that expired FTL Server rows will be removed from the cache after 3600 seconds (one hour) of inactivity.
	To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:
	`##########################`
	`# CACHE / HISTORIAN SETTINGS`
	
	`sl.rtview.sub=$tftlServerRowExpirationTime:10`
	`sl.rtview.sub=$tftlRowExpirationTimeForDelete:0`

Data Timestamp	The date and time this row of data occurred in FTL.*
Timestamp	The date and time this row of data was last updated in RTView.

All Group Servers Table

This display allows you to view the status of all FTL group servers, see their parent realm, and see which are primary and secondary backup servers. Each row in the table is a different parent realm, and clicking on a table row drills-down to the "Clients by Group" display allowing you to view detailed metrics for that group. You can click a column header to sort column data in ascending or descending order.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server: Select the server for which you want to view data, or select **All Group Servers** to view data for all servers.

Count The total number of group servers. Inactive Servers are shown with a dark gray background and Backup Servers are shown with a yellow background.

Group Server Status Table

server_mode The server mode. The server could be running as a primary server, acting as a backup server or running as a satellite. Valid values are:*

Primary -- the server is running as a primary server.

Secondary -- the server is acting as a secondary server.

server_state The current server state. Valid values are:*

Running -- the server is up and running.

Stopped -- the server is stopped.

Expired When checked (Expired=true), monitoring data for the FTL Server row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlServerRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 10 and 3600 seconds respectively, meaning that each of the FTL Server rows will have Expired set to true after 10 seconds of inactivity and that expired FTL Server rows will be removed from the cache after 3600 seconds (one hour) of inactivity.

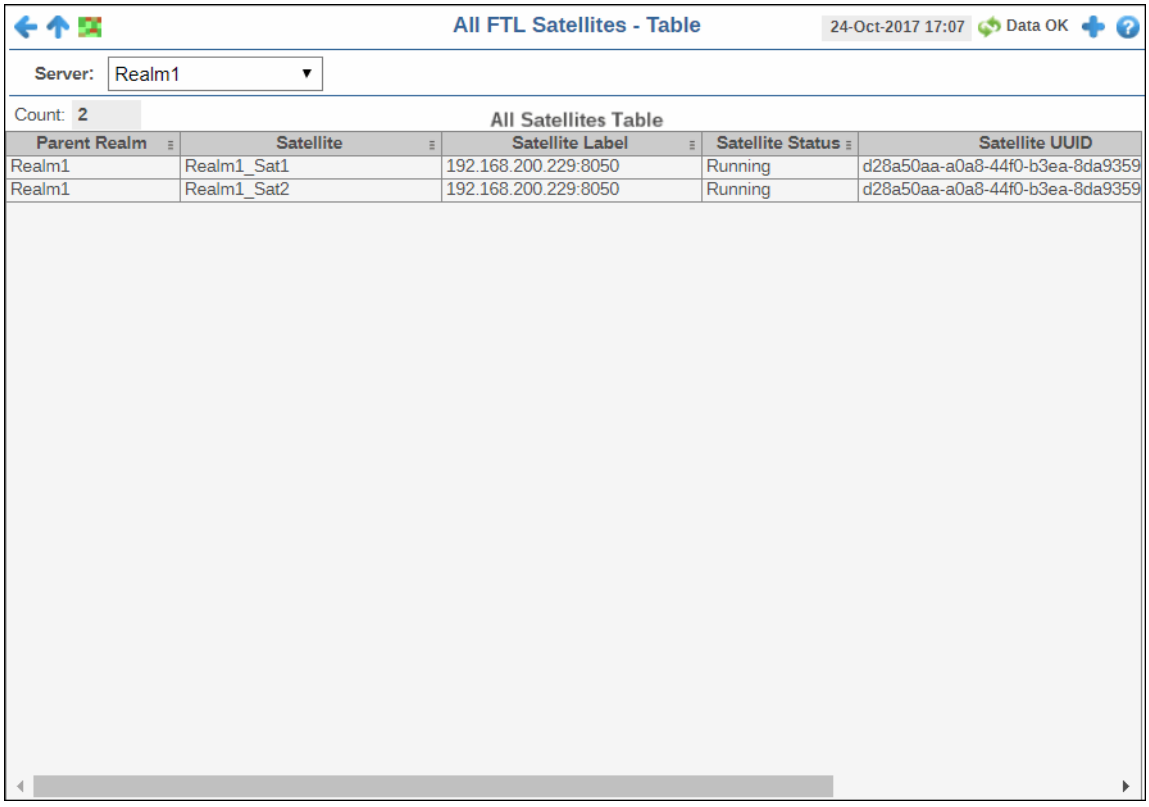
To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:

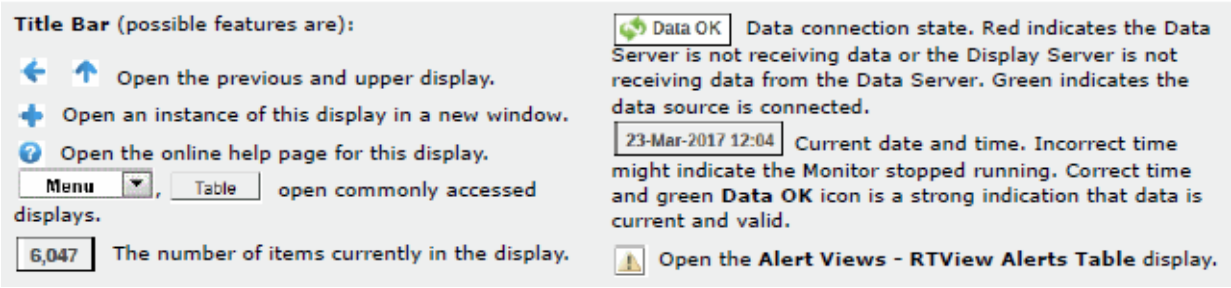
```
##########################
# CACHE / HISTORIAN SETTINGS

sl.rtview.sub=$tftlServerRowExpirationTime:10
sl.rtview.sub=$tftlRowExpirationTimeForDelete:0
```

Timestamp The date and time this row of data was last updated in RTView.

All Satellites Table

View the status, ID, and parent realm of all satellites. Each row in the table is a different satellite, and clicking on a table row drills-down to the "Server Summary" display allowing you to view performance metrics for the server hosting the satellite. You can click a column header to sort column data in ascending or descending order.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server Select the server for which you want to view data.

Count The total number of table of satellite servers associated with the selected server. If the satellite server is not running, the row background is shown in yellow. When the satellite server is inactive (**Expired**=**true**) the row is shown in dark gray.

All Satellites Table

Parent Realm The name of the host server for the satellite.*

Satellite The satellite IP address and port number.*

Satellite Status The server state. Valid values are:*

Running -- the satellite is up and running.

Stopped -- the satellite is stopped.

Satellite UUID The unique ID for the satellite.*

Expired When checked (Expired=true), monitoring data for the row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlServerRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 10 and 3600 seconds respectively, meaning that each of the rows will have Expired set to true after 10 seconds of inactivity and that expired FTL Server rows will be removed from the cache after 3600 seconds (one hour) of inactivity.

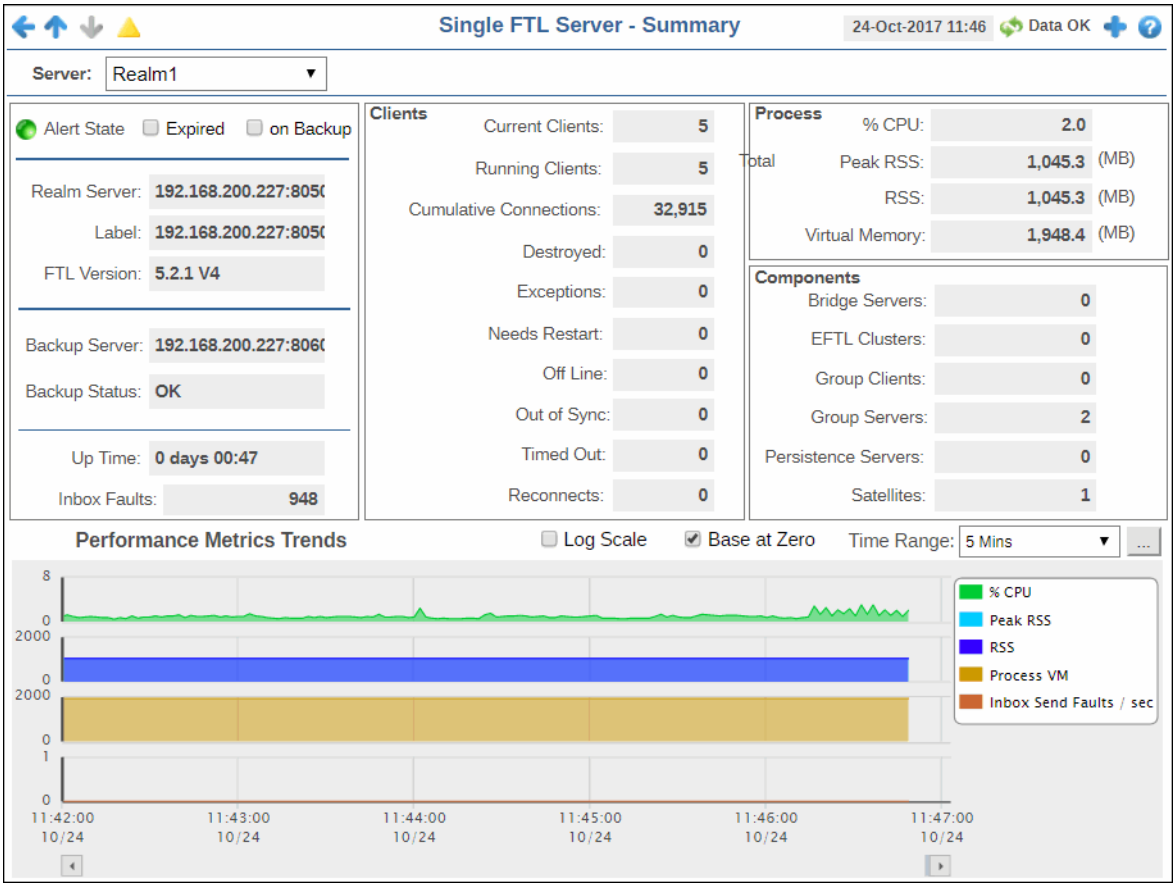
To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:

```
##########################
# CACHE / HISTORIAN SETTINGS

sl.rtview.sub=$tftlServerRowExpirationTime:10
sl.rtview.sub=$tftlRowExpirationTimeForDelete:0
```

Timestamp The date and time this row of data was last updated in RTView.

Server Summary

This display allows you to investigate performance issues for the selected server. You can track current and historical performance metrics for a single FTL server and view how many components (satellites, EFTL clusters; bridge, group and persistence servers) the server hosts.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server	Select the FTL Server for which you want to view data.

Server Metrics

Alert State	The maximum alert level on the server: ● One or more alerts have exceeded their specified **ALARMLEVEL** threshold. ● One or more alerts have exceeded their specified **WARNINGLEVEL** threshold. ● No alerts have exceeded an alert threshold.

Expired	When checked (Expired=true), monitoring data for the FTL Server row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlServerRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 10 and 3600 seconds respectively, meaning that each of the FTL Server rows will have Expired set to true after 10 seconds of inactivity and that expired FTL Server rows will be removed from the cache after 3600 seconds (one hour) of inactivity.
	To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:
	`##########################`
	`# CACHE / HISTORIAN SETTINGS`
	
	`sl.rtview.sub=$tftlServerRowExpirationTime:10`
	`sl.rtview.sub=$tftlRowExpirationTimeForDelete:0`

on Backup	When checked, this server has a backup server.*
Realm Server	The server IP address or host name.*
Label	The server label.*
FTL Version	The FTL version on the server.*
Backup Server	The IP address and port of the backup server.*
Backup Status	The current backup server status.*
Up Time	The number of days, hours and minutes since the server was last started.*
Inbox Faults	The total number of faults when sending messages to inbox subscribers.*
Satellites	The number of satellites.*

Clients

Current Clients	The number of clients currently on the server.*
Running Clients	The number of clients currently active on the server.*
Cumulative Client Connections	The total number of clients the server has connected since it the server was last started.*
Destroyed	The total number of destroyed clients since the server was last started.*

Exceptions	The total number of client exceptions since the server was last started.*
Needs Restart	The total number of clients that had to reconnect since the server was last started.*
Offline	The number of clients currently offline.*
Out of Sync	The number of clients currently out of sync.*
Timed out	The total number of clients connections that timed out due to inactivity since the server was last started.*
Reconnects	The total number of clients that had to reconnect since the server was last started.*

Process

% CPU	The amount of CPU used, in percent.*
Peak RSS	The maximum RSS memory used, in kilobytes.*
RSS	The current RSS memory being used, in megabytes.*
Virtual Memory	The current virtual memory being used, in megabytes.*

Components

Bridge Servers	The number of bridge servers connected.*
EFTL Clusters	The number of EFTL clusters connected.*
Group Clients	The number of group clients connected.*
Group Servers	The number of group servers connected.*
Persistence Servers	The number of persistence servers connected.*
Satellites	The number of satellites connected.*

Performance Metrics Trends

Traces the following for the selected server:

% CPU -- The percent CPU used.

Peak RSS -- The maximum amount of RSS memory used.

RSS -- The RSS memory used.

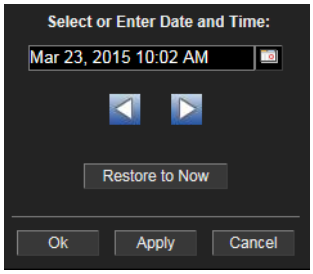
Process VM -- The current virtual memory used.

Inbox Send Faults/sec -- The rate of faults when sending messages to inbox subscribers (per second).

Log Scale	This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

FTL Clients

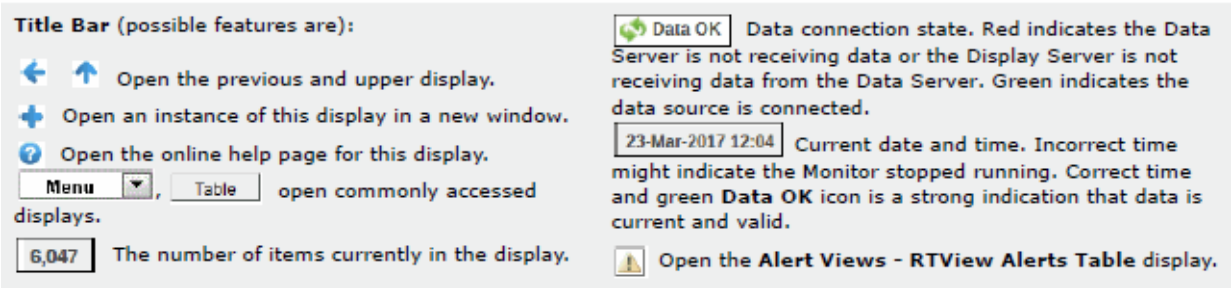
These displays present performance metrics and alert status for FTL clients. Available displays are:

- "All Clients Heatmap": Shows alert status for all FTL clients in all realms in a heatmap format.
- "All Clients Table": Shows all available utilization metrics for all FTL clients on a selected server in a tabular format.
- "Clients by Group": Lists all FTL clients by group with member details and CPU utilization in a tabular format.
- "Client Summary": Displays current and historical metrics for a single FTL client.
- "Client Metrics": Provides details about metric calculations for each FTL client.

All Clients Heatmap

This heatmap allows you to view the status and alerts of all FTL clients. You can view the clients in the heatmap based on the following metrics: the current alert severity, the current alert count, the current CPU usage, the rate of messages received, and the rate of messages sent.

Each heatmap rectangle represents a client, and clicking on a client drills-down to the "Client Summary" display allowing you to view metrics for that client. The rectangle color indicates the most critical alert state. Clicking on the icon in the upper left hand corner of the display toggles between the commonly accessed **Table** and **Heatmap** displays. You can also mouse-over the rectangles to view more details about host performance and status.



Filter By:

Server Choose the server for which you want to view data.

Fields and Data

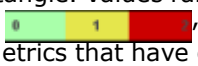
This display includes:

Names Select this check box to display the names of clients.

Log This option enables visualization on a logarithmic scale, and should be used when the range in your data is very broad. For example, if you have data that ranges from the tens to the thousands, then data in the range of tens will be neglected visually if you do not check this option. This option makes data on both extreme ranges visible by using the logarithmic of the values rather than the actual values.

Auto When checked, the values of the selected metric are auto-scaled to its highest defined value. When unchecked, the values of the selected metric display based on the threshold defined for the alert associated with the selected metric. Selecting Auto helps to visualize the range of the values currently present for the selected metric instead of the threshold of the alert that has been associated with the metric. All metrics that have not been associated in the heatmap defaults with alerts use a monochromatic color gradient bar (whites and greens). All metrics that have been associated in the heatmap defaults with alerts use a multi-chromatic color gradient bar (reds, yellows, white, and greens).

Metric Select the metric driving the heatmap display. The default is Alert Severity. Each **Metric** has a color gradient bar that maps values to colors. Each rectangle represents a client. Mouse-over any rectangle to display the current values of the metrics for the client. Click on a rectangle to drill-down to the associated "Client Summary" display for a detailed view of metrics for that particular client.

Alert Severity The maximum alert level in the item (index) associated with the rectangle. Values range from **0** to **2**, as indicated in the color gradient bar 

, where **2** is the greatest **Alert Severity**.

2 Metrics that have exceeded their specified **ALARMLEVEL** threshold and have an Alert Severity value of **2** are shown in red. For a given rectangle, this indicates that one or more metrics have exceeded their alarm threshold.

1 Metrics that have exceeded their specified **WARNINGLEVEL** threshold and have an Alert Severity value of **1** are shown in yellow. For a given rectangle, this indicates that one or more metrics have exceeded their warning threshold.

0 Metrics that have not exceeded either specified threshold have an Alert Severity value of **0** and are shown in green. For a given rectangle, this indicates that no metrics have exceeded a specified alert threshold.

Alert Count The total number of alarm and warning alerts in a given item (index) associated with the rectangle.

The color gradient bar 

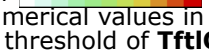
shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the middle value of the range.

CPU Usage The total amount of CPU used. The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlClientCpuUsageHigh**. The middle value in the gradient bar indicates the middle value of the range.

Memory The current amount of memory used for processing. The color gradient bar 

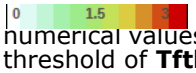
shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlClientMemoryHigh**. The middle value in the gradient bar indicates the middle value of the range.

V(irtual) Memory The current amount of virtual memory being used for processing. The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlClientVirtualMemoryHigh**. The middle value in the gradient bar indicates the middle value of the range.

Msgs Rcvd/sec The rate of messages received (per second). The color gradient bar 

shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlClientMsgsRcvdRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

Msgs Sent/sec The rate of messages sent (per second). The color gradient bar 

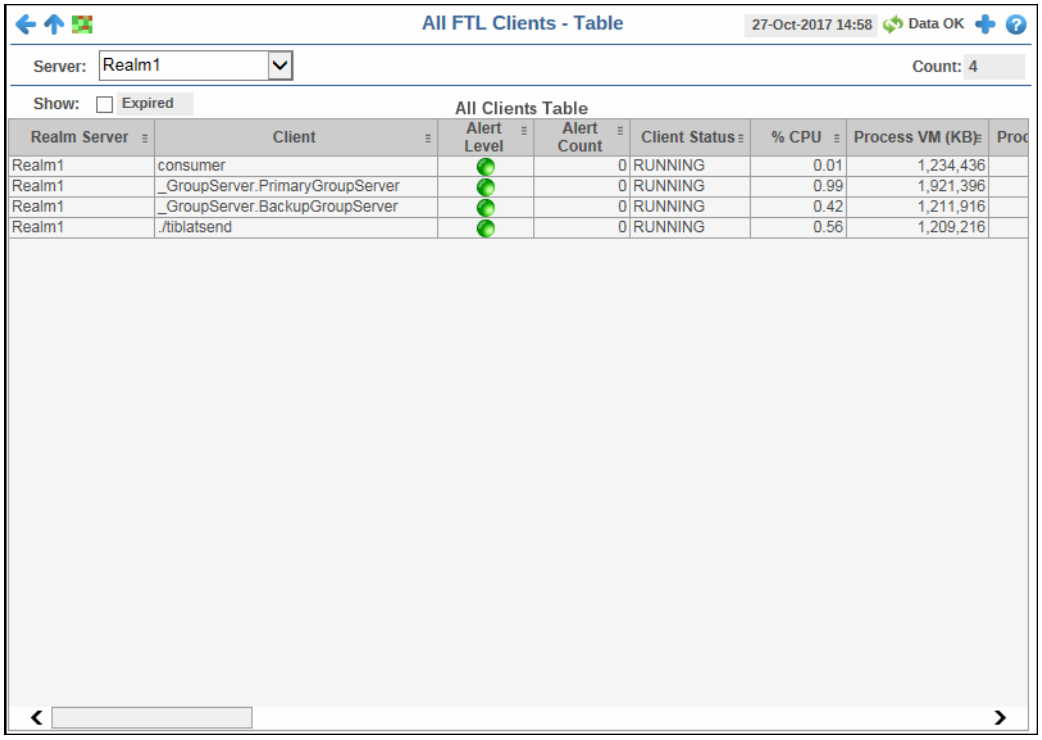
shows the range of the value/color mapping. The numerical values in the gradient bar range from **0** to the defined alert threshold of **TftlClientMsgsSentRateHigh**. The middle value in the gradient bar indicates the middle value of the range.

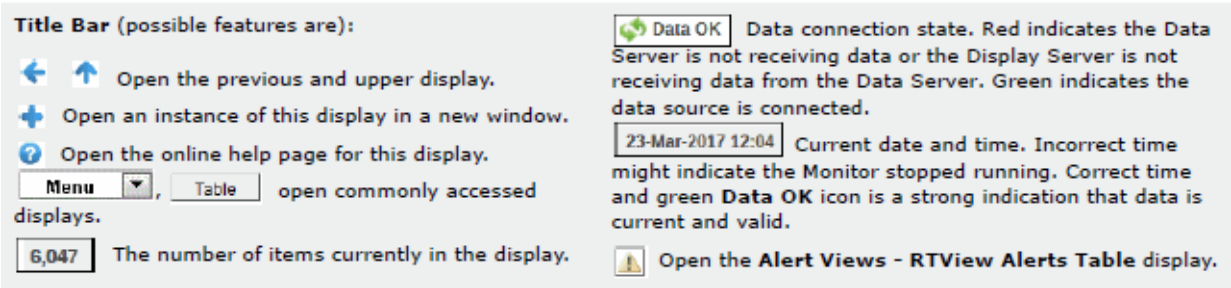
All Clients Table

Investigate detailed utilization metrics for all FTL clients. The **All Clients Table** contains all metrics available for clients, including the number of current client connections. Each row in the table contains data for a particular client, and clicking on a table row drills-down to the "Client Summary" display allowing you to view metrics for that particular client. You can click a column header to sort column data in ascending or descending order. Clicking the icon in the upper left hand corner of the display toggles between the commonly accessed **Table** and **Heatmap** displays.

Note that the number of clients found in this table might not match the client count found in the "All Servers Table", possibly due to the following:

- One client might have one or more group joins resulting in a higher client count. For example, if a client has two group joins, CLIENT_COUNT equals 3, but will only be listed as a single client in this table.
- A TIBCO bridge could have one or more logical bridges running inside the bridge process, which could result in an increased CLIENT_COUNT even though there is actually only one client.
- Other FTL services could get a Client ID and, hence, be included in the CLIENT_COUNT even though they are not necessarily clients.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server	Select the server for which you want to view data.
Show: Expired	Select this check box to display those rows containing expired data. Leave unchecked to display only those rows that are not expired.

Count The total number of active, inactive, and standby FTL clients. **Inactive Clients** are shown in dark red. **Standby Clients** are shown in blue.

All Clients Table

Realm Server	The name of the server.
Client	The name of the client.
Alert Level	The maximum alert level. Values range from 0 to 2, as indicated in the color gradient bar, where **2** is the greatest Alert Severity. 🔴 One or more alerts have exceeded their specified **ALARMLEVEL** threshold, have an Alert Severity value of **2**, and are shown in red. 🟡 One or more alerts have exceeded their specified **WARNINGLEVEL** threshold, have an Alert Severity value of **1**, and are shown in yellow. 🟢 No alerts have exceeded an alert threshold, which have an Alert Severity value of **0**, and are shown in green.
Alert Count	The current number of alerts.
Client Status	The status of the client. For example, RUNNING.*
% CPU	The amount of CPU used, in percent.*
Process VM (KB)	The amount of virtual memory used for processing, in kilobytes. *
Process RSS (KB)	The current RSS memory being used, in kilobytes.*
Process Peak RSS (KB)	The maximum RSS memory used, in kilobytes.*
Msgs Rcvd/ sec	The number of messages received per second.

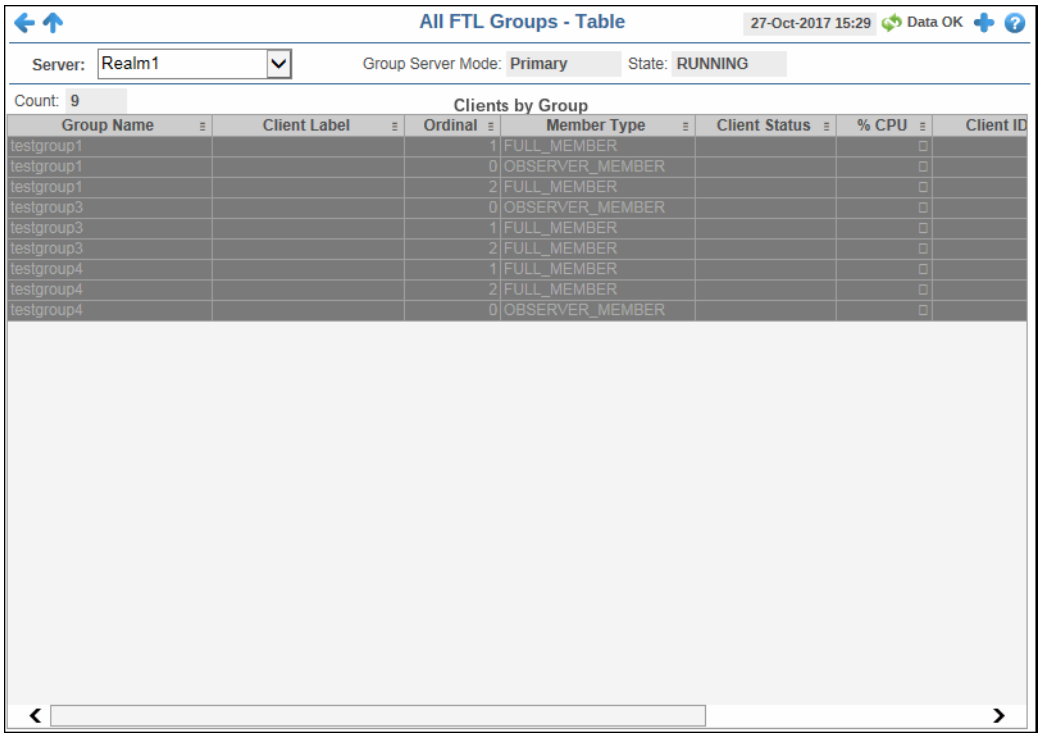
Msgs Sent/ sec	The number of messages sent per second.
Delta Msgs Rcvd	The total number of messages received since the last data update.
Delta Msgs Sent	The total number of messages sent since the last data update.
Total Msgs Rcvd	The total number of messages received since the client started.*
Total Msgs Sent	The total number of messages sent since the client started.*
Store Mismatch Msgs	Any non-zero value indicates a store mismatch misconfiguration, which occurs when a direct path transport connects two endpoints that are associated with two different persistence stores.*
Dynamic Formats	The number of distinct dynamic formats that the client creates within the sample interval.*
User CPU	The amount of time the user has used the CPU, in microseconds.*
Application	The application name of the client.*
Application Instance	The application instance of the client.*
Client ID	The unique ID for the client.*
Process ID	The unique ID for the process.*
FTL User	The FTL user that is being used by the client.*
Effective User	The UID of the client (which is used for most access checks).*
Host	The host name.*
Host IP	The host IP address.*
FTL Version	The FTL version on the host.*

Expired	When checked (Expired=true), monitoring data for the row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 120 and 3600 seconds respectively, meaning that each of the rows will have Expired set to true after 120 seconds of inactivity and that expired rows will be removed from the cache after 3600 seconds (one hour) of inactivity.
	To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:
	`##########################`
	`# CACHE / HISTORIAN SETTINGS`
	
	`sl.rtview.sub=$tftlServerRowExpirationTime:120`
	`sl.rtview.sub=$tftlRowExpirationTimeForDelete:0`

Data Timestamp	The date and time this row of data occurred in FTL.*
Local Timestamp	The date and time this row of data was last updated in RTView.

Clients by Group

This display lists all clients and their associated FTL groups for a particular server. Each row in the table is a different client, and clicking on a table row drills-down to the "Client Summary" display allowing you to view metrics for that particular client. You can click a column header to sort column data in ascending or descending order.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server Select the server for which you would like to view data.

Group Server Mode	The server mode. Valid values are: **Primary** -- The server is acting as a primary server. **Secondary** --The the server is acting as a secondary server.
State	**Running** -- The client is running and its local realm definition is up-to-date. **Needs Restart** – The client needs to be restarted to update its local realm definition. **Timed Out** - The server has lost the heartbeat signal from the client. Either the client has stopped or a network issue is obstructing the signal. **Exception** - The client is running, but its realm definition is out-of-date. **Out-of-Sync** -- The realm definition revision on the client and server are different.
Count	The total number of FTL clients. Inactive clients are shown in dark gray and when the client is associated with an active backup server the client is are shown in yellow.

Clients by Group Table

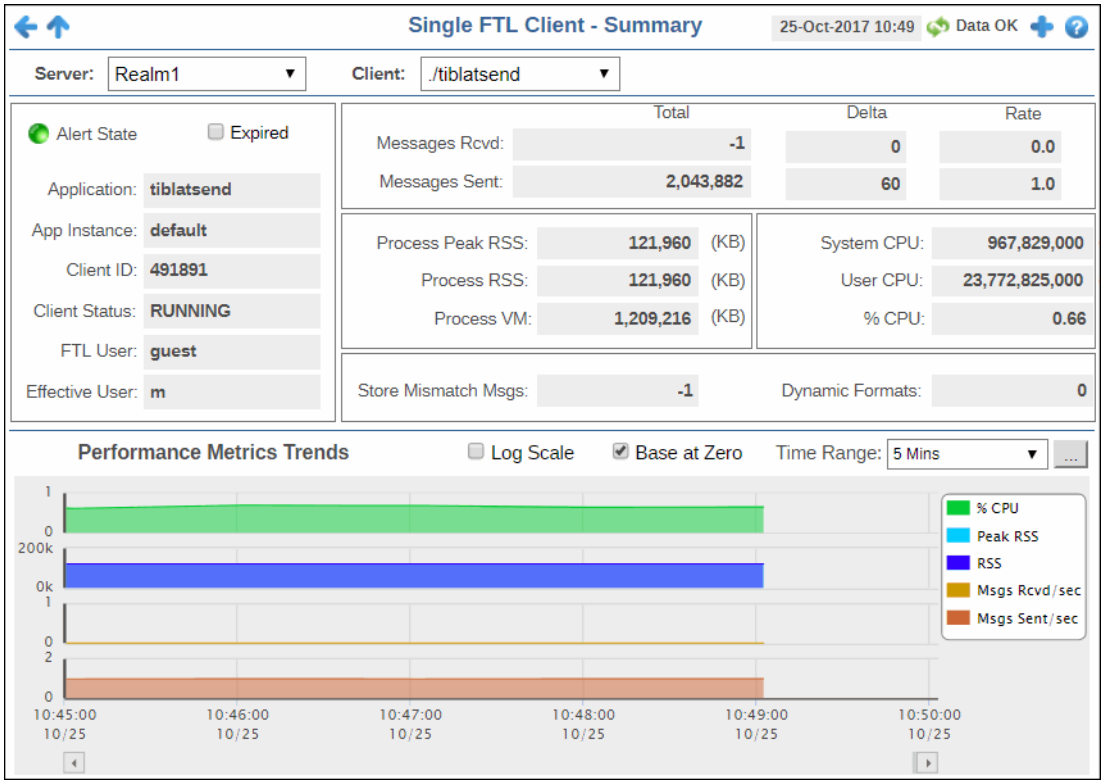
Group Name	The name of the group.*
Client Label	The client's label.*
Ordinal	The number representing the client's position within the group. A value of -1 indicates that the client has been disconnected from the group server.*
Member Type	The client's member type.*
Client Status	The status of the client. For example, RUNNING.*
% CPU	The amount of CPU used, in percent.*
Client ID	The ID of the client.*
Process ID	The process ID.*

Expired	When checked (Expired=true), monitoring data for the row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 120 and 3600 seconds respectively, meaning that each of the rows will have Expired set to true after 120 seconds of inactivity and that expired rows will be removed from the cache after 3600 seconds (one hour) of inactivity.
	To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:
	`##########################`
	`# CACHE / HISTORIAN SETTINGS`
	
	`sl.rtview.sub=$tftlServerRowExpirationTime:120`
	`sl.rtview.sub=$tftlRowExpirationTimeForDelete:0`

Timestamp	The date and time this row of data was last updated in RTView.

Client Summary

Track current and historical performance metrics for a single FTL client. Use this display to investigate performance issues of a client.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server Choose an FTL server to display.

Client Choose a client to display.

Fields and Data

Alert State	The maximum alert level has been exceeded. Values range from 0 to 2, as indicated in the color gradient bar, where **2** is the greatest Alert Severity. ● One or more alerts have exceeded their specified **ALARMLEVEL** threshold, have an Alert Severity value of **2**, and are shown in red. ● One or more alerts have exceeded their specified **WARNINGLEVEL** threshold, have an Alert Severity value of **1**, and are shown in yellow. ● No alerts have exceeded an alert threshold, which have an Alert Severity value of **0**, and are shown in green.	

Expired	When checked (Expired=true), monitoring data for the row has not been received within the time specified for expiration, which is defined (in seconds) using the **$tftlRowExpirationTime** substitution located in the **conf\rtvapm_tftlmon.properties** file. If the row has been expired for an extended period of time, the **$tftlRowExpirationTimeForDelete** substitution determines when the row will be deleted from the cache that drives the display. The default values for the substitutions are 120 and 3600 seconds respectively, meaning that each of the rows will have Expired set to true after 120 seconds of inactivity and that expired rows will be removed from the cache after 3600 seconds (one hour) of inactivity.
	To edit the default/current values, copy the lines below from **rtvapm_tftlmon.properties** file, paste them into the **sample.properties** file, and modify the lines in the **sample.properties** file:
	`##########################`
	`# CACHE / HISTORIAN SETTINGS`
	
	`sl.rtview.sub=$tftlServerRowExpirationTime:120`
	`sl.rtview.sub=$tftlRowExpirationTimeForDelete:0`	

Application	The application name of the client.*	
App Instance	The application instance of the client.*	
Client ID	The unique identifier for the client.*	
Client Status	The status of the client. For example, RUNNING.*	
FTL User	The FTL user that is being used by the client.*	
Effective User	The UID of the client (which is used for most access checks).*	
Messages Rcvd	**Total**	The total number of messages received since the client started.*
	Delta	The number of messages received since the last data update.
	Rate	The number of messages received per second.
Messages Sent	**Total**	The total number of messages sent since the client started.*
	Delta	The number of messages sent since the last data update.
	Rate	The number of messages sent per second.
Process Peak RSS	The maximum RSS memory used, in kilobytes.*	
Process RSS	The current RSS memory being used, in kilobytes.*	
Process VM	The current virtual memory being used, in kilobytes.*	
System CPU	The amount of CPU used by the system, in kilobytes.*	
User CPU	The amount of CPU used by the client, in kilobytes.*	
% CPU	The percent of CPU used by the client.*	

Store Mismatch Msgs Any non-zero value indicates a store mismatch misconfiguration, which occurs when a direct path transport connects two endpoints that are associated with two different persistence stores.*

Dynamic Formats The number of distinct dynamic formats that the client creates within the sample interval.*

Performance Metrics Trends

Traces the following for the selected client:

% CPU -- The amount of CPU used, in percent.

Peak RSS -- The maximum RSS memory used, in kilobytes.

RSS -- The current RSS memory being used, in kilobytes.

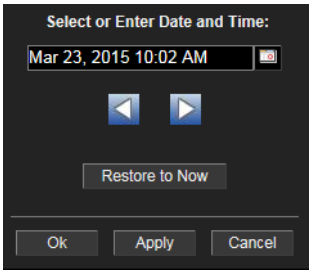
Msgs Rcvd/sec -- The number of messages received per second**.**

Msgs Sent/sec -- The number of messages sent per second**.**

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



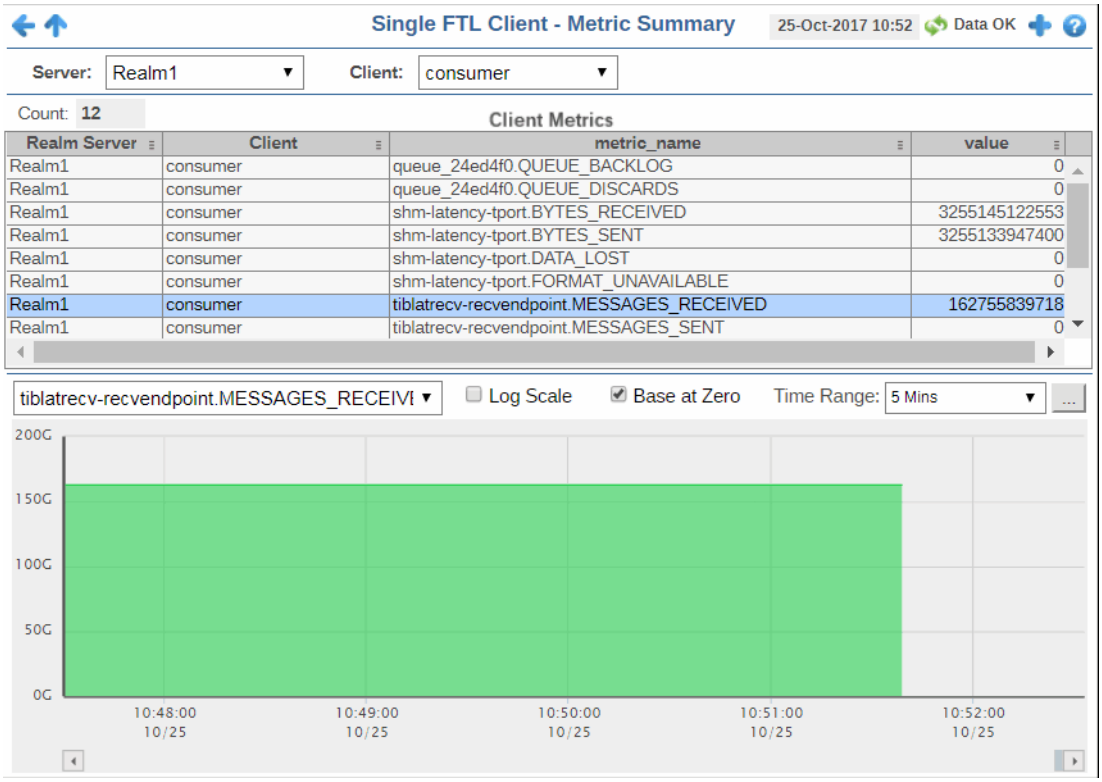
By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

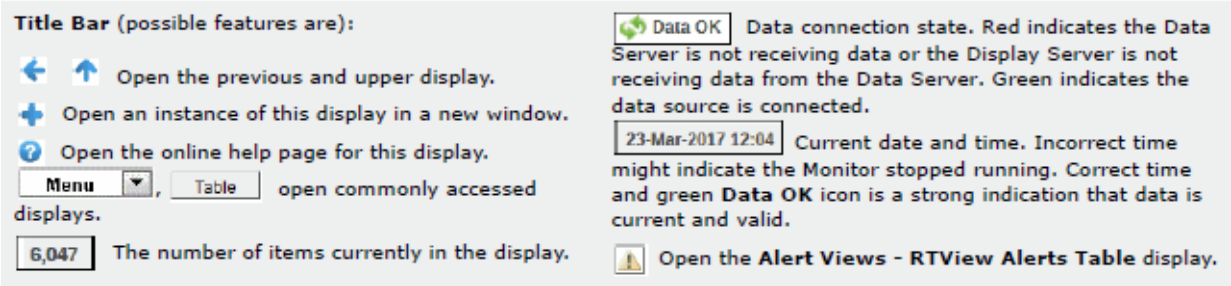
Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Client Metrics

Track detailed performance and utilization metrics for a single FTL client.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server	Select the server containing the client for which you want to see data.
Client	Select the client for which you want to see data.

Count The number of rows/metrics in the table.

Client Metrics Table

Realm Server The name of the server.

Client The name of the client.

metric_name The name of the metric.*

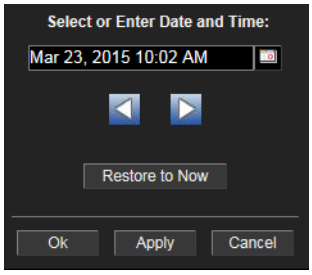
value The current value of the metric.*

Trend Graph Select a metric from the drop-down menu to trace in the trend graph for the selected client.

Log Scale This option should be used when the range of your data is very broad. When checked, the values are displayed using a logarithmic scale rather than using the actual values so that data on the extreme ends of the scale can be viewed more effectively. For example, if you have data that ranges from the tens to the thousands, the data in the range of the tens will be neglected visually if you do not check this option.

Base at Zero When this option is checked, zero is set as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

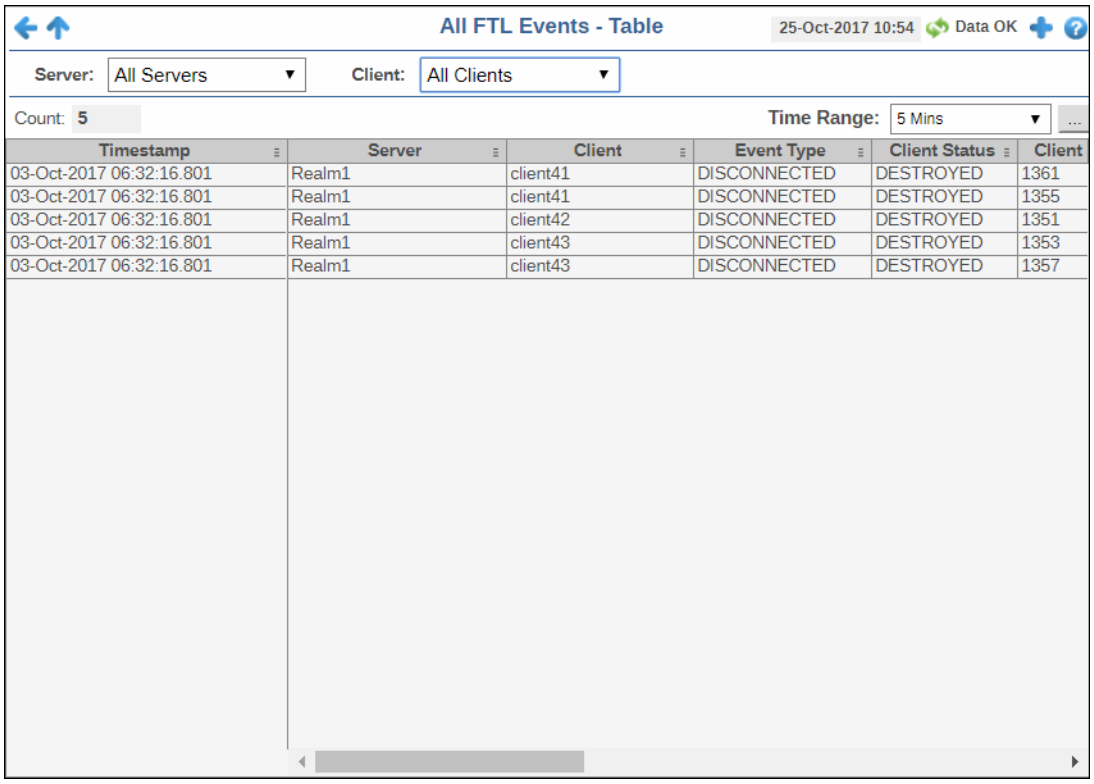
FTL Events

This display presents FTL events for a particular client. The available display is:

- "Events": Table that lists all FTL events for a particular client.

Events

This display allows you to view FTL events on one or all clients. You can view the event type, the client status, the associated application, and the FTL user name among other details.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

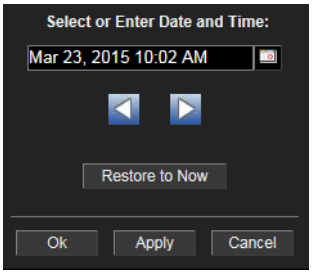
Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by TIBCO FTL. Refer to the TIBCO FTL documentation for more information regarding these fields.

Filter By:

Server	Select an FTL server containing the client for which you want to view data.
Client	Select an FTL client for which you want to view data.
Count	The number of rows in the table.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click the ... button.



By default, the time range end point is the current time. To change the time range end point, click the button and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. **Note:** The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Fields and Data

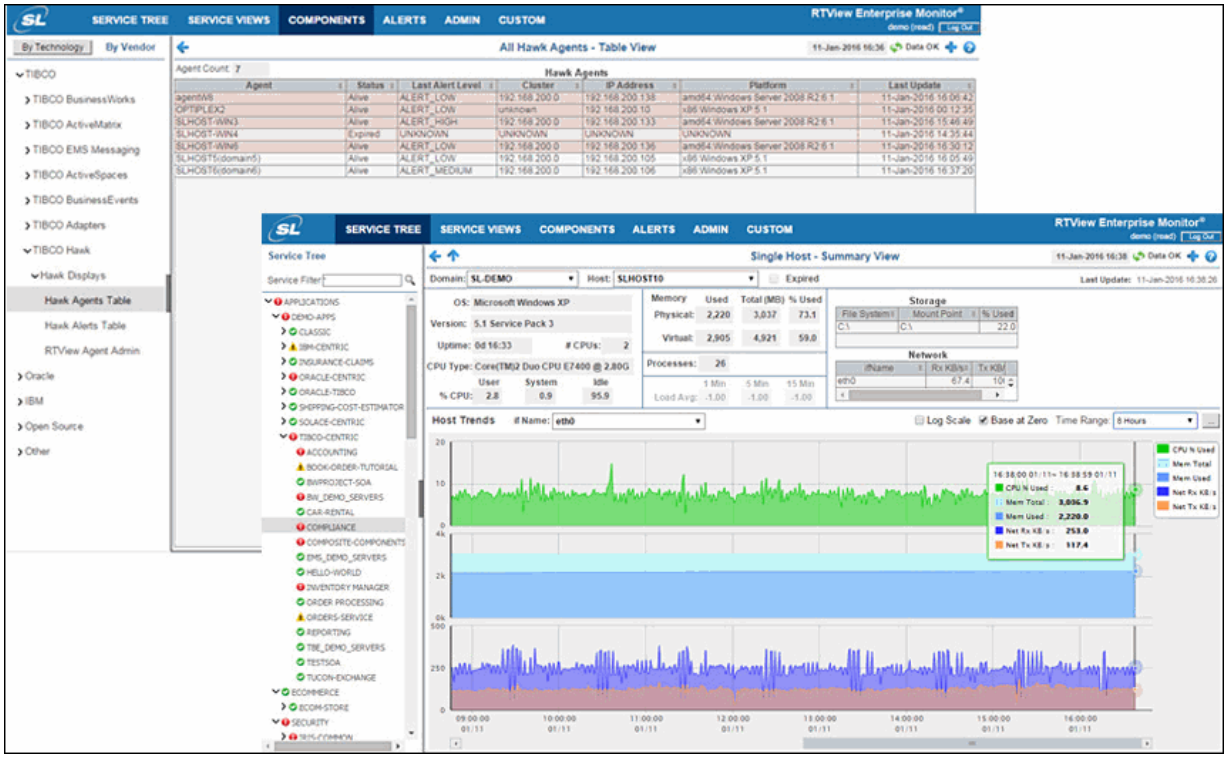
Timestamp	The date and time this row of data was last updated in RTView.
Server	The name of the server.
Client	The name of the client.
Event Type	The type of event.*
Client Status	The status of the client.*
Client ID	The ID of the client.*
Process ID	The process ID.*
Application	The application name of the client.*
Application Instance	The name of the application instance.*
FTL User	The FTL user that is being used by the client.*
Realm Server	The IP address and port of the realm server.*
Host	The name of the host.*
IP Address	The IP address of the client.*
Version	The version of the client running on the server.*

CHAPTER 31 Solution Package for TIBCO Hawk

RTView uses Solution Packages to facilitate monitoring for a number of different technologies, including TIBCO Hawk.

With the Solution Package for TIBCO Hawk™ you can centralize alert events triggered by Hawk alert rule bases and performance data relevant to monitored hosts. This enables RTView to be the event correlation engine and event management system for alerts that are generated by:

- TIBCO Hawk
- RTView Enterprise Monitor, and
- Other monitoring tools such as Netcool and Oracle Enterprise Manager



This chapter includes:

Single TIBCO Console

When combined with other Solution Packages for TIBCO technologies, performance metrics and alerts from TIBCO EMS, TIBCO ActiveMatrix, TIBCO BusinessWorks, and Solution Package for TIBCO BusinessEvents can all be aggregated into a single view. The correlation of this information among the TIBCO technologies further enables cross-technology analytics, speeding troubleshooting, assessment of business impact, and resolution of issues.

By combining these TIBCO monitoring solutions along with other solutions under the RTView Enterprise Monitor umbrella, users can go further in determining how their TIBCO EMS and BW instances are affecting the critical applications in their enterprise. They can consolidate metrics from existing monitoring solutions and tools in order to provide visibility across an entire application infrastructure, including TIBCO applications and other critical application components. Using RTView Enterprise Monitor's Service Model functionality, users are able to create service models that allow them to trace service impact and prioritize issues based on their potential affect on the business.

Functionality

- Correlate available host resources with the associated Application or Service, as well as specific TIBCO components
- Identify hotspots and unavailable hosts across your infrastructure in real-time
- Understand when peak loads of host infrastructure occur or when resource usage trends are constantly growing through time-based historical analysis
- Enable individual groups to filter, correctly prioritize, and act on events of concern with an advanced event management system
- Enable users to set global thresholds and over-ride thresholds from one central console via advanced rule base control

See **README_sysreq.txt** for the full system requirements for RTView®.

Configuration Parameters You Need

- **PackageName=hawkmon**
- **ServerDirectory=hawkmon**
- **AlertPrefix=Hawk**

Configure Data Collection

Do the following in the order provided:

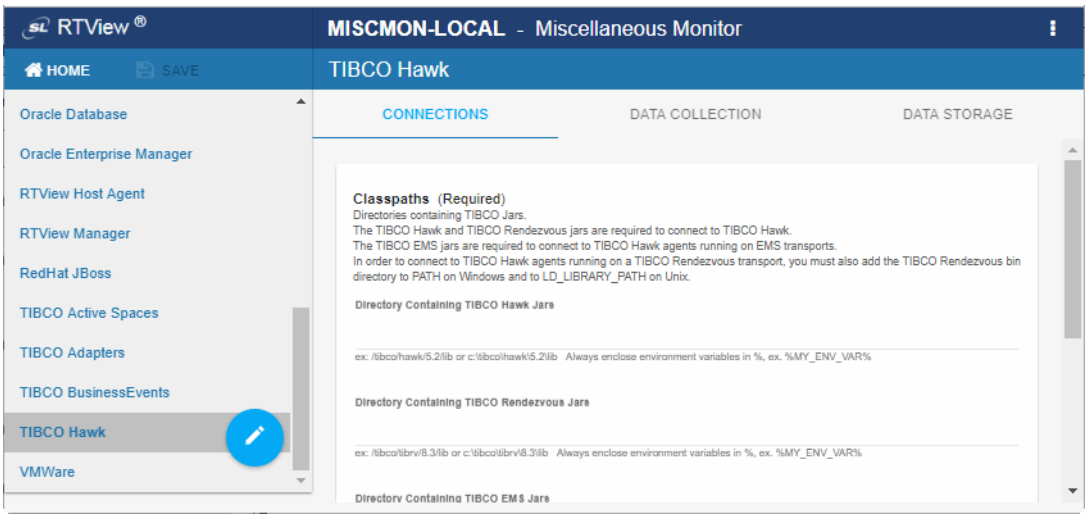
- "Configure CONNECTIONS": Set Java environment and provide server details to establish connection. This step is required.
- "Setup DATA COLLECTION": Set the poll rate interval for collecting data and enable/disable autodiscover. This step is optional.
- "Configure DATA STORAGE": Set rules for how data is stored, as well as when data is reduced, expired and deleted. This step is optional.

Configure CONNECTIONS

This step is required.

To configure data connections for the Solution Package for TIBCO Hawk:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Tibco Hawk** from the navigation tree (left panel).



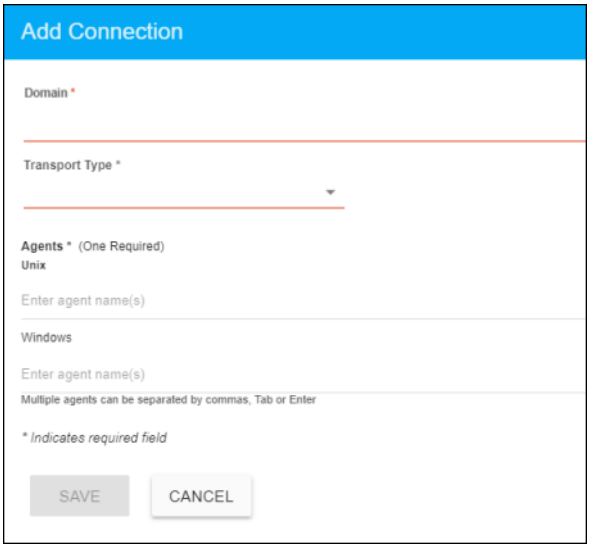
2. On the **CONNECTIONS** tab, provide the correct full paths to the directories containing the TIBCO Hawk, TIBCO EMS and TIBCO Rendezvous jar files in the **Classpath** fields.

3. **Save**.

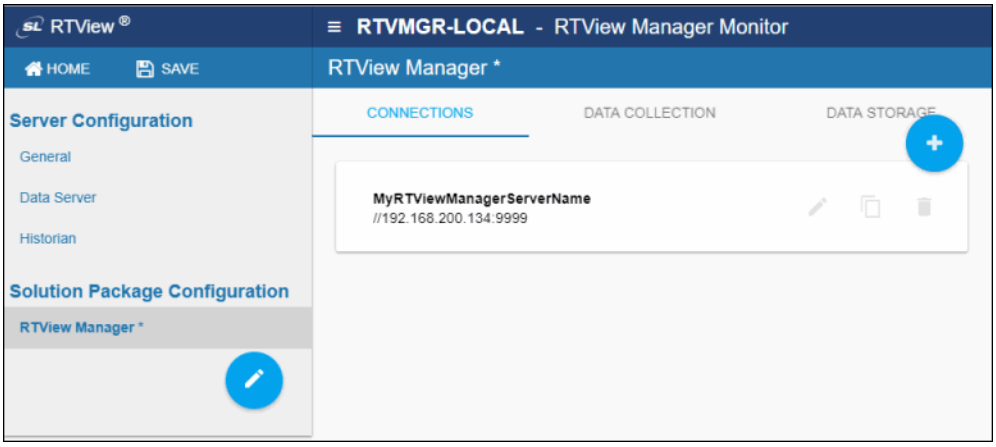
4. Click  to open the **Add Connection** dialog.

5. In the **Add Connection** dialog, enter the following:

- **Domain**: The domain name for the connection.
- **Transport Type**: Select the transport type from the drop-down menu.
- **Agents**: One is required and multiple agents are supported. For multiple agents use a comma-, Tab- or Enter-separated list.



6. **Save** to connect to the server. The newly created connection displays in the **Connections** section.



7. Repeat these instructions for each server to be monitored.

Proceed to "Setup DATA COLLECTION," next. Note that you can also "Setup DATA COLLECTION" later.

Setup DATA COLLECTION

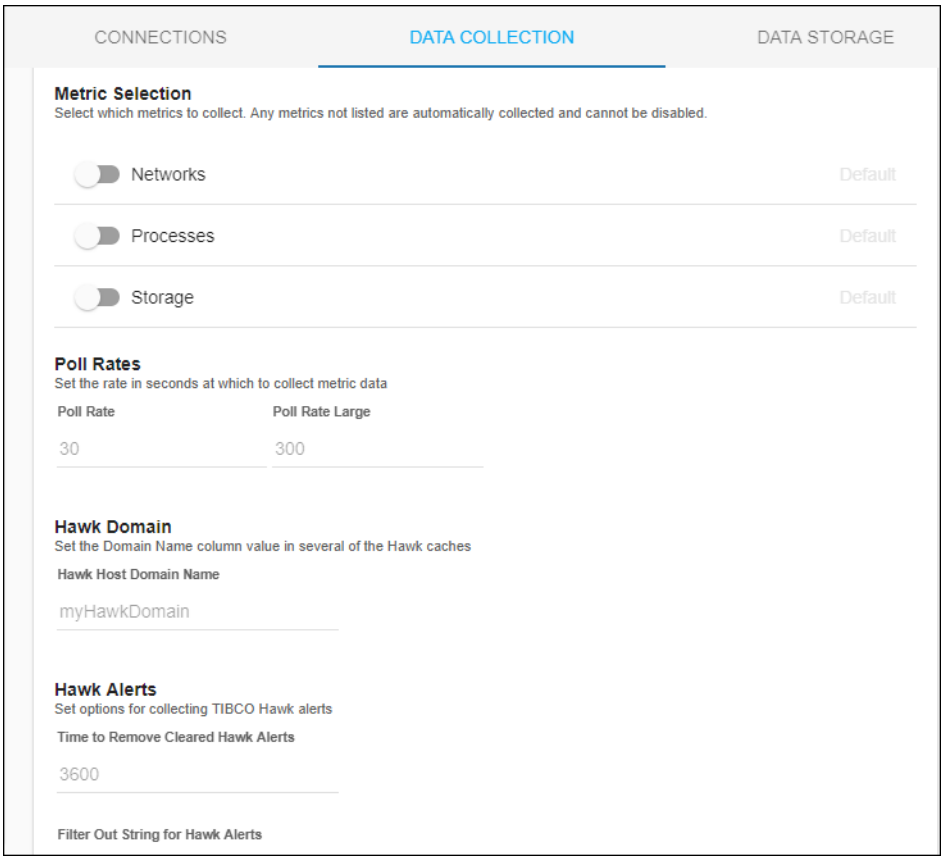
This step is optional.

Use the RTView Configuration Application to configure data collection for the Solution Package for TIBCO Hawk. You can enable data collection for networks, processes and storage, specify **Poll Rates** (query interval, in seconds) that will be used to collect the metric data, set the Hawk domain name and the time to remove cleared Hawk alerts.

To configure data collection for the Solution Package for TIBCO Hawk:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Tibco Hawk** from the navigation tree (left panel).

2. Choose the **DATA COLLECTION** tab.



3. Toggle to enable or disable the collection of data types.

4. Under **Poll Rates**, make the following entries:

- **Poll Rate**: Enter the poll interval, in seconds, for data updates.

5. Under **Hawk Domain**, enter the domain name for Hawk caches. For example, **myHawkDomain**. This sets the value in the domain column for the following caches: HostConnections, HostLogs, HostNetwork, HostProcesses and HostStats.

6. Under **Hawk Alerts**, enter the number of seconds to wait before removing cleared Hawk alerts. The default is **3600**.

7. **Save** your settings.

Proceed to (optionally) "Configure DATA STORAGE," next. Note that you can also "Configure DATA STORAGE" later.

Configure DATA STORAGE

This step is optional.

Use the RTView Configuration Application to configure data storage for the Solution Package for TIBCO Hawk. You can set the amount of time to wait for a response before metrics are expired or deleted.

To configure data storage for the Solution Package for TIBCO Hawk:

1. "Open the Solution Package Project" (the project name is **MISCMON-LOCAL**), then select **Tibco Hawk** from the navigation tree (left panel).

2. Choose the **DATA STORAGE** tab.

3. Under **Duration**, make the following entries:

   Expire Time: The number of seconds to wait for a response before a metric is expired. Caches impacted by this field are _HawkHostMemoryWin, _HawkHostUptime, _HawkHostMemoryUnix, _HawkHostCpuWin, _HawkHostCpuUnix, _HawkHostSwapUnix and _HawkHostPageWin.

   Expire Time Large: The number of seconds to wait for a response before a metric is removed from displays. Caches impacted by this field are _HawkHostOS, _HawkHostArch and _HawkVersion.

- **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that the Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:
- Locate the .sql template for your database under **RTViewEntepriseMonitor/emsample/servers/hawkmon/logs** and make a copy of it.
- Add the value you entered for the History Table Name Prefix to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

4. **SAVE** your settings (choose  if **SAVE** is not visible, or expand your browser width).

Return to "Add Connections".

Troubleshoot

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEntepriseMonitor/emsample/servers/miscmon/logs** directory.

TIBCO Hawk Displays

The following TIBCO Hawk Views (and their associated displays) can be found under **Components** tab **> Connectors/TIBCO Hawk>**Hawk Displays after the Solution Package for IBM® WebSphere is installed.

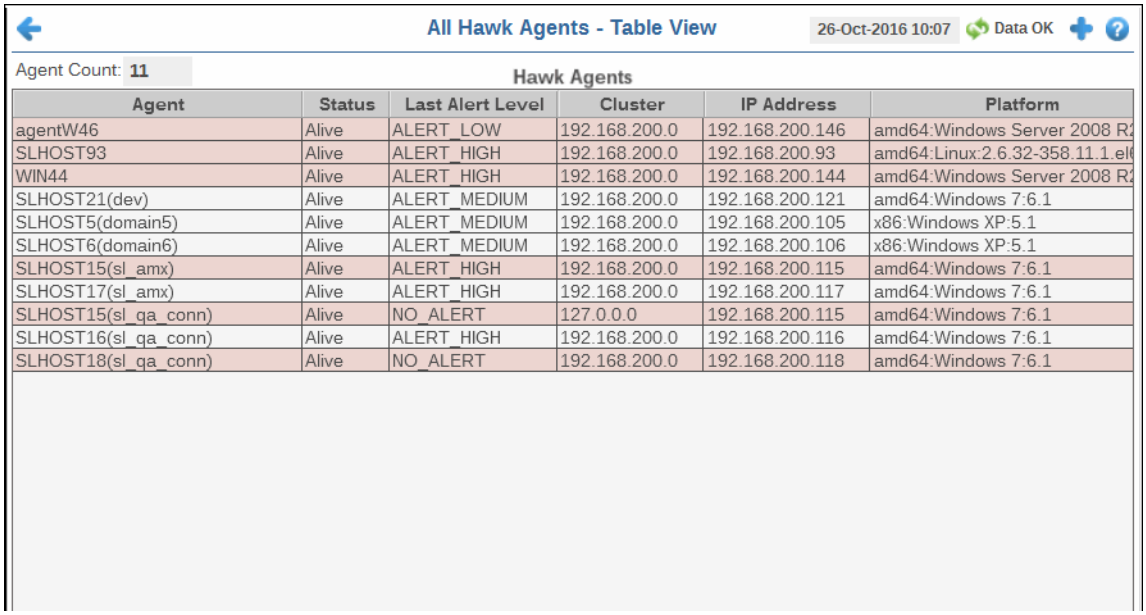
This section contains the following:

Displays are:

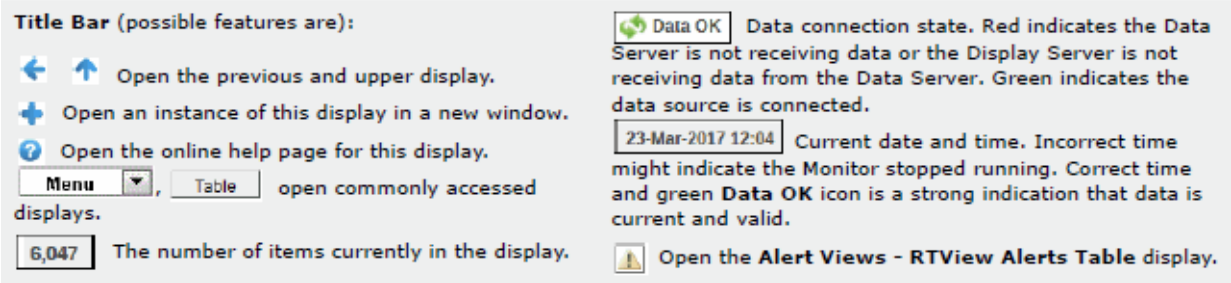
- "Hawk Agents Table" on page 1509
- "Hawk Alerts Table" on page 1510
- "RTView Agent Administration" on page 1512

Hawk Agents Table

This table provides a list of agents as well as network connectivity details about each agent.



Agent	Status	Last Alert Level	Cluster	IP Address	Platform
agentW46	Alive	ALERT_LOW	192.168.200.0	192.168.200.146	amd64:Windows Server 2008 R2
SLHOST93	Alive	ALERT_HIGH	192.168.200.0	192.168.200.93	amd64:Linux:2.6.32-358.11.1.el
WIN44	Alive	ALERT_HIGH	192.168.200.0	192.168.200.144	amd64:Windows Server 2008 R2
SLHOST21(dev)	Alive	ALERT_MEDIUM	192.168.200.0	192.168.200.121	amd64:Windows 7:6.1
SLHOST5(domain5)	Alive	ALERT_MEDIUM	192.168.200.0	192.168.200.105	x86:Windows XP:5.1
SLHOST6(domain6)	Alive	ALERT_MEDIUM	192.168.200.0	192.168.200.106	x86:Windows XP:5.1
SLHOST15(sl_amx)	Alive	ALERT_HIGH	192.168.200.0	192.168.200.115	amd64:Windows 7:6.1
SLHOST17(sl_amx)	Alive	ALERT_HIGH	192.168.200.0	192.168.200.117	amd64:Windows 7:6.1
SLHOST15(sl_qa_conn)	Alive	NO_ALERT	127.0.0.0	192.168.200.115	amd64:Windows 7:6.1
SLHOST16(sl_qa_conn)	Alive	ALERT_HIGH	192.168.200.0	192.168.200.116	amd64:Windows 7:6.1
SLHOST18(sl_qa_conn)	Alive	NO_ALERT	192.168.200.0	192.168.200.118	amd64:Windows 7:6.1



Fields and Data:

Agent Count: The total number of agents in the table.

Table:
Each row in the table is a different agent.

Agent	The name for the agent which is composed of the hostname and Hawk domain (in parenthesis). Agent names which do not contain an explicit Hawk domain are members of the "default" domain.
Status	The agent status, either **Alive** or **Expired**.
Last Alert Level	The most recent and most critical alert level.
Cluster	The IP address of the cluster to which this agent belongs.
IP Address	The IP subnet address for the group of machines to which this agent belongs.
Platform	The physical CPU class and operating system version.
Last Update	The date and time the row data was last updated.

Hawk Alerts Table

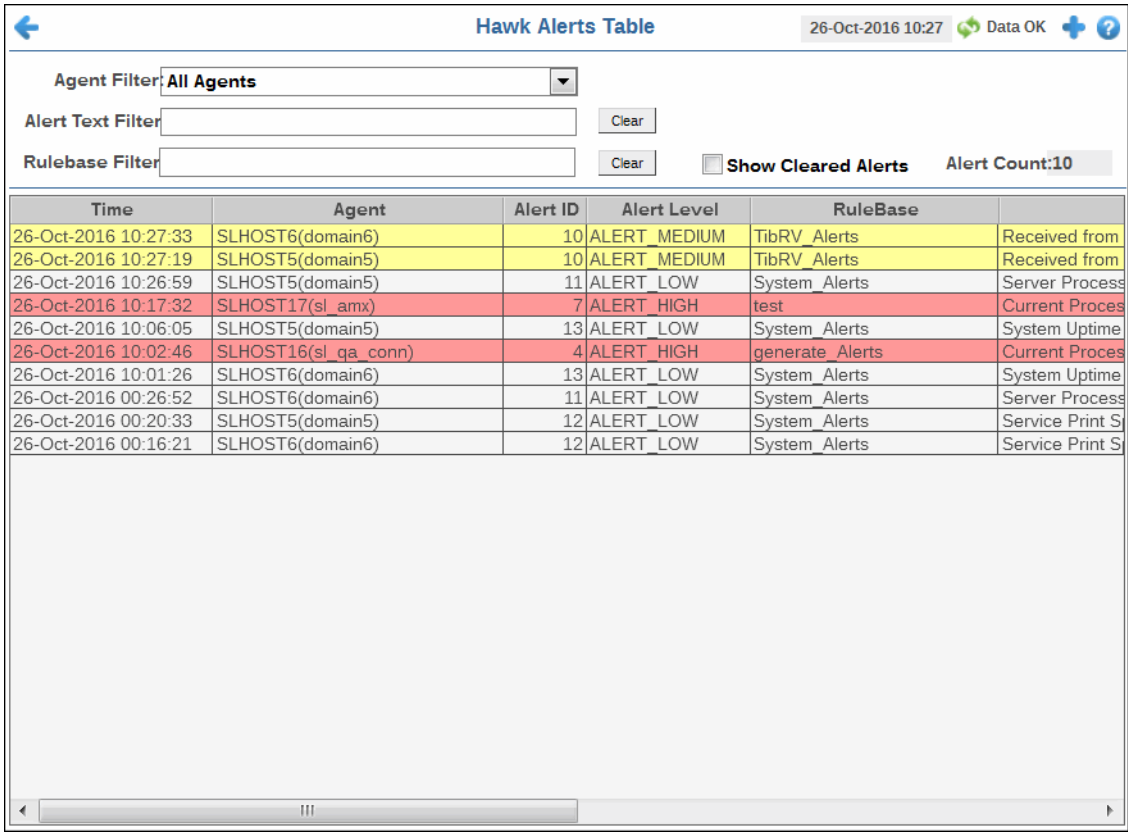
Use this display to view all Hawk alerts that have occurred in the system.

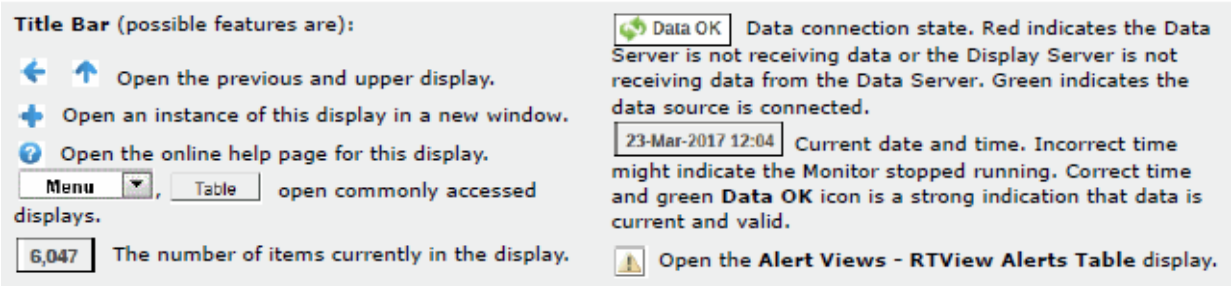
Each row in the table is a different active alert. Use the drop-down menus to filter the alerts listed. Click a column heading to sort the table on that column data.

The row color indicates the following:

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.



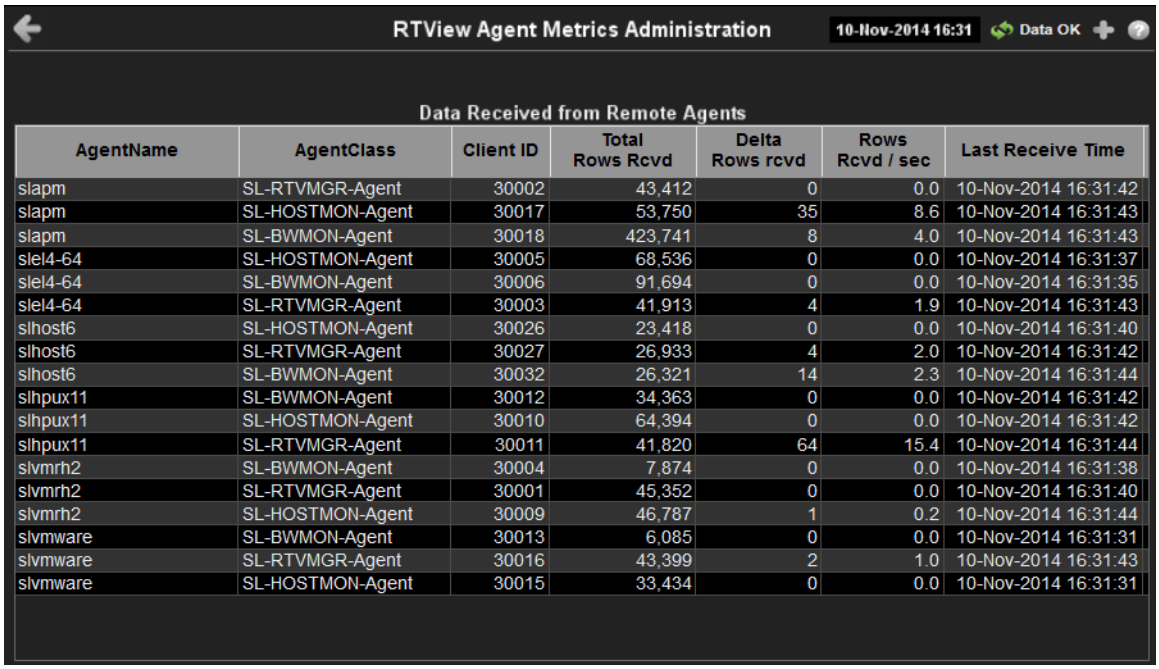


Agent Filter	Choose one or **All Agents**.
Alert Text Filter	Enter a string to filter alerts listed. **Clear** to remove this filter.
Rulebase Filter	Enter a rule to filter alerts listed. **Clear** to remove this filter.
Show Cleared Alerts	When checked, cleared alerts are included in the table.
Alert Count	The number of alerts in the table.
Time	The date and time the alert occurred.

Agent	The name of the agent associated with the alert.
Alert ID	The unique string identifier for the alert.
Alert Level	ALERT_HIGH indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row. ALERT_MEDIUM indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row. ALERT_LOW indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.
RuleBase	The alert system type (e.g.System_Alerts).
Alert Text	Descriptive text about the alert.
Cleared	When checked, the alert has been cleared.

RTView Agent Administration

Verify when agent metrics were last queried by the Monitor. The data in this display is predominantly used for debugging by Technical Support.



AgentName	AgentClass	Client ID	Total Rows Rcvd	Delta Rows rcvd	Rows Rcvd / sec	Last Receive Time
slapm	SL-RTVMGR-Agent	30002	43,412	0	0.0	10-Nov-2014 16:31:42
slapm	SL-HOSTMON-Agent	30017	53,750	35	8.6	10-Nov-2014 16:31:43
slapm	SL-BWMON-Agent	30018	423,741	8	4.0	10-Nov-2014 16:31:43
slel4-64	SL-HOSTMON-Agent	30005	68,536	0	0.0	10-Nov-2014 16:31:37
slel4-64	SL-BWMON-Agent	30006	91,694	0	0.0	10-Nov-2014 16:31:35
slel4-64	SL-RTVMGR-Agent	30003	41,913	4	1.9	10-Nov-2014 16:31:43
slhost6	SL-HOSTMON-Agent	30026	23,418	0	0.0	10-Nov-2014 16:31:40
slhost6	SL-RTVMGR-Agent	30027	26,933	4	2.0	10-Nov-2014 16:31:42
slhost6	SL-BWMON-Agent	30032	26,321	14	2.3	10-Nov-2014 16:31:44
slhpux11	SL-BWMON-Agent	30012	34,363	0	0.0	10-Nov-2014 16:31:42
slhpux11	SL-HOSTMON-Agent	30010	64,394	0	0.0	10-Nov-2014 16:31:42
slhpux11	SL-RTVMGR-Agent	30011	41,820	64	15.4	10-Nov-2014 16:31:44
slvmrh2	SL-BWMON-Agent	30004	7,874	0	0.0	10-Nov-2014 16:31:38
slvmrh2	SL-RTVMGR-Agent	30001	45,352	0	0.0	10-Nov-2014 16:31:40
slvmrh2	SL-HOSTMON-Agent	30009	46,787	1	0.2	10-Nov-2014 16:31:44
slvmware	SL-BWMON-Agent	30013	6,085	0	0.0	10-Nov-2014 16:31:31
slvmware	SL-RTVMGR-Agent	30016	43,399	2	1.0	10-Nov-2014 16:31:43
slvmware	SL-HOSTMON-Agent	30015	33,434	0	0.0	10-Nov-2014 16:31:31

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

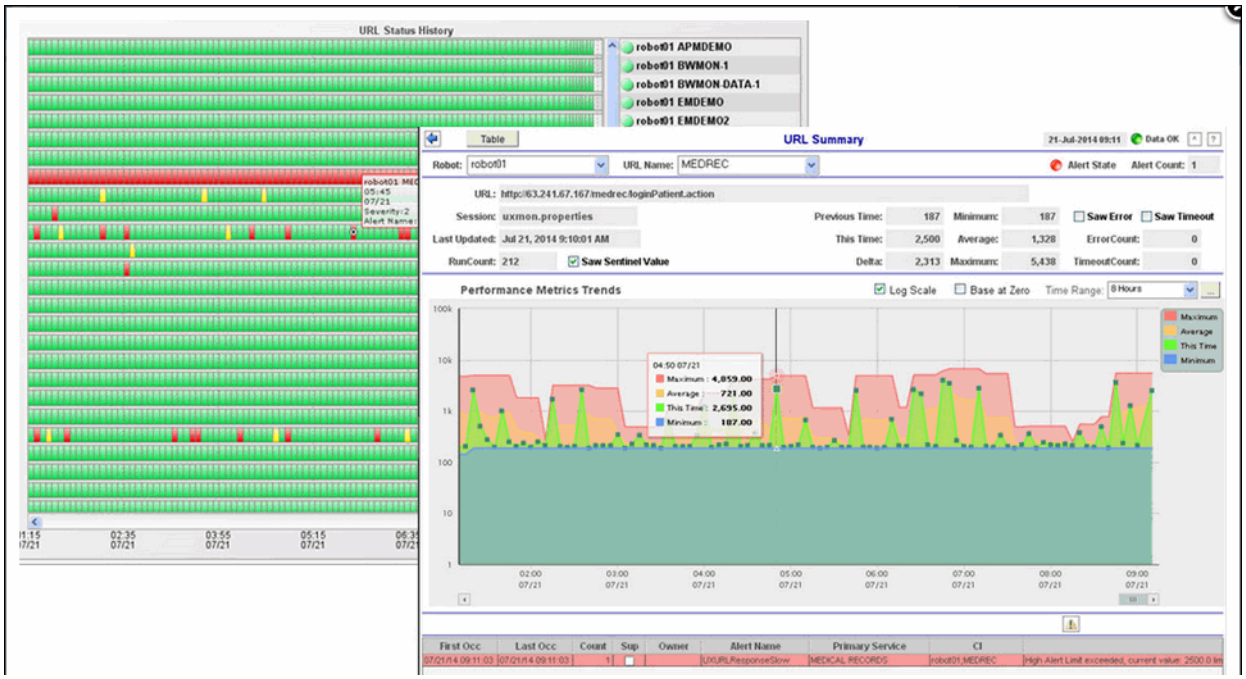
Data Received from Remote Agents Table	
AgentName	Name of the agent.
AgentClass	Class of the agent.
Client ID	Unique client identifier.
Total Rows Rcvd	Total number of rows of data received.
Rows Rcvd/sec	Number of rows of data received per second.
Last Receive Time	Last time data was received from the agent.

CHAPTER 32 Solution Package for UX

The Solution Package for UX provides end-user monitoring for web applications. It does so by performing simulated transactions as if a real user is accessing a URL. When these simulated transactions are performed, information about the transaction such as the performance of the transaction, whether any errors were produced by the transaction or if the transaction produces invalid data are captured.

By including the Solution Package for UX in the RTView Enterprise Monitor® platform, you can be notified if any web application might be operating in one of these states:

- Unresponsive
- Performing slowly
- Generating errors
- Returning invalid information



The Solution Package for UX provides these features using UX Robots which are a set of robot Java applications. UX Robots read configuration files that designate the URLs to monitor, optional login details and an optional search string to validate. The UX Robots periodically query the URLs at configured interval periods and report the elapsed response time and any errors to the RTView Enterprise Monitor platform. If the search string is not found an error is reported. Preconfigured alerts are available with settings for thresholds to indicate if the response time was slow, the search string was not found, a timeout occurred, a URL error occurred or an error with the UX Robot.

When an error condition is reported, Monitor uses built-in displays that show the historical performance of all configured URLs and the status of the deployed UX Robots. This information can then be used to analyze when the problem occurred, whether performance has been degrading over a period of time, and allows users to correlate other errors reported from the RTView Enterprise Monitor which can indicate why the web application was having problems during that time period.

This section includes:

- "Setup"
- "UX Monitor Configuration Files"
- "UX Monitor Displays": Describes the displays that come with Solution Package for UX Monitor.
- "Advanced UX Robot Configuration": This configuration is optional.

Setup

The Solution Package for UX Monitor requires the installation of the UX Robot. The zip file for this is located in **RTVAPM_HOME/rtvapm/uxmon/agents**. This section includes:

- "Install UX Robot"

Install UX Robot

1. Copy the file **rtview\rtvapm\uxmon\agents\UXRobot_VERSION.zip** to the system(s) where you wish to simulate user traffic.

2. If you have any previous versions of the UX Robot, rename the existing directory.

3. Unzip the robot to a location of your choosing, where it creates a directory called **UXRobot**. After you extract the UX Robot, you have the following directory structure:

- **UXRobot**: This is the UX Robot home directory which contains UX Robot configuration files and run scripts.
- **UXRobot \lib**: This directory contains **.jar** files for the UX Robot.

File Extraction Considerations

On Windows systems, using the extraction wizard of some compression utilities might result in an extra top-level directory level based on the name of the **.zip** file. The additional directory is not needed because the **.zip** files already contain the **rtvapm** top-level directory. This extra directory must be removed before clicking the **Next** button that performs the final decompression.

On UNIX/Linux systems, use the **-a** option to properly extract text files.

Proceed to "Configure UX".

Configure UX

This section describes how to configure the UX Monitor and the UX Robot. This section includes:

Perform the following configurations in the order provided to configure the UX Monitor and the UX Robot:

- "Overview" on page 1517
- "UX Robot Process Summary" on page 1517
- "Configure UX Robot" on page 1518: This configuration is required.
- "Configure UX Robot" on page 1518: This configuration is required.

Overview

To configure the Solution Package for UX you edit configuration files for two components, the UX Monitor and the UX Robot. Configuration files define a series of actions (a run) you want your UX Robot to simulate. For example, you specify which browser the Robot uses, the web page or pages it navigates to, the buttons it chooses and text entries it makes on that web page. Configuration files also define how often the Robot executes the series of actions--once, a specific number of times or indefinitely until manually stopped. The UX Robot records the amount of time to execute and complete each action in the run, as well as the amount of time to complete the entire run, and sends this data to the Monitor.

Typically, you only need to configure the **uxmon.properties** file to use the URLs that make sense for your Robot to contact and to give the UX Robot a name for this file. A **uxmon.properties** file is typically only used for a single UX Robot, although each UX Robot might use a similar list of UX Robots.

You only need to configure and use the **uxmon.sql.properties** file if you prefer to obtain the same information that normally goes in a **uxmon.properties** file from a SQL database so that it can be maintained centrally.

Note: You can also define your URLs in a SQL database record.

UX Robot Process Summary

The following summarizes the UX Robot process.

1. The UX Robot reads the **uxmon.properties** configuration file and sets the defined configuration. If the file defines a SQL configuration the UX Robot reads the **uxmon.sql.properties** file rather than the **uxmon.properties** configuration file.

2. The UX Robot reads the URL list and sorts the list as defined by the **sortIndex** property.

3. The UX Robot starts the first run by requesting a response from the first URL in the **sortIndex**-defined order.

4. The UX Robot waits for the response from the URL and then reports the timing data to Monitor.

5. The UX Robot picks the next URL and repeats from Step 4 until the last URL in the list.

6. After the defined pause, the UX Robot repeats the run as defined by the **repeatCount** property. For example, if **repeatCount=7** and **repeatType=times** the run occurs 7 times and stops.

7. The session completes and the UX Robot application exits.

Assumptions

This document assumes that:

- you use the configuration files provided and retain their file names. If you change the **uxmon.properties** file name, you must specify the name on the UX Robot command line. For example, as **-urlproperties:myfavoriteurls.properties**.
- you already installed and configured RTView EM
- your RTView EM home directory is **rtview\rtvapm**.
- you used a copy of the RTView EM **emsample** directory to create a RTView EM project directory named **rtvapm_projects**, which is parallel to the **rtvapm** directory.

Note: The reason for having a copy of **emsample** parallel to the RTView EM home directory is to avoid overwriting your configuration when you upgrade RTView EM. If you follow the instructions for configuring your system, upgrading will just be dropping the new deliverables of RTView EM and the Solution Packages you need in your RTView EM home directory.

Configure UX Robot

This section describes how to configure the UX Robot. This step is required. You configure the UX Robot by modifying configuration (**.properties**) files. You perform these configuration steps in the **UXRobot** directory.

Perform these configurations on each host computer that you want to run an instance of the UX Robot.

To configure the UX Robot

1. Open the **uxmon.properties** file, located in your UX Robot home directory.

2. Locate the URL Configuration Line. The URL Configuration Line starts with the prefix **sl.rtvapm.uxmon.urlrobot.url=**. In the following example, note that there is no space between the prefix and the first element, and no word-wrapping:

```
sl.rtvapm.uxmon.urlrobot.url=name='EMSMON-1' sortIndex=1 url=http://12.237.62.101/emsmon/
agent=robot01 user=demo pass=demo secure=false searchType=simple searchString='SL RTView - TIBCO
EMS Monitor' searchHTML=false useHTMLForm=true formNameParameter=loginform
formNameParameterType=id userInputElementName=user userInputElementType=id
passwordInputElementName=pwd passwordInputElementType=id buttonInputElementName='OK'
buttonInputElementType=value useCookies=true javascript=false
```

3. Make the following edits to the URL Configuration Line:

- Change **name='EMSMON-1'** to **name='<myurl>'** where **<myurl>** is the name of the URL you want to monitor.
- Change **url=http://12.237.62.101/emsmon/** to **url=http://<myurladdress>** where **<myurladdress>** is the address of the URL you want to monitor.
- Change **searchString='SL RTView - TIBCO EMS Monitor'** to **searchString='<myurlsearchstring>'** where **'<myurlsearchstring>'** is the search string of the URL you want to monitor.
- Change **agent=robot01** to **agent=<myrobot>** where **<myrobot>** is a descriptive name for the Robot so that you can identify the Robot, among your other Robots, after deployment.

For each URL you wish to monitor, copy/paste the URL Configuration Line and edit as needed. There is no limit on the number of URLs in the file.

For details about the URL Configuration Line, see "URL Configuration Line" on page 43.

4. Locate the Robot Configuration Line. The Robot Configuration Line starts with the prefix **sl.rtvapm.uxmon.urlrobot.config=**. Make appropriate changes to the UX Robot behavior. For details about the Robot Configuration Line, see "Robot Configuration Line" on page 39.

5. Locate the App Configuration Line. The App Configuration Line starts with the prefix **sl.rtvapm.uxmon.app.config=**. Make appropriate changes to the UX Robot behavior. For details about the App Configuration Line, see "App Configuration Line" on page 38.

6. Locate the Browser Configuration Line. The Browser Configuration Line starts with the prefix **sl.rtvapm.uxmon.urlrobot.browser=**. Make appropriate changes to the UX Robot behavior. For details about the Browser Configuration Line, see "Browser Configuration Line" on page 42.

7. Save the **uxmon.properties** file. If you change the **uxmon.properties** file name, you must specify the file name on the UX Robot command line with the following command line option: **-urlproperties:<myfavoriteurls.properties>**

UX Monitor Configuration Files

This section describes the **uxmon.properties** and **uxmon.sql.properties** template configuration files that define UX Robot behavior. This section includes:

- "uxmon.properties File" on page 1520: This section describes the configuration file you edit to configure the UX Robot, name the URLs you want to monitor, and adjust all UX Robot behavior such as frequency, logging and conditions for timeouts.
- "uxmon.sql.properties File" on page 1527: This section describes the configuration file you edit to configure the UX Robot connection to a SQL database.

uxmon.properties File

By default, the UX Robot reads the **uxmon.properties** file. The **uxmon.properties** file is typically installed in the **C:\UXRobot** directory, and defines the UX Robot configuration and behavior, including the URLs to be monitored. The **uxmon.properties** file is organized into configuration areas or *Lines*. Each Line configures a different aspect of the UX Robot. This section includes (and is organized by the configuration Line order):

- "App Configuration Line" on page 1520: Defines the basic Robot properties such as the Robot name, host name, port number and the amount of time between runs.
- "Robot Configuration Line" on page 1521: Defines how many times the Robot runs (for example, forever), and response wait time before declaring a timeout and the subsequent behavior.
- "Robot Logging Configuration Line" on page 1523
- "Browser Configuration Line" on page 1523: Defines you chosen browser and its behavior for transfer to the underlying HTMLUnit library. For details about the HTMLUnit library, see HTMLUnit Browser Variables JavaDoc.
- "URL Configuration Line" on page 1524: Defines all URLs you want to monitor and the sort order (**sortIndex**).
- "Sample uxmon.properties File" on page 1526: Defines all URLs you want to monitor and the sort order (**sortIndex**).

App Configuration Line

This section describes how to define application behavior using the **sl.rtvapm.uxmon.app.config=** prefix. Do not edit or move the prefix.

In your **uxmon.properties** file, locate the App Configuration Line. In the following example, note that there is no space between the prefix and the first element, and no word-wrapping:

```
sl.rtvapm.uxmon.app.config=robotmode=URL agentname=robot01 agentupdateperiod=1000
agentconnect=localhost:4072
```

Use the **sl.rtvapm.uxmon.app.config=** prefix to define App Configuration Line elements described in the following table.

robotmode	Specifies the mode that the UX Robot operates in. The default is **URL**. Do not modify this setting. **Note:** Currently URL is the only option. Leave the default setting. Example: **robotmode=URL**
agentname	Specify a name of your choosing for the UX Robot. The default is **robot01**. Example: **agentname=robot01**
agentupdateperiod	Specify the amount of time for the UX Robot Agent, in milliseconds, between UX Robot URL runs. The default is **1000**. Example: **agentupdateperiod=1000**
agentconnect	Specify the hostname and port number for the UX Robot Agent. The default is **localhost:4072**. Example: **agentconnect=localhost:4072**

Robot Configuration Line

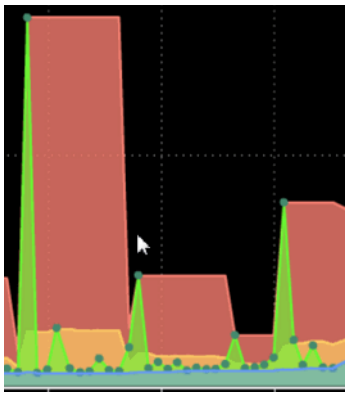
You define Robot behavior using the **sl.rtvapm.uxmon.urlrobot.config=** prefix. Do not edit or move the prefix.

In your **uxmon.properties** file, locate the Robot Configuration Line. In the following example, note that there is no space between the prefix and the first element, and no word-wrapping:

```
sl.rtvapm.uxmon.urlrobot.config=repeatType=forever timeoutType=abortRun repeatCount=2
unitsCount=1 simPeriod=minute pausePeriod=minute pauseCount=1 maxTimeoutMS=60000
javaScriptTimeoutMS=10000 sampleBufferSize=10
```

Use the **sl.rtvapm.uxmon.urlrobot.config=** prefix to define Robot Configuration Line elements described in the following table.

Element	Description
repeatType	Specifies the type of interval for this Robot to repeat runs. The default is **times**. • **times**: Specifies the number of times the UX Robot repeats the run and to do so as defined by the **repeatCount** property. • **unit**: Specifies the UX Robot repeat the run as defined by the **repeatCount** property. • **forever**: Specifies the UX Robot to repeat without end. If **repeatType** is **forever** the **repeatType** property is not used. For example, if **repeatCount** is **7** and unit is **second**, then r**epeatType=second** and r**epeatCount=7** sets the Run to repeat every 7 seconds. Example: **repeatType=forever**
timeoutType	Specifies Robot behavior if a timeout occurs during a request for response from a URL. The default is **abortRun**. ▪ **abortSession**: Specifies to end the session as if the session completed if a timeout occurs. ▪ **abortRun**: Specifies to end the run as if the run completed if a timeout occurs. ▪ **ignoreTimeout**: Specifies to ignore a timeout and resume requests for response from the next URL on the URL list. **Note:** The **maxTimeoutMS** property specifies the amount of time the Robot waits before declaring a timeout. **Example:** **timeoutType=abortRun**
repeatCount	When **repeatType=times**, specifies the number of times to repeat the Robot. When **repeatType=units**, specifies the number of units for the repeat. The default is **1**. Example: **repeatCount=2**
unitsCount	When **repeatType=units**, specifies the number of units for the repeat. The default is **5**. Example: **unitsCount=10**
simPeriod	When **repeatType=units**, specifies the time unit to use for repeats. There is no default setting. Valid values are **second**, **minute**, **hour**, **day**, **week**, **month** and **year**. Example: **simPeriod=minute**

pausePeriod	Used in conjunction with **pauseCount**, specifies the time unit to use for pauses between UX Robot runs. There is no default setting. Valid values are **second**, **minute**, **hour**, **day**, **week**, **month** and **year**. For example, if **pausePeriod** is set to **minutes** and **pauseCount** is set to **10** the pause between UX Robot runs is 10 minutes. Example: **pausePeriod=minute**
pauseCount	Used in conjunction with **pausePeriod**, specifies the number of units to pause between UX Robot runs. There is no default setting. The default is **5**. For example, if **pausePeriod** is set to **minutes** and **pauseCount** is set to **10** the pause between UX Robot runs is 10 minutes. Example: **pauseCount=5**
maxTimeoutMS	Specifies the amount of time to wait, in milliseconds, before declaring a timeout. The default is **5**. Example: **maxTimeoutMS=60000**
javaScriptTimeoutMS	Specifies the amount of time to wait, in milliseconds, before the javascript declares a timeout. The default is **120000**. Example: **javaScriptTimeoutMS=10000**
sampleBufferSize	Specifies the number of data points to show in a display object after which the display object resets. This feature enables you to see typical data points as well as outlier data points. The default is **60**. This property is useful, for example, with trend graphs. The following figure illustrates **sampleBufferSize=10**, which specifies to reset the trend graph after 10 data points are shown in the graph.  The data points in the figure are shown with blue dots. The cursor points to the trend graph reset point (after ten data points). In this example, if **sampleBufferSize** is not specified, the maximum data point trace (the highest point just before the reset) remains drawn high. Let us say you have a URL that typically has data points clustered around 1000-1100. Then the URL spikes to 2197, as illustrated in the figure. The atypical data spike visually overwhelms the typical data points in the graph - the typical data is shown as a tiny sliver at the bottom of the graph. Example: **sampleBufferSize=10**

Robot Logging Configuration Line

This section describes how to set the logging output level for specific UX Robot processes. You define Robot behavior using the **sl.rtvapm.uxmon.logging.config=** prefix. Do not edit or move the prefix. There are several functional areas for which logging output can be defined independently. By default, the value is **1** for all functional areas. Valid values are:

- **0** = off (no logging)
- **1** = basic
- **2** = verbose
- **3** = garrulous

In your **uxmon.properties** file, locate the Robot Logging Configuration Line. In the following example, note that there is no space between the prefix and the first element, and no word-wrapping:

```
sl.rtvapm.uxmon.logging.config=log4j=robot.log4j.properties uxlog_level=1 uxlog_initialize=1
uxlog_rtvagent=1 uxlog_shutdown=1 uxlog_document=1 uxlog_quitport=1 uxlog_errorsimulate=1
uxlog_capture=1 uxlog_simulate=1 uxlog_useraction=1 uxlog_jmx=1
```

Use the following Robot Logging Configuration Line elements with the **sl.rtvapm.uxmon.logging.config=** prefix to define Robot logging:

log4j	Specifies the log4j configuration file.
uxlog_capture	Specifies the logging level during Capture.
uxlog_document	Specifies the logging level about the loaded uxmon.properties file.
uxlog_errorsimulate	Specifies the logging level for generated errors for Capture Robot testing.
uxlog_initialize	Specifies the logging level for the startup of the UX Robot.
uxlog_jmx	Specifies the logging level for the UXMJmxAgent, which allows changing of log levels after the UX Robot has started.
uxlog_level	Specifies the global logging level for all functional areas. If it is set to zero (**0** = off), then ALL logging levels on ALL the different settings are turned OFF. he **uxlog_level** seen as the lowest logging level for all functional areas. Therefore, if **uxlog_level= 1** but **uxlog_simulate=2**, the logging level for all functional areas is set to **1** except **uxlog_simulate**, which is overridden to level **2**.
uxlog_quitport	Specifies the logging level of Quit Port for Capture Robot.
uxlog_rtvagent	Specifies the logging level about the RTVAgent starting and stopping stages of the UX Robot.
uxlog_shutdown	Specifies the logging level during the UX Robot shutdown. The following are obsolete and will not take any effect.
uxlog_simulate	Specifies the logging level about the UX Robot behavior at runtime.
uxlog_userinteraction	Specifies the logging level during User Action.

Browser Configuration Line

This section describes how to define the browser to be emulated using the **sl.rtvapm.uxmon.urlrobot.browser=** prefix. The Browser Configuration Line transfers the behavior settings of your chosen browser to the underlying HTMLUnit library Browser. For details about the HTMLUnit library, see HTMLUnit Browser Variables JavaDoc. Do not edit or move the prefix.

Go to http://whatsmyuseragent.com/ to get information you need about your current browser settings. In your **uxmon.properties** file, locate the Browser Configuration Line. In the following example, note that there is no space between the prefix and the first element, and no word-wrapping:

```
sl.rtvapm.uxmon.urlrobot.browser=applicationName=Netscape applicationVersion='5.0
(Windows)'
userAgent='Mozilla/5.0 (Windows NT 6.1; WOW64; rv:13.0) Gecko/20100101 Firefox/13.0.1'
browserVersionNumeric=1.2
```

Use the **sl.rtvapm.uxmon.urlrobot.browser=** prefix to define Browser Configuration Line elements described in the following table.

Note: Also see http://whatsmyuseragent.com/CommonUserAgents.asp for a list of common userAgents.

---

applicationName	Specifies the name of the browser to emulate. Valid values are **Netscape**, **'Microsoft Internet Explorer'** and **Chrome**. The default is **Netscape**. Example: **applicationName=Netscape**
applicationVersion	Specifies the browser version number. Valid values are **Netscape**, **'Microsoft Internet Explorer'** and **Chrome**. Example: **applicationVersion='5.0 (Windows)'**
userAgent	Specifies the string for the browser. Valid values vary among browsers. Example: **userAgent='Mozilla/5.0 (Windows NT 6.1; WOW64; rv:24.0) Gecko/ 20100101 Firefox/24.0'**
browserVersionNumeric	Specifies the specific URL address to contact. Valid values vary among browsers. Example: **browserVersionNumeric=1.2'**

URL Configuration Line

This section describes how to define the URLs to be monitored using the **sl.rtvapm.uxmon.urlrobot.url=** prefix. Do not edit or move the prefix.

In your **uxmon.properties** file, locate the URL Configuration Line. In the following example, note that there is no space between the prefix and the first element, and no word-wrapping:

```
sl.rtvapm.uxmon.urlrobot.url=name='EMSMON-1' sortIndex=1 url=http://12.237.62.101/emsmon/
agent=robot01 user=admin pass=admin secure=false searchType=simple searchString='SL RTView - TIBCO
EMS Monitor' searchHTML=false useHTMLForm=true formNameParameter=loginform
formNameParameterType=id userInputElementName=user userInputElementType=id
passwordInputElementName=pwd passwordInputElementType=id buttonInputElementName='OK'
buttonInputElementType=value useCookies=true javascript=false
```

Use the **sl.rtvapm.uxmon.urlrobot.url=** prefix to define Robot Configuration Line elements described in the following table.

name	Specifies the name of this URL to be displayed in the Monitor. The default is **URL**. Choose a recognizable name. Enclose the name with single quotes. Example: **name='EMSMON-1'**
sortIndex	Specifies the sort order of this URL. The default is **0**. Example: **sortIndex=11**
url	Specifies this URL address. There is no default setting. Example: **url=http://12.237.62.101/myocm/**
agent	Specifies the name of the Robot Agent that sends this URL data. There is no default setting. Example: **agent=robot01**
user	Specifies the user name for a user logging in while **useHTMLForm=true**. There is no default setting. Example: **user=demo**
pass	Specifies the password for a user logging in while **useHTMLForm=true**. There is no default setting. Example: **pass=demo**
secure	This element is not currently supported.
searchType	Specifies the type of search string. There is no default setting. Valid values are: • **none**: Specifies no search. • **simple**: Specifies a simple string search. • **regular**: Specifies a regular expression search. Example: **searchType=simple**
searchString	Specifies the string to search for. There is no default setting. Use enclosed single quotes. Example: **searchString=searchString='SL RTView for Oracle Coherence - Oracle Coherence Monitor'**
searchHTML	Specifies whether to search the HTML returned from the URL or the text after it is converted from HTML/XML. There is no default setting. Valid values are: • **true**: Specifies to search page text before conversion from HTML/XML. • **false**: Specifies to search page text after conversion from HTML/XML. Example: **searchHTML=false**
useHTMLForm	Specifies whether to login to the site for this URL using standard HTML encodings. The default is **false**. This element must be **true** to "Configure User Login Simulation". Example: **useHTMLForm=true**
formNameParameter	If **useHTMLForm=true**, specifies the name of the login form in the HTML. The default is **false**. Example: **formNameParameter=loginform**

formNameParameterType	If **useHTMLForm=true**, specifies the type of form subelement that is used. There is no default setting. Typically, your Web Server returns **id**, **name** or **value** HTML types. Example: **formNameParameterType=id**
userInputElementName	If **useHTMLForm=true**, specifies the name of the user element in the HTML. There is no default setting. Example: **userInputElementName=user**
userInputElementType	If **useHTMLForm=true**, specifies the type of user input subelement that is used. There is no default setting. Typically, your Web Server returns **id**, **name** or **value** HTML types. Example: **userInputElementType=id**
passwordInputElementName	If **useHTMLForm=true**, specifies name of the password element in the HTML. There is no default setting. Example: **passwordInputElementName=pwd**
passwordInputElementType	If **useHTMLForm=true**, specifies the type of password subelement that is used. There is no default setting. Typically, your Web Server returns **id**, **name** or **value** HTML types. Example: **passwordInputElementType=id**
buttonInputElementName	If **useHTMLForm=true**, specifies the name of the button subelement in the HTML. There is no default setting. Enclose value in single quotes. Example: **buttonInputElementName='OK'**
buttonInputElementType	If **useHTMLForm=true**, specifies the type of button subelement that is used. There is no default setting. Typically, your Web Server returns **id**, **name** or **value** HTML types. Example: **buttonInputElementType=value**
javascript	Specifies whether to enable Java script for the URL. The default is **true**. **Note:** Enabling this can cause URLs to load more slowly. Example: **javascript=true**
useCookies	Specifies whether to show cookies for the URL in the log file. The default is **true**. Example: **useCookies=true**

Sample uxmon.properties File

##############UX Robot Configuration Sample File ############

robotmode controls how the app runs: robotmode=URL means run as a URL Robot

#robotmode=OFF and robotmode=CAPTURE are now obsolete.

sl.rtvapm.uxmon.app.config=robotmode=URL agentname=robot01 agentupdateperiod=1000 agentconnect=localhost:4072

##############URL Robot Configuration ############

sl.rtvapm.uxmon.urlrobot.config=repeatType=forever timeoutType=abortRun repeatCount=2 unitsCount=1 simPeriod=minute pausePeriod=minute pauseCount=1 maxTimeoutMS=60000 javaScriptTimeoutMS=10000 sampleBufferSize=10

##############Logging Configuration ############

0 = off, 1 = basic, 2 = verbose, 3 = garrulous

sl.rtvapm.uxmon.logging.config=log4j=robot.log4j.properties uxlog_level=1 uxlog_initialize=1 uxlog_rtvagent=1 uxlog_shutdown=1 uxlog_document=1 uxlog_quitport=1 uxlog_errorsimulate=1 uxlog_capture=1 uxlog_simulate=1 uxlog_useraction=1 uxlog_jmx=1

##############Browser Emulation ############

The best way to use this line is to get the string to send by visiting: http://whatsmyuseragent.com/ This will show you the userAgent being used by your current browser. Don't miss http://whatsmyuseragent.com/CommonUserAgents.asp to see common userAgents.

#sl.rtvapm.uxmon.urlrobot.browser=applicationName=Netscape applicationVersion='5.0 (Windows)' userAgent='Mozilla/5.0 (Windows NT 6.1; WOW64; rv:13.0) Gecko/20100101 Firefox/13.0.1' browserVersionNumeric=1.2

sl.rtvapm.uxmon.urlrobot.browser=applicationName=Netscape applicationVersion='5.0 (Windows)' userAgent='Mozilla/5.0 (Windows NT 6.1; WOW64; rv:24.0) Gecko/20100101 Firefox/24.0' browserVersionNumeric=24.0

#sl.rtvapm.uxmon.urlrobot.browser=applicationName=Netscape applicationVersion='Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/30.0.1599.69 Safari/537.36' browserVersionNumeric=537.36

#sl.rtvapm.uxmon.urlrobot.browser=applicationName='Microsoft Internet Explorer' applicationVersion='Mozilla/5.0 (compatible; MSIE 10.0; Windows NT 6.1; WOW64; Trident/6.0)' browserVersionNumeric=10.0

##############URLS ############

The best way to use this file is as a sample to get the UX Robot running. The first URL hits the SL web site and the second show how you might configure a secure URL protected by a user and password login. Simple un-commenting URL "FOO" will result in an error. The URL must be edited to point at a real URL. See the Read Me documents for details.

sl.rtvapm.uxmon.urlrobot.url=name='SL' sortIndex=1 url=http://www.sl.com agent=robot01 searchType=simple searchString='SL Corporation' searchHTML=false useHTMLForm=false useCookies=true javascript=false

#sl.rtvapm.uxmon.urlrobot.url=name='FOO' sortIndex=11 url=http://1.2.3.4/foo/ agent=robot01 user=demo pass=demo secure=false searchType=simple searchString='A phrase on the page' searchHTML=false useHTMLForm=true formNameParameter=loginform formNameParameterType=id userInputElementName=user userInputElementType=id passwordInputElementName=pwd passwordInputElementType=id buttonInputElementName='OK' buttonInputElementType=value useCookies=true javascript=true

uxmon.sql.properties File

This section describes the database connection properties you configure for the UX Robot in the **uxmon.sql.properties** file. The **uxmon.sql.properties** file is typically located in the **C:\UXRobot** directory.

By default, the UX Robot reads the **uxmon.properties** file. The **uxmon.sql.properties** file defines the UX Robot database connection. This section includes :

- "Sample uxmon.sql.properties File" on page 1529: Defines the basic Robot properties such as the Robot name, host name, port number and the amount of time between runs.

Open the file in a text editor and locate the **Database Properties Configuration** section, where the database connection properties reside. Use the **sl.rtview.properties.** prefix to specify database connection properties described in the following table. Note that there is no space between the prefix and the first element, and no word-wrapping. For example: **sl.rtview.properties.databaseConnectMode=direct**

databaseConnectMode	Specifies the database connection mode. The default is **none**. Valid values are: **none**: Specifies no connection. **direct**: Specifies a direct connection. **dataserver**: Specifies connection via Data Server. **Example:** **sl.rtview.properties.databaseConnectMode:direct**
databaseTable	Specifies the name of the database table containing the properties. The default is **PROP_TABLE**. **Example:** **sl.rtview.properties.databaseTable:mypropertytable**
dataserver	Specifies one or more connection strings for connecting the Data Server that is connected to the properties database. Value can be a single connection string or a comma delimited list of connection strings. Connection attempts are made in the order listed until successfully connected. **Note:** The Monitor Data Server port property is specified in the **rtview.properties** file. For details about the **rtview.properties** file, see the *RTView Enterprise Monitor® User's Guide*. **Format**: **host:port** or **host:URL** (for RTView Data Server). The default is **localhost:4078**. **Example:** **dataclient.sl.rtview.dataserver=//localhost:4078** **server.sl.rtview.properties.dataserver=localhost:4078** **Example:** **dataserver:localhost:3278,otherhost:3278,http://localhost:8068/rtvdata**
databaseName	Specifies the name of the database in the Data Server. The default is **SAMPLE**. The Monitor Data Server port is specified in the **rtview.properties** file. For details about the **rtview.properties** file, see the *RTView Enterprise Monitor® User's Guide*. When **sl.rtview.properties.dbConnectionMode** is set to **database**: **sl.rtview.properties.databaseUser=m** **sl.rtview.properties.databasePassword=foobar** **Note:** The jar containing this class must be included in the RTV_USERPATH environment variable. **Example:** **sl.rtview.properties.databaseName:SAMPLE**
queryTimeOut	Specifies the number of seconds to wait for the properties query to return. The default is **5**. **Example:** **sl.rtview.properties.queryTimeOut=10**
databaseDriver	Specifies the fully qualified name of the Java class driver for connecting to the database. The default is **org.hsqldb.jdbcDriver**. When the **sl.rtview.properties.dbConnectionMode** property is set to **database**, the default is **com.ibm.db2.jcc.DB2Driver**. **Example:** **sl.rtview.properties.databaseDriver=com.ibm.db2.jcc.DB2Driver**

databaseUrl	Specifies the URL for connecting to the database. The default is **jdbc:hsqldb:hsql://localhost:3390/props;user=SA;password=**. When the **sl.rtview.properties.dbConnectionMode** property is set to **database**, the default is **jdbc:db2://localhost:50000/SAMPLE**. **Example:** **sl.rtview.properties.databaseUrl=jdbc:db2://localhost:50000/SAMPLE**
databaseUser	Specifies the username for connecting to the database. The default is **admin**. **Example:** **sl.rtview.properties.**databaseUser**:admin** When the **sl.rtview.properties.dbConnectionMode** property is set to **database**, the default is **m**. **Example:** **sl.rtview.properties.**databaseUser**:m**
databasePassword	Specifies the password for connecting to the database. The password can be encoded. The default is **mypass**. **Example:** **sl.rtview.properties.**databasePassword**:password** When the **sl.rtview.properties.dbConnectionMode** property is set to **database**, the default is **m**. **Example:** **sl.rtview.properties.**databasePassword**:foobar**

Sample uxmon.sql.properties File

##############UX Robot Configuration with SQL DB configuration at the end. ############

robotmode controls how the app runs: robotmode=URL means run as a URL Robot

#robotmode=OFF and robotmode=CAPTURE are now obsolete.

sl.rtvapm.uxmon.app.config=robotmode=URL agentname=robot01 agentupdateperiod=1000 agentconnect=localhost:4072

##############URL Robot Configuration ############

sl.rtvapm.uxmon.urlrobot.config=repeatType=forever timeoutType=abortRun repeatCount=2 unitsCount=1 simPeriod=minute pausePeriod=minute pauseCount=1 maxTimeoutMS=60000 javaScriptTimeoutMS=10000 sampleBufferSize=10

##############Logging Configuration ############

0 = off, 1 = basic, 2 = verbose, 3 = garrulous

sl.rtvapm.uxmon.logging.config=log4j=robot.log4j.properties uxlog_level=1 uxlog_initialize=1 uxlog_rtvagent=1 uxlog_shutdown=1 uxlog_document=1 uxlog_quitport=1 uxlog_errorsimulate=1 uxlog_capture=1 uxlog_simulate=1 uxlog_useraction=1 uxlog_jmx=1

##############Browser Emulation ############

#sl.rtvapm.uxmon.urlrobot.browser=applicationName='Microsoft Internet Explorer' applicationVersion='4.0 (compatible; MSIE 7.0; Windows NT 5.1)' userAgent='Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1)' browserVersionNumeric=7.0

sl.rtvapm.uxmon.urlrobot.browser=applicationName=Netscape applicationVersion='5.0 (Windows)' userAgent='Mozilla/5.0 (Windows NT 6.1; WOW64; rv:13.0) Gecko/20100101 Firefox/13.0.1' browserVersionNumeric=1.2

#sl.rtvapm.uxmon.urlrobot.browser=applicationName='Microsoft Internet Explorer' applicationVersion='5.0 (compatible; MSIE 9.0; Windows NT 6.1; Win64; x64; Trident/5.0; .NET CLR 2.0.50727; SLCC2; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0; .NET4.0C; .NET4.0E)' userAgent='Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; Win64; x64; Trident/5.0)' browserVersionNumeric=1.2

#sl.rtvapm.uxmon.urlrobot.browser=applicationName='Microsoft Internet Explorer', applicationVersion='5.0 (compatible; MSIE 9.0; Windows NT 6.1; WOW64; Trident/5.0; SLCC2; .NET CLR 2.0.50727; .NET CLR 3.5.30729; .NET CLR 3.0.30729; Media Center PC 6.0; .NET4.0C; .NET4.0E; BRI/2; InfoPath.2)' userAgent='Mozilla/5.0 (compatible; MSIE 9.0; Windows NT 6.1; Win64; x64; Trident/5.0)' browserVersionNumeric=1.2

##############URLS ############

The best way to use this file is as a sample to get the UX Robot running. The first URL hits the SL web site and the second show how you might configure a secure URL protected by a user and password login. Simple un-commenting URL "FOO" will result in an error. The URL must be edited to point at a real URL. See the Read Me documents for details.

sl.rtvapm.uxmon.urlrobot.url=name='SL' sortIndex=1 url=http://www.sl.com agent=robot01 searchType=simple searchString='SL Corporation' searchHTML=false useHTMLForm=false useCookies=true javascript=false

#sl.rtvapm.uxmon.urlrobot.url=name='FOO' sortIndex=11 url=http://1.2.3.4/foo/ agent=robot01 user=demo pass=demo secure=false searchType=simple searchString='A phrase on the page' searchHTML=false useHTMLForm=true formNameParameter=loginform formNameParameterType=id userInputElementName=user userInputElementType=id passwordInputElementName=pwd passwordInputElementType=id buttonInputElementName='OK' buttonInputElementType=value useCookies=true javascript=true

##############Database Properties Configuration ############

#Connection mode for database properties. This must be one of the following:

none (don't connect to database)

direct (connect directly)

dataserver (connect via Data Server)

#sl.rtview.properties.databaseConnectMode=dataserver

sl.rtview.properties.databaseConnectMode=direct

```
# The name of the database table containing the properties.
sl.rtview.properties.databaseTable=PROP_TABLE

##########################################
#Data Server Connection Properties
# These properties are used when the sl.rtview.properties.dbConnectionMode is set to database.

# One or more connection strings to use to connect to the data server that is connected to the properties
# database. This can be a single connection or a comma delimited list of connection strings in either
# the form host:port or URL for rtvdata server. The connections will be tried in order until one succeeds.
# For example
#sl.rtview.properties.dataserver=localhost:3278,otherhost:3278,http://localhost:8068/rtvdata

sl.rtview.properties.dataserver=localhost:3278

# The name of the database connection in the data server.
sl.rtview.properties.databaseName=SAMPLE

# The number of seconds to wait for the properties query to return. It may return faster.
sl.rtview.properties.queryTimeOut=10

##########################################
#Direct Connection Properties
# These properties are used when the sl.rtview.properties.dbConnectionMode is set to database.

# The fully qualified name of the driver class to use to connect to the database. Note that
# the jar conataining this class must be included in the RTV_USERPATH environment variable.
#sl.rtview.properties.databaseDriver=org.hsqldb.jdbcDriver
sl.rtview.properties.databaseDriver=com.ibm.db2.jcc.DB2Driver

# The URL for connecting to the database.
#sl.rtview.properties.databaseUrl=jdbc:hsqldb:hsql://localhost:3390/props;user=SA;password=
```

sl.rtview.properties.databaseUrl=jdbc:db2://localhost:50000/SAMPLE

The username for connecting to the database.

sl.rtview.properties.databaseUser=m

The password for connecting to the database.

#sl.rtview.properties.databasePassword=013370134501349013420129101291013310134201342

sl.rtview.properties.databasePassword=gosl99all

UX Monitor Displays

The following Solution Package for UX Monitor. This section includes:

All URLs Table

View the most up-to-date performance data for all URLs under a single Robot or all Robots in a tabular format. Each row in the table is a different URL. Use this display to quickly identify alerts for any URL in your system, get an overview of how the URLs are performing and compare URL performance between UX Robot runs.

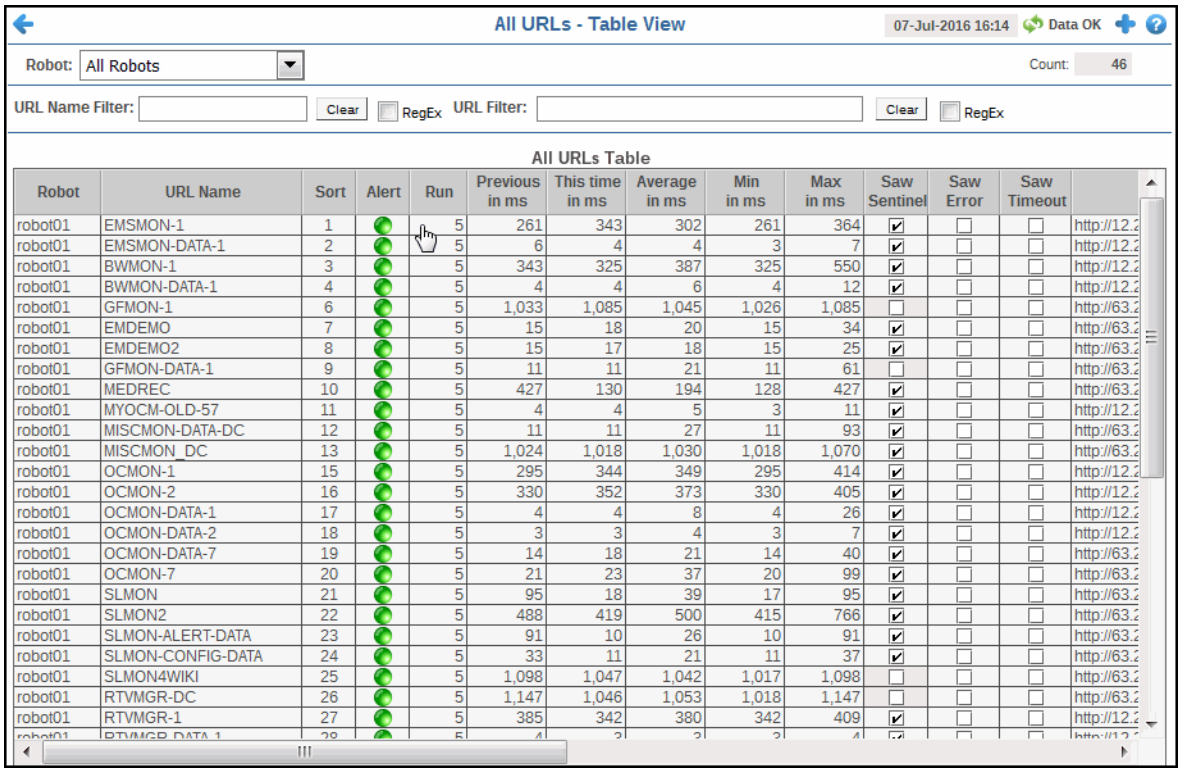
Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Consider keeping this display open to monitor your URLs in general. For example, you can sort the **Alert** column so that all URLs with at least one Alarm Level (red) alert are in the top rows. Also use this to compare UX Robot performance between runs.

For a historical view of all URLs over time, refer to the **All URLs History** display. For a historical view of a single URL over time, refer to the **URL Summary** display.

Choose a UX Robot from the **Robot** drop-down menu. Enter a search string in the **URL Filter** field to filter data shown in the table. Use the sort button to order column data. Drill-down and investigate by clicking a row to view details in the **URL Summary** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Filter By:
The display might include these filtering options:

Robot Choose a Robot to see metrics for.

URL Name Filter: Enter a (case-sensitive) string to search for.

Clear Clears the **Filter** text entry and filtered search results in the table.

Regex Check to toggle the **Filter** field to accept Regular Expressions for filtering.

URL Filter: Enter a (case-sensitive) string to search for.

Clear Clears the **Filter** text entry and filtered search results in the table.

Regex Check to toggle the **Filter** field to accept Regular Expressions for filtering.

Fields and Data
This display includes:

Count The number of rows currently in the table.

URL Name Filter Enter a string to search in the **URL Name** table column, then click **Enter**. Only rows with **URL Name** columns containing the matching search string are shown in the table.

Clear Removes entries in the **URL Name Filter** field and filter results in the table.

Regex Check to toggle the **Filter** field to accept Regular Expressions for filtering.

URL Filter Enter a string to search in the **URL** table column, then click **Enter**. Only rows with **URL** columns containing the matching search string are shown in the table.

Clear Removes entries in the **URL Filter** field and filter results in the table.

Regex Check to toggle the **Filter** field to accept Regular Expressions for filtering.

All URLs Table
Each row in the able is a different URL. Data in the row columns describe the run for the URL.

Robot The name of the UX Robot that is sending these statistics. (For details, see **agentname** in the **uxmon.properties** file.)

URL Name The nickname of the URL where the alert data originated.

Sort This is the **sortIndex** column in the URL Configuration Line and can be used to by the administrator to define the sort order for URLs in the URL Configuration Line (of the configuration file). This is useful when you do NOT want the sort order defined by the alphabetical sort or the Alert Severity sort. The table sorted in this way is closest to the order in the **uxmon.properties** file."

Alert The severity level of any open alert. Values range from **0** to **2**, where **2** is the greatest Severity:

One or more alerts exceeded their ALARM LEVEL threshold for the URL.

One or more alerts exceeded their WARNING LEVEL threshold for the URL.

No alert thresholds have been exceeded for the URL.

Run The count number of the Robot run in the sequence. The Robot runs in a loop that is controlled by the **repeatType** property. If the Robot is set to repeat then each time it begins with the first URL and the run count is incremented.

Previous in ms The amount of time, in milliseconds, for the last completed URL connection. A Robot process can include connecting to one or more URLs, logging on to a web page and performing a search using a specified search string.

This time in ms The amount of time, in milliseconds, for the most recently completed URL connection. A Robot process can include connecting to one or more URLs, logging on to a web page and performing a search using a specified search string.

Average in ms The average amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.

Min in ms The least amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.

Max in ms	The most amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.
Saw Sentinel	When checked (**true**), the Robot found the specified search string (the sentinel, which is specified in the configuration file) after contact with the specified URL (and logging in to the page if log in is also specified in the configuration file). Searching for a Search String or Sentinel is optional. You configure this option in the **uxmon.properties** file by setting **searchType=simple** or **searchType=regular**. No search occurs if s**earchType=none**.
Saw Error	When checked (**true**), the Robot encountered one or more errors while engaged with the URL. Errors can be of many different types ranging from lack of response to the attempt to contact the URL to server error.
Saw Timeout	When checked (**true**), the Robot encountered a connection timeout while engaged with the URL. Note that your administrator can adjust the amount of time for the timeout.
URL	The fully qualified address for the URL the Robot is testing.
Response End Time	The exact time that the URL finished responding.
Expired	When checked (**true**), the Robot has not received a response from the URL for the amount of time specified. (The **$uxRowExpirationTime** property specifies the time and is set in the **rtvapm.uxmon.properties** file.)
Time Stamp	The time the last data was delivered.

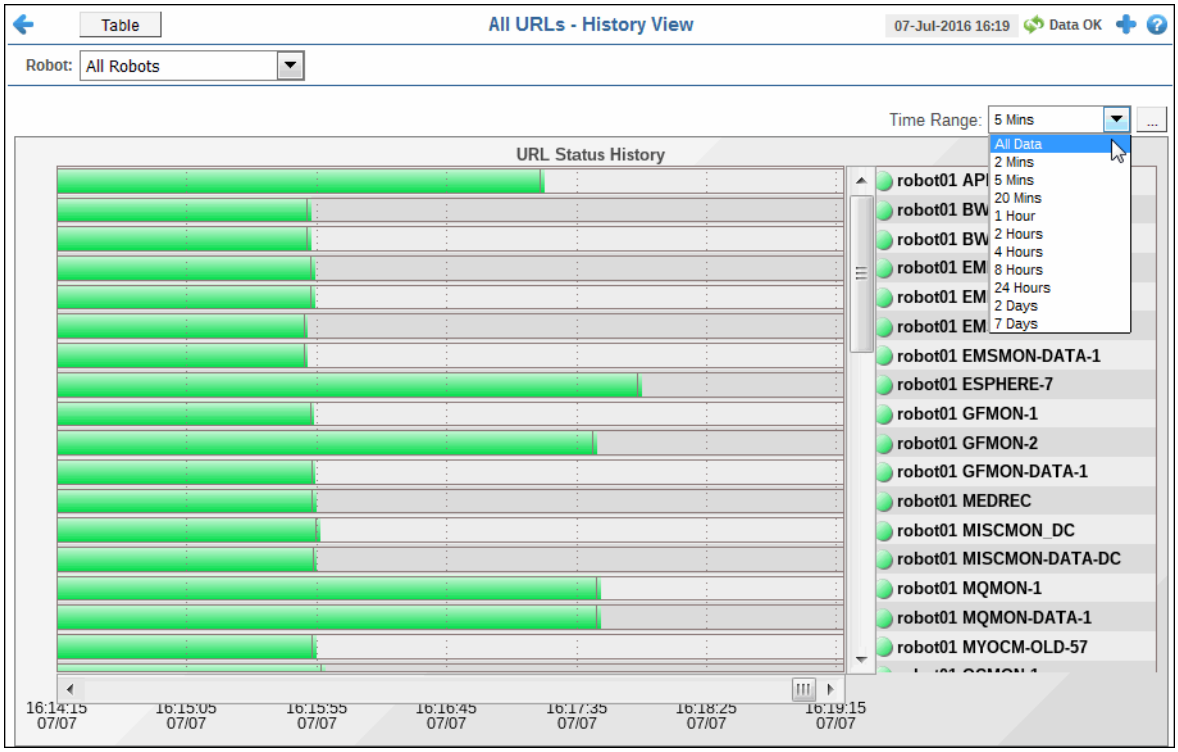
All URLs Monitor

View historical performance data over time for all URLs in one or all Robots in a status history object. This display also shows the current and historical alert status of the URLs. Each row in the status history object is a different URL. Each column represents a time period. A darker color indicates heavier usage, a lighter color indicates lighter usage.

Use this display to monitor URL performance and determine whether URLs encounter alerts during certain periods of time. Observe utilization trends for your entire system. Analyze load distribution, check for bottlenecks and identify URLs with high usage. You can also answer questions such as, Is the web page using what I expect? Is the system using it across URLs in a uniform scale? If there is an issue, mouse-over the heatmap to see when the issue started, what behavior preceded it, and the name of the resource.

Choose one or **All Robots** from the **Robot** drop-down menu to filter display data. Change the **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time. To change the time range click Open Calendar  , choose the date and time, then click **OK**.

Drill-down and investigate by clicking a row in the table to view details for the URL in the **URL Summary** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

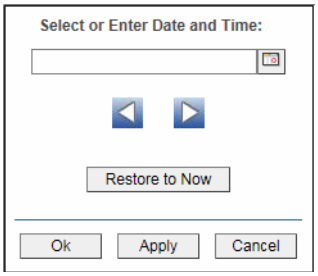
23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Color Code:
Row color indicates the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the row.

Time Range Select a time range from the drop down menu varying from 2 Minutes to Last 7 Days, or display All Data. By default, the time range end point is the current time.



To change the time range for the graph, click Open Calendar , choose the date and time, then click **OK**. Or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the Time Range drop-down menu.

Click Restore to Now to reset the time range end point to the current time.

URL Summary

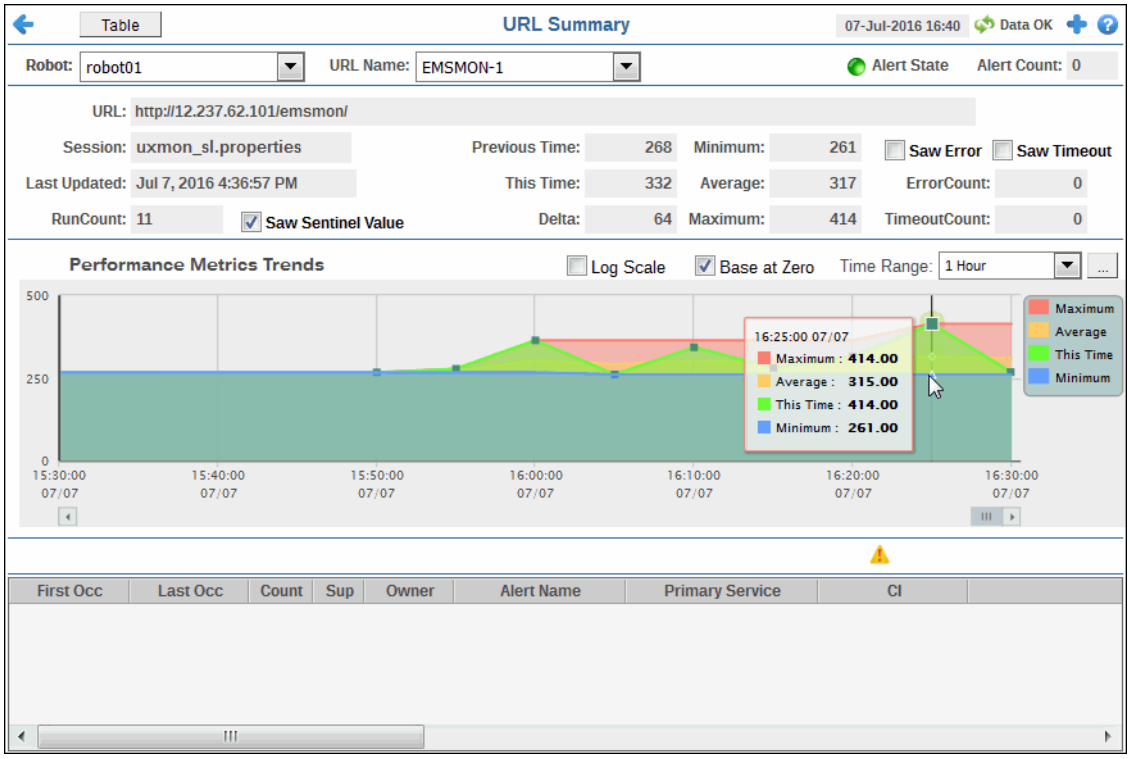
View historical and current performance and alert data, over time, for a single URL in a trend graph. This display shows all the current and historical alerts for the URL. Each trace in the trend graph is a different measurement of the UX Robot results for the URL - the **Maximum**, **Average**, **This Time** and **Minimum**. This display shows the data for the selected URL that is shown in the **All URLs** display table.

Use this display to monitor the performance of a URL and see details about the alerts it encounters.

Choose a **UX Robot** and a **URL Name** from the drop-down menus to filter display data. Move the bar at the base of the graph to time to see values for specific times. Change the **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time. To change the time range click Open Calendar , choose the date and time, then click **OK**.

For a historical view of all URLs over time, refer to the **All URLs History** display.

Use the sort button to order column data.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Alert State Indicates the greatest severity level of all open alerts for this URL:
- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold.
- Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Alert Count The number of open alerts for the selected URL.

URL The URL address.

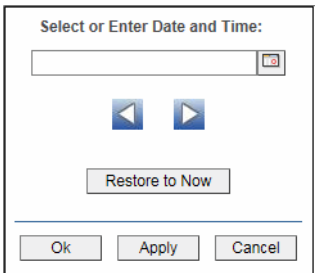
Session	The filename from which the Robot started.
Last Updated	The date and time that the Robot last sent data.
RunCount	The number of runs made by the UX Robot since it started.
Saw Sentinel Value	When checked (**true**), the Robot found the specified search string (the sentinel, which is specified in the configuration file) after contact with the specified URL (and logging in to the page if log in is also specified in the configuration file). It might also optionally look for a search string called a Sentinel.
Previous Time	The amount of time, in milliseconds, for the last completed Robot run to complete the Robot process specified. A Robot process can include connecting to one or more URLs, logging on to a web page and performing a search using a specified search string.
This Time	The amount of time, in milliseconds, for the most recently completed Robot run to complete the Robot process specified. A Robot process can include connecting to one or more URLs, logging on to a web page and performing a search using a specified search string.
Delta	The time difference, in milliseconds, between the latest and previous Robt runs.
Minimum	The least amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.
Average	The average amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.
Maximum	The most amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.
Saw Error	When checked (**true**), the Robot encountered one or more errors while engaged with the URL. Errors can be of many different types ranging from lack of response to the attempt to contact the URL to server error.
Saw Timeout	When checked (**true**), the Robot encountered a connection timeout while engaged with the URL. Note that your administrator can adjust the amount of time for the timeout.
Error Count	Indicates whether the Robot encountered an error: **0** = No error encountered. **1** = Error encountered.
Timeout Count	Indicates whether the Robot encountered a timeout error: **0** = No timeout error encountered. **1** = Error encountered.

Performance Metrics Trends

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base At Zero	Select to use zero as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Performance Metrics Trends

Maximum	Traces the most amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.
Average	Traces the average amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.
This Time	Traces the amount of time, in milliseconds, for the most recently completed Robot run to complete the Robot process specified. A Robot process can include connecting to one or more URLs, logging on to a web page and performing a search using a specified search string.
Minimum	Traces the least amount of time in this session of Robot runs, in milliseconds, for the URL to complete the process specified by the UX Robot.

Alerts Table

This table lists all open, unsuppressed alerts associated with the selection in the display. Each row in the table is a different active alert. Use the sort button to order column data. The row color indicates the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.
- Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized.

Opens the **Alerts Table** display in a new window.

First Occ	The date and time the alert first occurred.
Last Occ	The date and time the alert last occurred.
Count	The number of times the alert was generated.
Sup	When checked, the alert has been suppressed by a user.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert.
Primary Service	The name of the Service with which the alert is associated.
CI	The CI alert source.
Alert Text	Description of the alert.
AlertClass	An optional alert field which can be used when integrating with other alerting systems.
CompID	An optional alert field which can be used when integrating with other alerting systems.
TicketID	An optional alert field which can be used when integrating with other alerting systems.
TicketGroup	An optional alert field which can be used when integrating with other alerting systems.

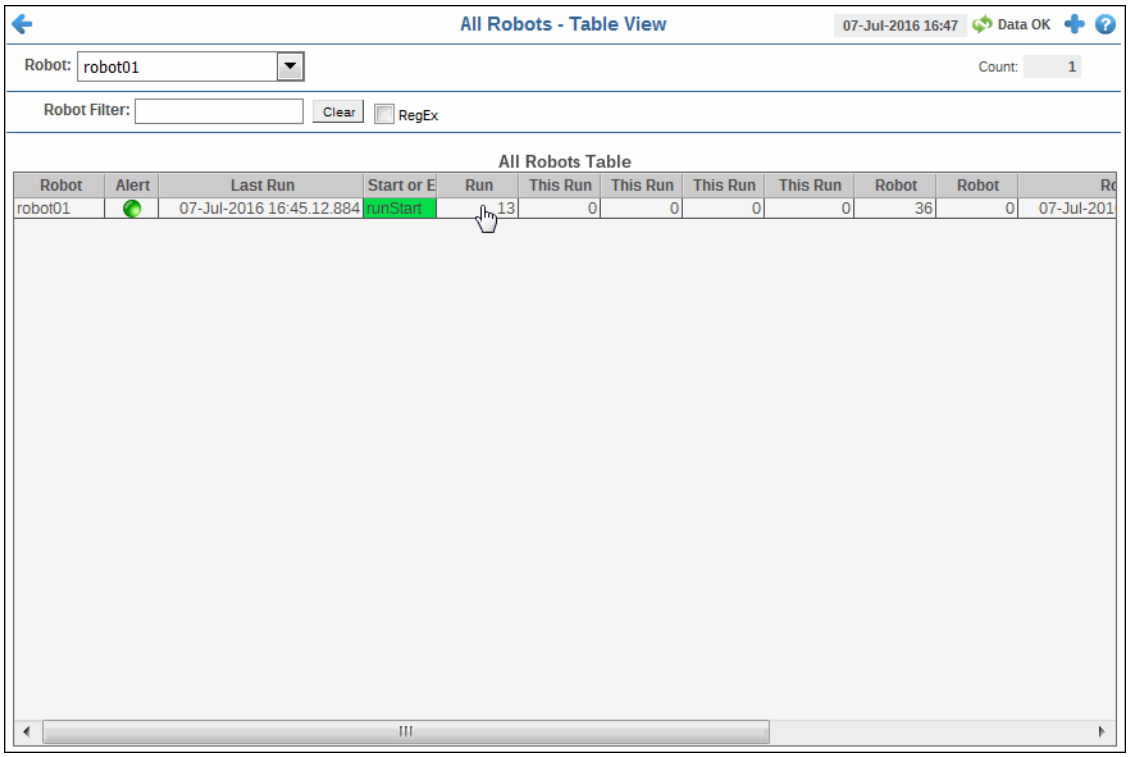
All Robots Table

View the most up-to-date performance data for one or all Robots in a tabular format. Each row in the table is a different Robot. Use this display to quickly identify alerts for any Robot in your system, get an overview of how the Robots are performing and compare Robot performance between UX Robot runs.

Consider keeping this display open to monitor your Robots in general. For example, you can sort the **Alert** column so that all URLs with at least one Alarm Level (red) alert are in the top rows. Also use this to compare Robot performance between runs.

For a historical view of Robots over time, refer to the **All Robots History** display. For a historical view of a single URL over time, refer to the **Robot Summary** display.

Choose a UX Robot from the **Robot** drop-down menu. Enter a search string in the **Robot Filter** field to filter data shown in the table. Use the sort button to order column data. Drill-down and investigate by clicking a row to view details in the **All Robots Monitor** display.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Row Color Code:
Tables with colored rows indicate the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Filter By:
The display might include these filtering options:

Robot Choose a robot to see metrics for.

Robot Filter: Enter a (case-sensitive) string to search for.

Clear Clears the **Filter** text entry and filtered search results in the table.

Regex Check to toggle the **Filter** field to accept Regular Expressions for filtering.

Fields and Data
This display includes:

Count The number of rows currently in the table.

Regex Check to toggle the **Filter** field to accept Regular Expressions for filtering.

All Robots Table

Robot The name of the UX Robot that is sending these statistics. (For details, see **agentname** in the **uxmon.properties** file.)

Alert Indicates the greatest severity level of all open alerts for this Robot:
Red indicates that one or more alerts exceeded their ALARM LEVEL threshold.
Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold.
Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold.
Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized.

Start or End of Run

Last Run The time, in Java format, the last run started.

Start or End of Run Indicates whether a Robot is in progress or paused. This column name is **runStart** if a run is in progress and **runEnd** if the last run ended and the UX Robot is pausing before beginning the next run.

Run The number of the Robot run that was performed last.

This Run Total MS If the Robot is in progress (**runStart**), the amount of time, in milliseconds, for all URLs to complete their specified process during this run. If the Robot is paused (**runEnd**) the value is zero (**0**). While in the middle of the run, no count is possible.

This Run The total number of errors seen for all URLs during this run or zero (0) if **runStart**. A count occurs only after a run completes.

This Run Timeouts The total number of timeouts the Robot encountered for all URLs during this run. If the Robot is in progress (**runStart**) the value is zero (**0**). While in the middle of the run, no count is possible.

This Run Missed Search Sentinels The total number of Missed Search Sentinels the Robot encountered for all URLs during this run. If the Robot is in progress (**runStart**) the value is zero (**0**). While in the middle of the run, no count is possible.

Robot The total number of errors seen for all URLs for all runs so far this session.

Robot Overall Errors The total number of timeouts the Robot encountered for all URLs during this session. If the Robot is in progress (**runStart**) the value is zero (**0**).

Robot Overall Start Time The time the Robot session started.

Expired	When checked (**true**), the Robot encountered a connection timeout while engaged with the URL. Note that your administrator can adjust the amount of time for the timeout (see the **$uxRowExpirationTime** property in the rtvapm.uxmon.properties file).
Time Stamp	The time the last data was delivered for either **runStart** or **runEnd**.

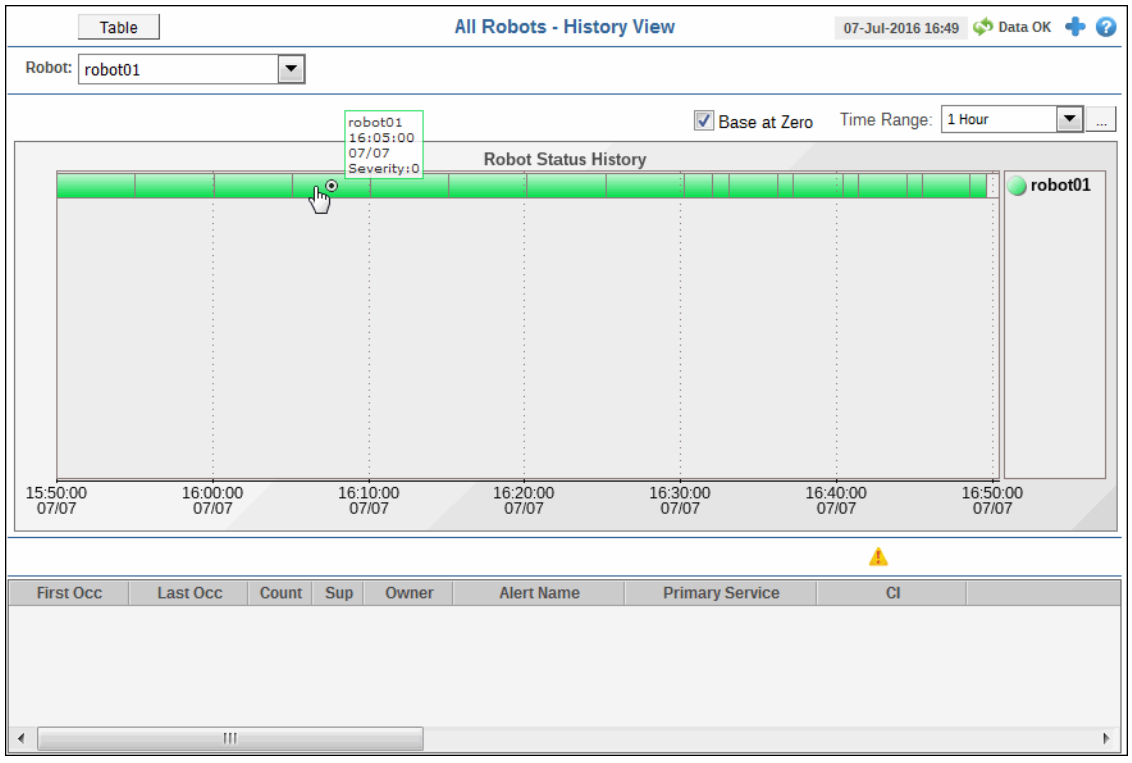
All Robots Monitor

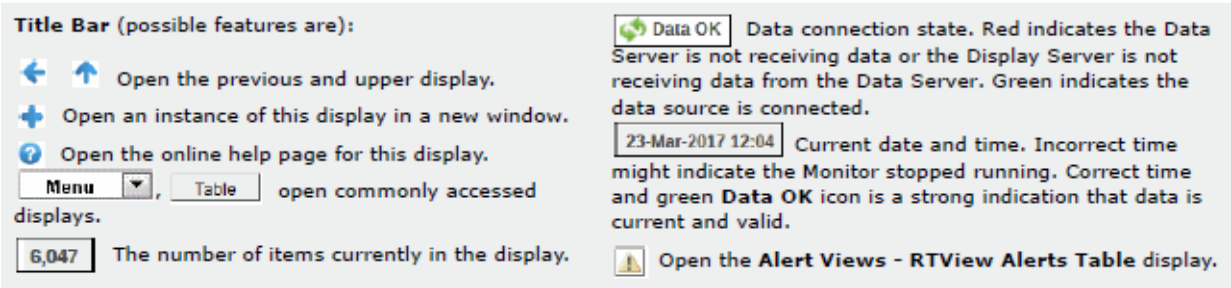
View historical performance data over time for one or all Robots in a status history object. This display also shows the current and historical alert status of the Robots. Each row in the status history object is a different Robot. Each column represents a time period. A darker color indicates heavier usage, a lighter color indicates lighter usage.

Use this display to monitor Robot performance identify whether Robots encounter alerts during certain periods of time. Observe utilization trends for your entire system. Analyze load distribution, check for bottlenecks and identify URLs with high usage. You can also answer questions such as, Is the web page using what I expect? Is the system using it across URLs in a uniform scale? If there is an issue, mouse-over the heatmap to see when the issue started, what behavior preceded it, and the name of the resource.

Choose one or **All Robots** from the **Robot** drop-down menu to filter display data. Change the **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time. To change the time range click Open Calendar , choose the date and time, then click **OK**. Drill-down and investigate by clicking a row to view details in the **Robot Summary** display.

Enter a (case-sensitive) string in the **Robot Filter** to perform search. Click **Clear** to clear the **Robot Filter** string and filtered search results in the table.





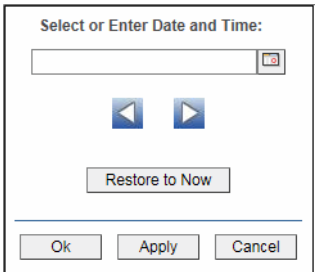
Color Code:
Row color indicates the following:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the row.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the row.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the row.

Fields and Data
This display includes:

Base At Zero Select to use zero as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from 2 Minutes to Last 7 Days, or display All Data. By default, the time range end point is the current time.



To change the time range for the graph, click Open Calendar , choose the date and time, then click **OK**. Or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the Time Range drop-down menu.

Click Restore to Now to reset the time range end point to the current time.

Alerts Table
This table lists all open, unsuppressed alerts associated with the selection in the display. Each row in the table is a different active alert. Use the sort button to order column data. The row color indicates the following:

Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.

Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.

Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized.

Opens the **Alerts Table** display in a new window.

First Occ	The date and time the alert first occurred.
Last Occ	The date and time the alert last occurred.
Count	The number of times the alert was generated.
Sup	When checked, the alert has been suppressed by a user.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert.
Primary Service	The name of the Service with which the alert is associated.
CI	The CI alert source.
Alert Text	Description of the alert.
AlertClass	An optional alert field which can be used when integrating with other alerting systems.
CompID	An optional alert field which can be used when integrating with other alerting systems.
TicketID	An optional alert field which can be used when integrating with other alerting systems.
TicketGroup	An optional alert field which can be used when integrating with other alerting systems.

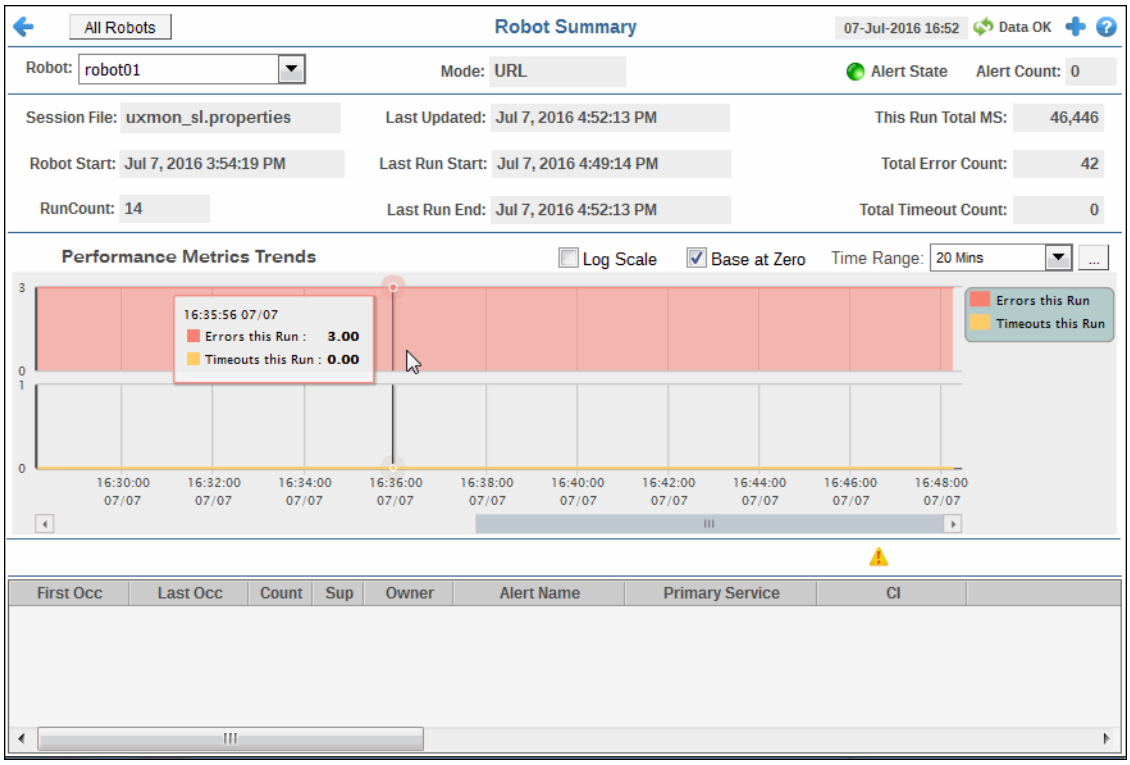
Robot Summary

View historical and current performance and alert data, over time, for a single Robot in a trend graph. This display shows all the current and historical alerts for the Robot. Each trace in the trend graph is a different measurement of the UX Robot results for the Robot - the **Errors this Run** and **Timeouts this Run**. This display shows the data for the selected Robot that is shown in the **All Robots Table** display.

Use this display to monitor the performance of a Robot and see details about the alerts it encounters.

Choose a UX Robot from the **Robot** drop-down menus to filter display data. Move the bar at the base of the graph to time to see values for specific times. Change the **Time Range** to "zoom in" on the graph and see more detail or "zoom out" from the graph to see larger trends over time. To change the time range click Open Calendar, choose the date and time, then click **OK**.

For a historical view of all Robots over time, refer to the **All Robots History** display.



Title Bar (possible features are):

Open the previous and upper display.

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Open the online help page for this display.

Menu, Table open commonly accessed displays.

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Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Fields and Data
This display includes:

Mode: The mode that the UX Robot operates in. The default is **URL**. (Do not modify this setting.)

Alert State Indicates the greatest severity level of all open alerts for this Robot:

- Red indicates that one or more alerts exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold.
- Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold.
- Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Alert Count The number of open alerts for the selected Robot.

Session File The name of the properties file that this UX Robot is running from.

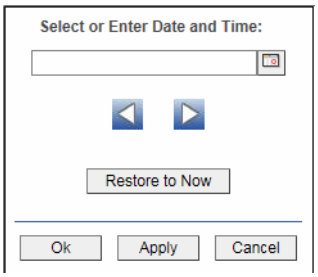
Robot Start	The time the this Robot session started.
RunCount	The number of runs made in this Robot session.
Last Updated	The time when the Robot data was last updated.
Last Run Start	The time when the last run started for this UX Robot.
Last Run End	The time when the last run ended for this UX Robot.
This Run Total MS	Total MS in response times for all of the URLs in this run.
Total Error Count	The total number of errors for all of the URLs in this run.
Total Timeout Count	The total number of timeouts for all of the URLs in this run.

Performance Metrics Trends

Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. Log Scale makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base At Zero	Select to use zero as the Y axis minimum for all graph traces.

Time Range

Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar ... .



By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Errors this Run	The total number of errors this Robot encountered for ALL URLs the Robot is connecting to on the current run.
Timeouts this Run	The total number of timeouts this Robot encountered for ALL URLs the Robot is connecting to on the current run.

Alerts Table
This table lists all open, unsuppressed alerts associated with the selection in the upper table. Each row in the table is a different active alert. Select one or more rows, right-click to open the **Alert** popup menu and choose an action to perform on the alert(s): **Details**, **Own**, **Suppress**, **Close**, **Annotate** or **Options**. Use the sort button to order column data. The row color indicates the following:

Red indicates that one or more alerts exceeded their ALARM LEVEL threshold in the table row.

Yellow indicates that one or more alerts exceeded their WARNING LEVEL threshold in the table row.

Green indicates that no alerts exceeded their WARNING or ALARM LEVEL threshold in the table row.

Gray indicates that the alert engine that is hosting the alert is not connected, not enabled or not initialized. When you select a gray row the **Own**, **Suppress**, **Unsuppress**, **Close**, **Annotate**, **Options** and **Details** buttons are disabled.

Opens the **Alerts Table** display in a new window.

Own Click to assign an Owner for the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.

Suppress Click to suppress the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.

Close Click to close the selected alert(s). This button is only visible to users with Administrator privileges. This button is disabled when you select a gray row.

Details Select an alert, right-click and choose **Alert/Details** to open the **Alert Detail** window and view alert details. Or, double-click an alert to open the **Alert Detail** window.

Annotate Select one or more alerts, right-click and choose **Alert/Annotate** to open the **Set Owner and Comments** dialog and enter comments or change alert owner.

Options Select an alert, right-click and choose **Alert/Options** to open the **Alert Options** dialog. This dialog is provided for customizing your own alert options.

- **First Occ** The date and time the alert first occurred.
- **Last Occ** The date and time the alert last occurred.
- **Count** The number of times the alert was generated.
- **Sup** When checked, the alert has been suppressed by a user.
- **Owner** The named owner assigned by the administrator.
- **Alert Name** The name of the alert.
- **Primary Service** The name of the Service with which the alert is associated.
- **CI** The CI alert source.
- **Alert Text** Description of the alert.
- **AlertClass** An optional alert field which can be used when integrating with other alerting systems.
- **CompID** An optional alert field which can be used when integrating with other alerting systems.
- **TicketID** An optional alert field which can be used when integrating with other alerting systems.
- **TicketGroup** An optional alert field which can be used when integrating with other alerting systems.

Advanced UX Robot Configuration

This section describes how to configure the UX Robot via configuration database and user login simulation. These steps are optional.

This section includes:

- "UX Robot Configuration Via Configuration Database" on page 1550: This configuration is intended for deployments with a large number of monitored URLs or a large number of Robot configurations. This option centralizes the configuration and management of the monitored URLs and Robot data.
- "Configure User Login Simulation" on page 1551: This configuration sets the Robot to simulate the user log in process.

UX Robot Configuration Via Configuration Database

This section describes how to set the UX Robot to fetch properties from a SQL database, which enables you to configure your UX Robots by editing a database, presumably from a central location. Consider using this option ii you have a large number of UX Robots in many different locations.

This configuration option requires that you use the **uxmon.sql.properties** file instead of the **uxmon.properties** file. To set the UX Robot to fetch properties from a SQL database you edit the **uxmon.sql.properties** template configuration file.

To configure the UX Robot to fetch properties from a SQL database

1. Open the **uxmon.sql.properties** file, located in your UX Robot home directory, in a text editor.

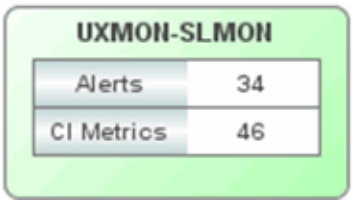
2. Locate the Database Properties Configuration section. Note that there is no space between the prefix and the first element, and no word-wrapping.

3. Edit the settings for the **sl.rtview.properties.** prefix to specify database connection properties. Do not edit or move the prefix.

4. Save the **uxmon.sql.properties** file. Do not change the file name.

5. Edit the batch file **run_ux_robot.bat** to read -**urlproperties:uxmon.sql.properties** instead of the default **uxmon.properties** and start the Robot.

6. After the **uxmon.sql.properties** file is installed, open the RTView EM **Architecture - System Overview** display and verify the Monitor object shows Monitor data.



For details about the Database Properties Configuration, see "Sample uxmon.sql.properties File" in Appendix A, "UX Monitor Configuration Files".

Configure User Login Simulation

This section describes how to configure the UX Robot to simulate the user log in process. This step is optional. This section includes:

To configure the UX Robot to simulate the user log in process you add an App Configuration Line, a Robot Configuration Line and a Browser Configuration Line to the **uxmon.properties** configuration file and edit as appropriate.

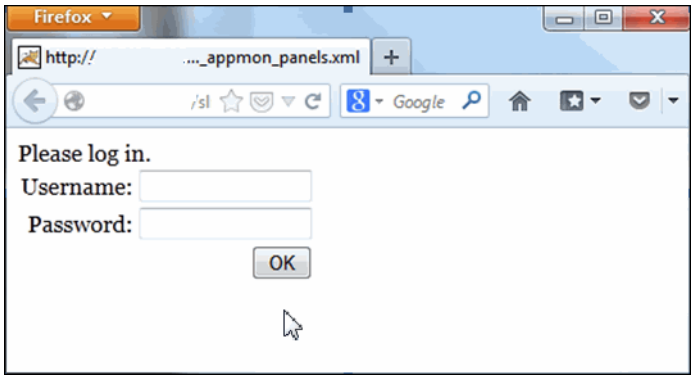
Note: Before you begin, consider performing the user log in your browser to see the process the UX Robot is to simulate.

---

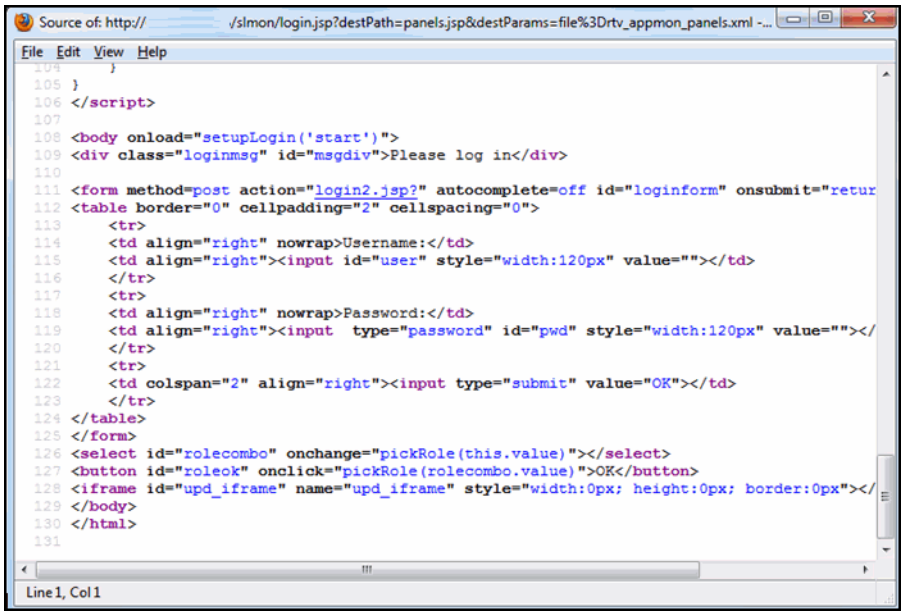
1. Open the **uxmon.properties** file in a text editor.
2. Open a browser and navigate to the web page you want to monitor.
3. Copy and paste your browser URL address to the **sl.rtvapm.uxmon.urlrobot.url** Configuration Line **url=** property.
4. **Save** the file.

If the web page you want to monitor requires user/password authentication, proceed to the next step. If not, you have completed configuring Monitor.

5. In your web page, note the text entry field labels (typically they are **User** and **Password**), as well as any button labels (typically **OK** or **Go**) and their spelling.
6. Enter your user name and password and verify that you login successfully.
7. In the web page that opens, note and record a unique set of words (which you subsequently use to relocate the page).
8. In the **uxmon.properties** file, copy and paste an App Configuration Line, a Robot Configuration Line and a Browser Configuration Line and edit as appropriate.
9. Logout and open the log in page again. In the Browser right-click in the white space below the **OK** button and choose **View Page Source**.



The web page source HTML code is shown.



10. Scroll to the bottom of the HTML code, locate the lines between the **<body>** and **<\body>** tags and find the following information defined in the HTML code. We use the SLMon demo page (above) to illustrate.

- **url=**: The URL address for the page. For our example, **url=http://63.241.67.163/slmon/**. Note that there is no space after "**sl.rtvapm.uxmon.urlrobot.url=**".
- **name=**: The name you use to refer to this URL. For our example, **name=SLMON.**
- **user=**: The user name for the UX Robot to use for login. For our example, **user=demo**.
- **pass=**: The password for the UX Robot to use for login. For our example, **pass=demo**.
- **sortIndex=**: Controls where the URL line appears in the final list of URLs. Choose a low number to start with. Indexes can be repeated. For our example, **sortIndex=21**.
- **agent=**: URLs are grouped by agent name and **agent=** is the group the URL belongs to. For our example, **agent=robot01**.
- **secure=**: The keyword secure is currently not used.
- **searchType=**: Controls whether and how the **searchString** is performed in the returned HTML the UX Robot receives from the URL after login.
  - **simple**: A simple text search is performed for the search string given by **searchString**.
  - **regular**: A regular expression text search is performed for the search string given by **searchString**.
  - **none**: No search is performed. This is the default setting.
- **searchString=**: Specifies the search string. Use single quotation marks. In our example, **searchString='SL RTView - Enterprise Monitor'**
- **useHTMLForm=**: Specifies whether the UX Robot attempt log in before performing a search.
  - **false**: Specifies that the UX Robot *not* attempt log in and to either search the page as HTML (if **searchHTML=true**) or as XML (if **searchHTML=false**).

  - **true**: Specifies that the UX Robot attempt log in to the URL and use the HTML form to search. For details about using the HTML form, see "Setup HTML Login URL Form" on page 1553.
- **javascript=**: Specifies whether the URL needs JavaScript.
  - **true**: If the URL does *not* need JavaScript.
  - **false**: Speeds up URL processing by avoiding the loading of the JavaScript interpreter in HTMLUnit on every access of the URL.

If you want to use an HTML login URL form for user/password authentication, proceed to the next section. If not, you have completed configuring the UX Robot to simulate the user log in process.

Setup HTML Login URL Form

This section describes how to setup the UX Robot log in to the URL and perform searches using the HTML form. The useHTMLForm element must be **true** to use configure this feature. You reference the HTML code from your URL log in page and the **sl.rtvapm.uxmon.urlrobot.url=** prefix to create a URL Configuration Line for your environment.

```
The following illustrates a fully built URL Configuration Line.
sl.rtvapm.uxmon.urlrobot.url=name='SLMON' sortIndex=21 url=http://63.241.67.163/slmon/
agent=robot01 user=demo pass=demo secure=false searchType=simple searchString='SL RTView
- Enterprise Monitor' searchHTML=false useHTMLForm=true formNameParameter=loginform
formNameParameterType=id userInputElementName=user userInputElementType=id
passwordInputElementName=pwd passwordInputElementType=id buttonInputElementName='OK'
buttonInputElementType=value javascript=true
```

1. Locate the section between the **<body>** and **<\body>** tags. To illustrate, we use the SLMon demo page to illustrate:. For example:

```
<body onload="setupLogin('start')">
<div class="loginmsg" id="msgdiv">Please log in</div>

<form method=post action="login2.jsp?" autocomplete=off id="loginform" onsubmit="return
doLogin(this)">
<table border="0" cellpadding="2" cellspacing="0">
      <tr>
      <td align="right" nowrap>Username:</td>
      <td align="right"><input id="user" style="width:120px" value=""></td>
      </tr>
      <tr>
      <td align="right" nowrap>Password:</td>
      <td align="right"><input  type="password" id="pwd" style="width:120px"
      value=""></td>
      </tr>
      <tr>
      <td colspan="2" align="right"><input type="submit" value="OK"></td>
      </tr>
</table>
</form>
<select id="rolecombo" onchange="pickRole(this.value)"></select>
<button id="roleok" onclick="pickRole(rolecombo.value)">OK</button>
<iframe id="upd_iframe" name="upd_iframe" style="width:0px; height:0px; border:0px"></
iframe>
</body>
```

2. Find the following elements and their values. We use the SLMon demo page (above) to illustrate:

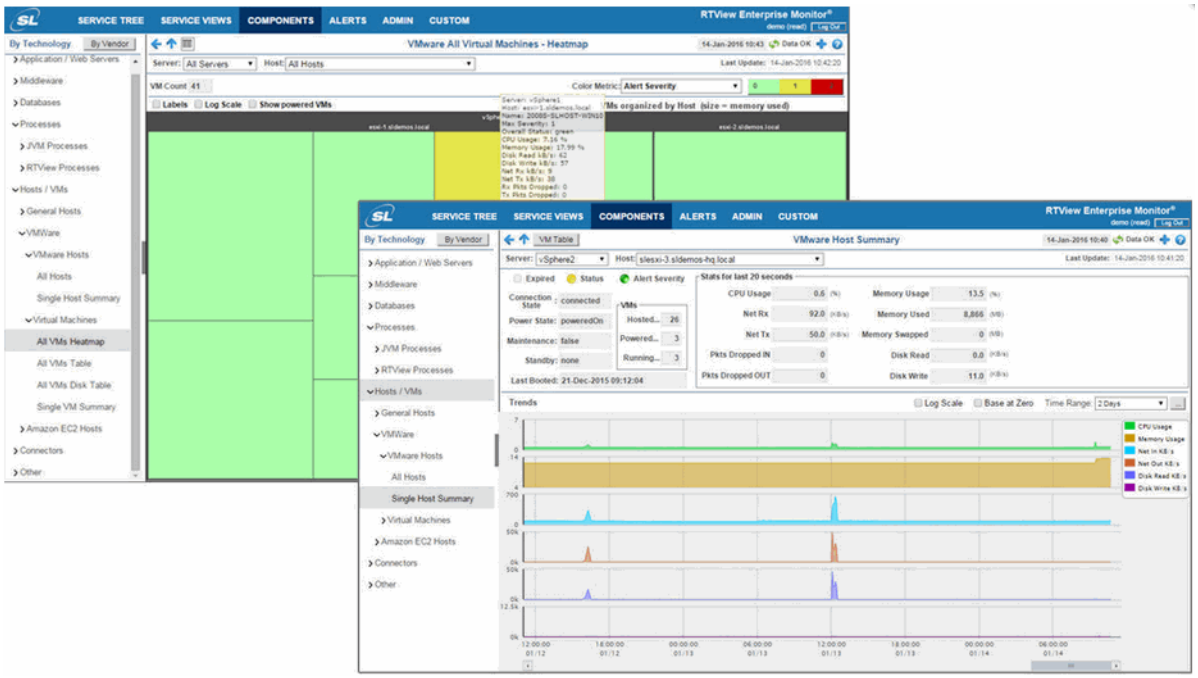
- **formNameParameterType=**: The type of HTML form of which there are three types, **id**, **name** and **value**. In your HTML code, locate either **id=**, **name=** or **value=**. In our example we find **id="loginform"**. For our example we specify **formNameParameterType=id**.
- **formNameParameter=**: The name of the HTML form. Refer to what you found for the **formNameParameterType** property (either **id=**, **name=** or **value=**). In our example we found **id="loginform"**. Omit the quotation marks. For our example we specify **formNameParameter=loginform**.
- **userInputElementType=**: The user input element type of which there are three types, **id**, **name** and **value**. In your HTML code, locate either **<input id=**, **<input name=** or **<input value=**. In our example we find **<input id=**. For our example we specify **userInputElementType=id**.
- **userInputElementName=**: The user input element name. Refer to what you found for the **userInputElementType** property (**<input id=**, **<input name=** or **<input value=**). In our example we found **<input id="user"**. Omit the quotation marks for the value. For our example we specify **userInputElementName=user**.
- **passwordInputElementType=**: The password input element type of which there are three types, **id**, **name** and **value**. In your HTML code, locate either **id=pwd**, **name=pwd** or **value=pwd**. In our example we find **id=pwd**. For our example we specify **passwordInputElementType=id**.
- **passwordInputElementName=**: The password input element name. Refer to what you found for the **passwordInputElementType** property (either **id=pwd**, **name=pwd** or **value=pwd)**. In our example we found **id=pwd**. For our example we specify **passwordInputElementName=pwd**.
- **buttonInputElementType=:** The button input element type of which there are three types, **id**, **name** and **value**. In your HTML code, locate either **id=**, **name=** or **value=**. In our example we find **value='OK'**. For our example we specify **buttonInputElementType=value**.
- **buttonInputElementName=**: The button name. Refer to what you found for the **buttonInputElementType** property (either **id=**, **name=** or **value=)**. In our example we found **id='OK'**. For our example we specify **buttonInputElementName=='OK'**.

3. **Save** the file.

CHAPTER 33 Solution Package for VMware vCenter

RTView Enterprise Monitor® uses Solution Packages to gather and process performance metrics from a wide variety of different technologies, including VMware vCenter.

With the Solution Package for VMware vCenter, you are able to collect CPU, memory, disk and network data for hosts and virtual machines from VMware vCenter and ESXi servers in real-time. RTView Enterprise Monitor combines these metrics with application performance data obtained from application servers, enterprise message buses and other middleware components to create holistic, single-pane-of-glass views of the entire application environment. This concise visualization provides immediate insight into the level of criticality of a problem, and drill-down support to quickly determine cause and guide resolution.



Since vCenter provides built-in performance metrics, there is no longer a need to painfully install and manage monitoring agents on every machine that hosts application components. Instead, RTView simply connects to vCenter and can readily incorporate data from multiple data centers and thousands of virtual machines. On top of this, RTView provides an automated, data-driven application dependency model that intuitively visualizes the relationship among applications and their underlying infrastructure and middleware components in order to highlight the business impact and criticality of any problems or performance issues.

An integral part of the system, the included RTView Historian, can be configured to store vSphere metrics in an arbitrary SQL database for capacity planning and historic trend analysis. Trends can also be used to refine alert thresholds. RTView alerts can be integrated with alerts from third-party sources through RTView's alert management system to help users quickly filter alerts and identify the source of true performance problems.

The lightweight, flexible nature of RTView Enterprise Monitor is also of particular use in complex environments where the monitoring of both cloud-based and on-premise components is required.

See the **README.txt** file, located in the root directory of each Solution Package, for instructions about configuring and working with the Solution Package.

See **README_sysreq.txt** for the full system requirements for RTView®.

This section includes:

Configuration Parameters You Need

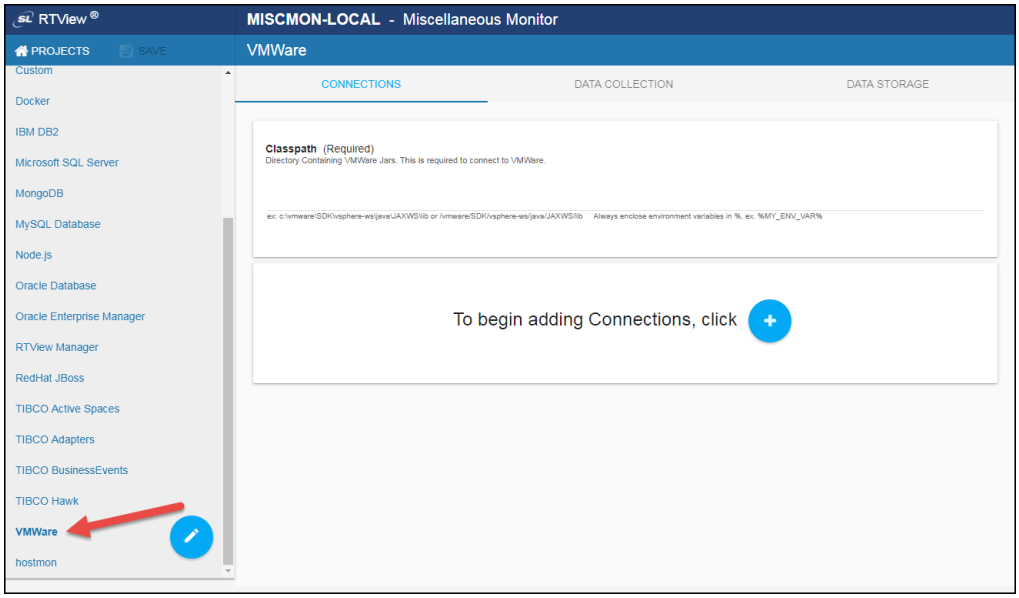
To configure the Solution Package for VMware vCenter make a note of the following values:

- **PackageName=vmwmon**
- **ServerDirectory**=**miscmon**
- **AlertPrefix**=**Vmw**

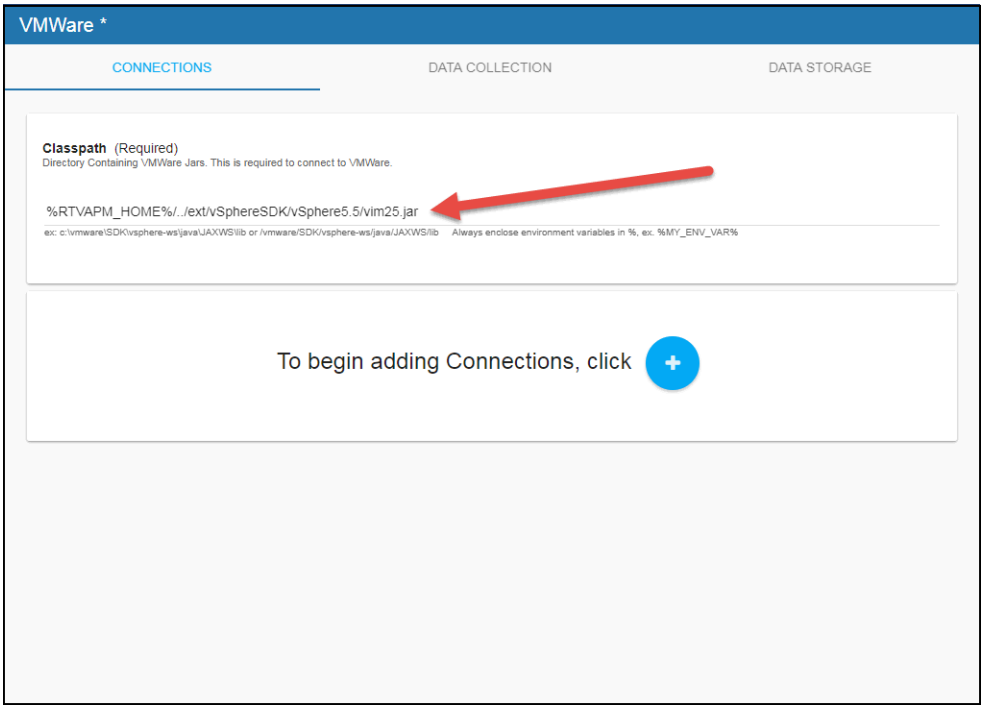
Configure Data Collection

Use the RTView Configuration Application to configure your data collection:

1. Navigate to RTView Configuration Application > **(MISCMON-LOCAL/Project Name)** > **Solution Package Configuration** > **VMWare** > **CONNECTIONS** tab.

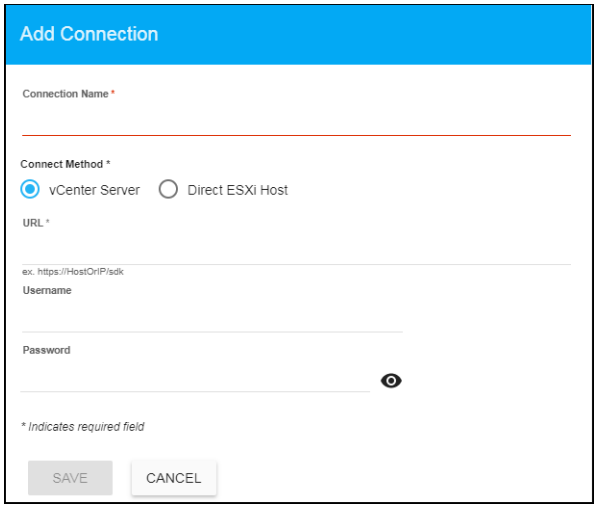


2. On the **CONNECTIONS** tab, enter the full path to the directory containing the vSphere Java API in the **Classpath** field. Enter the path to reflect the location of this jar on your host. If necessary, download and install the jar from *https://developercenter.vmware.com/web/sdk/55/vsphere-management*. Version 5.5 of the vSphere management SDK is recommended, but the monitor should function with later versions.



3. To add connections to your vCenter servers, click the icon.

The **Add Connection** dialog displays.



4. Specify the connection information and click **Save** where:

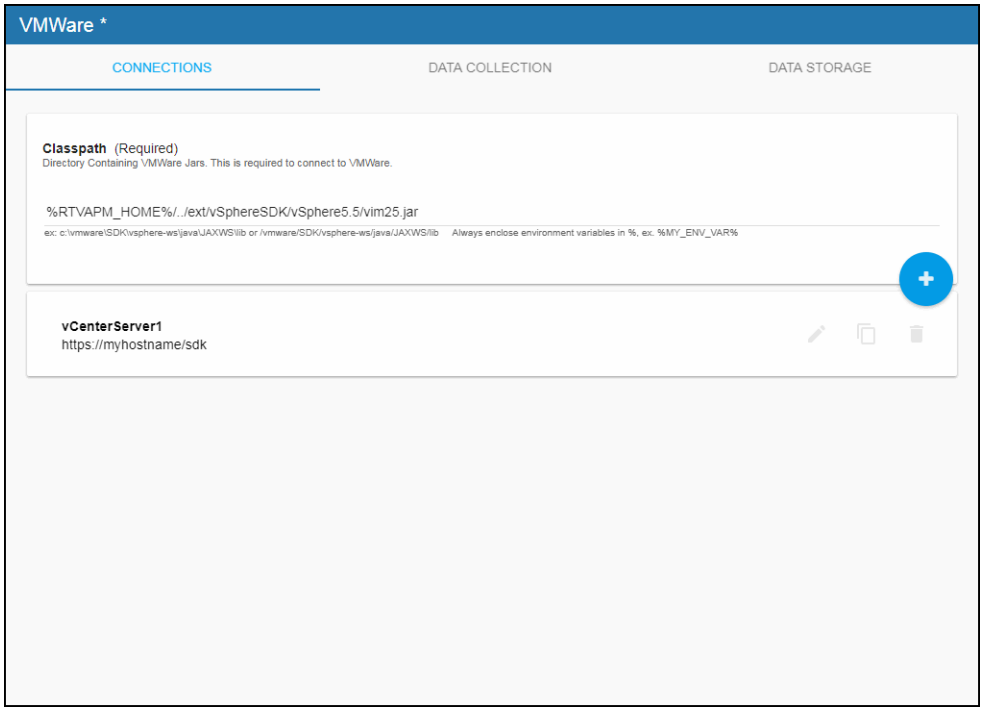
Connection Name: The name of the connection. The **Connection Name** specifies the name you want to define for the **vCenter Server** or **Direct EXSi Host** that will be used in the VMware displays.

Connect Method: Select either **vCenter Server** or **Direct EXSi Host** as the connect method.

URL: Enter the complete URL for the **vCenter Server** or **Direct EXSi Host.** A comma-separated list of URLs is used to designate fault tolerant server pairs.

Username: The username is used when creating the connection to the **vCenter Server** or **Direct EXSi Host**. This field is optional.

Password: This password is used when creating the connection to the **vCenter Server** or **Direct EXSi Host**. This field is optional. By default, the password entered is hidden. Click the icon to view the password text.

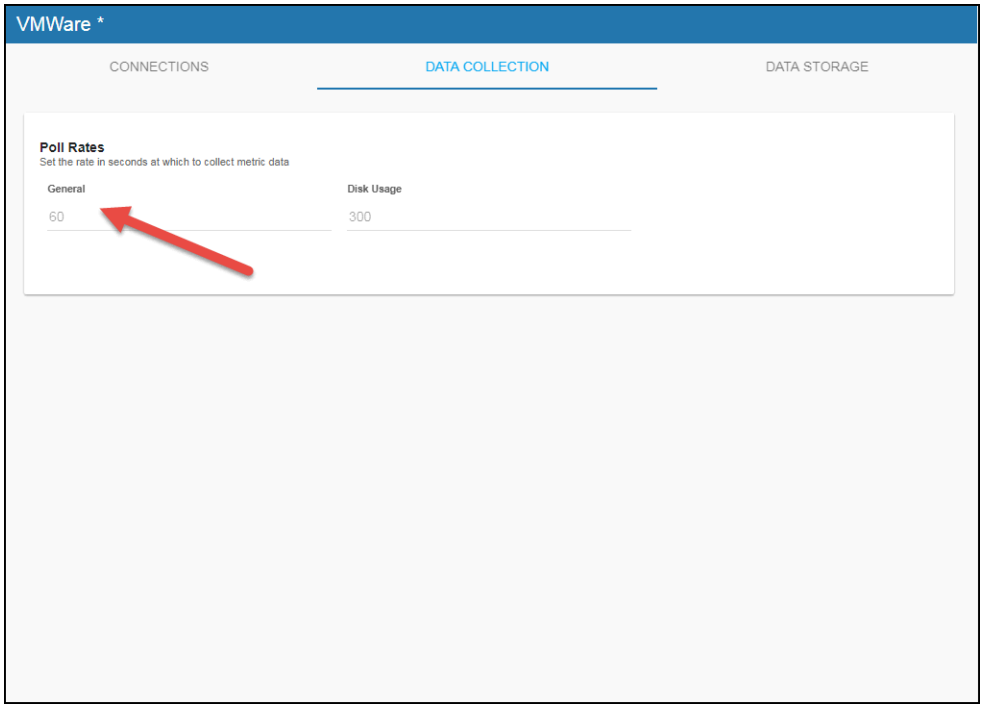


5. Repeat steps 3-4 for any additional vCenter servers or EXSi hosts to which you want to connect.

6. If you want to modify the default values for the update rates for various general and disk usage caches, you can update the default polling rates in RTView Configuration Application > **DATA COLLECTION** > **Poll Rates**.

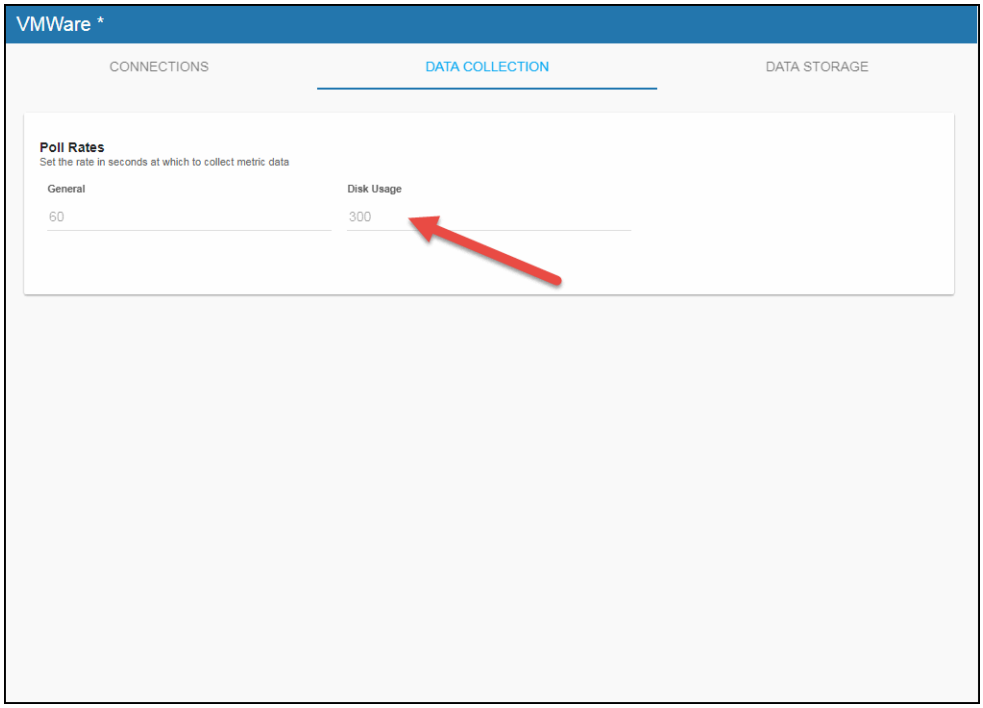
General Caches

Update the polling rate for the **General** field to modify the default polling rate for the VmwHostRuntimeStatus, VmwVirtualMachines, VmwVmRuntimeStatus, VmwVmDiskUsage, VmwHostSystems, VmwHostSystemHealthInfo, VmwDatastoreHosts, VmwHostPhysicalNIC, VmwHostVirtualNIC, VmwDatastoreVMs, VmwDatastoreRuntimeStatus, VmwNetworkRuntimeStatus, VmwClusterComputeResources, VmwEvents, and VmwAlarms caches:



Disk Usage Caches

Update the polling rate for the **Disk Usage** field to modify the default polling rate for the VmwVmDiskUsage cache:



Additional Configurations

This section describes the addtional optional VMWare Monitor configurations.

- "Enabling/Disabling Historical Data Collection"

Enabling/Disabling Historical Data Collection

You can specify the number of history rows to store in memory, the compaction rules, the duration before metrics are expired and deleted, and the different types of metrics that you want the Historian to store in the **Data Storage** tab in the RTView Configuration Application. This section contains the following:

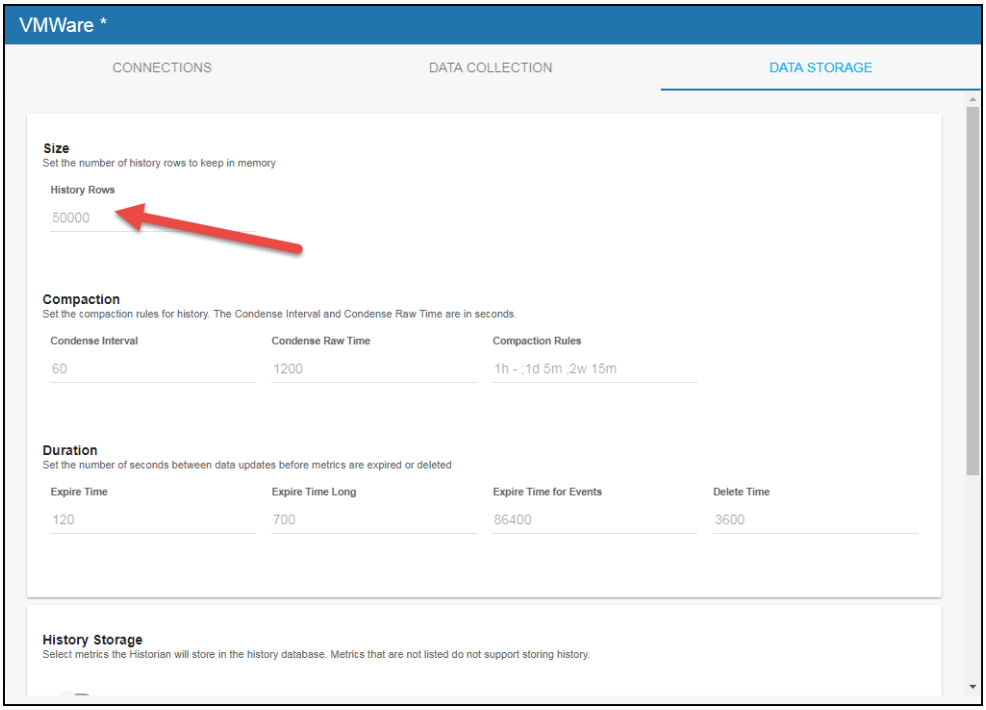
- "Defining the Storage of VMWare In Memory History"
- "Defining Compaction Rules for VMWare"
- "Defining Expiration and Deletion Duration for VMWare Metrics"
- "Enabling/Disabling Storage of VMWare Historical Data"
- "Defining a Prefix for All History Table Names for VMWare Metrics"

Defining the Storage of VMWare In Memory History

You can modify the maximum number of history rows to store in memory in the Data Storage tab. The **History Rows** property defines the maximum number of rows to store for the VmwVirtualMachines, VmwHostSystems, VmwVmDiskUsage, and VmwDatastoreRuntimeStatus caches. The default settings for **History Rows** is 50,000. To update the default settings:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **VMWare** > **DATA STORAGE** tab.

2. In the **Size** region, click the **History Rows** field and specify the desired number of rows.



Defining Compaction Rules for VMWare

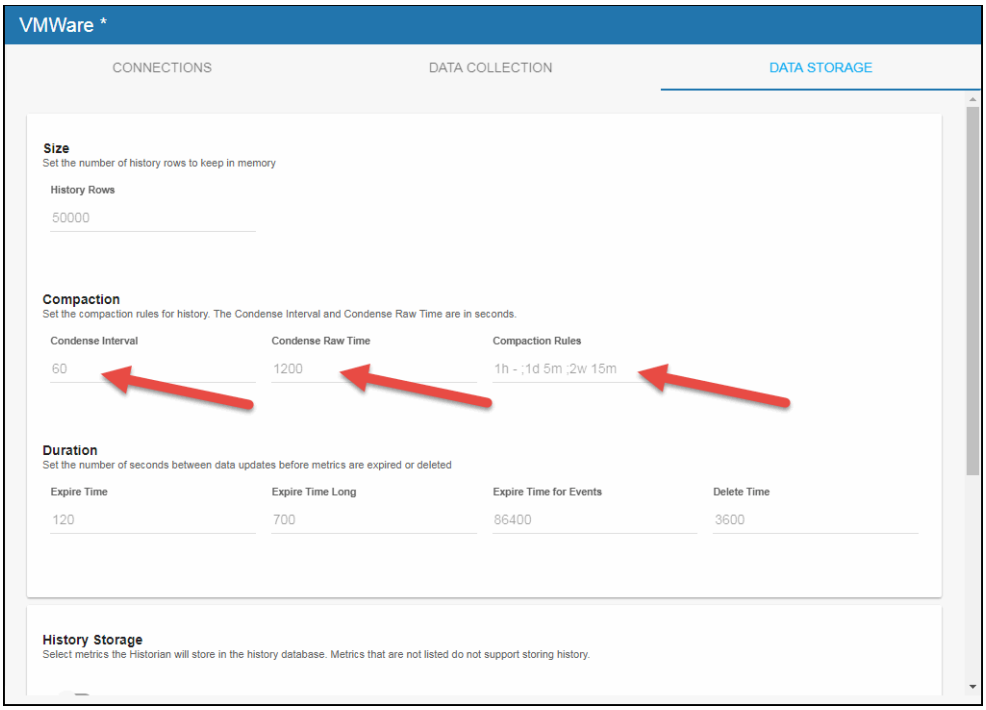
Data compaction, essentially, is taking large quantities of data and condensing it using a defined rule so that you store a reasonably sized sample of data instead of all of your data, thus preventing you from potentially overloading your database. The available fields are:

- **Condense Interval** -- The time interval at which the cache history is condensed for the following caches: VmwVirtualMachines, VmwHostSystems, VmwVmDiskUsage, and VmwDatastoreRuntimeStatus. The default is 60 seconds.
- **Condense Raw Time** -- The time span of raw data kept in the cache history table for the following caches: VmwVirtualMachines, VmwHostSystems, VmwVmDiskUsage, and VmwDatastoreRuntimeStatus. The default is 1200 seconds.
- **Compaction Rules** -- This field defines the rules used to condense your historical data in the database for the following caches: VmwVirtualMachines, VmwHostSystems, VmwVmDiskUsage, and VmwDatastoreRuntimeStatus. By default, the columns kept in history will be aggregated by averaging rows with the following rule 1h -;1d 5m;2w 15m, which means the data from 1 hour will not be aggregated (1h - rule), the data over a period of 1 day will be aggregated every 5 minutes (1d 5m rule), and the data over a period of 2 weeks old will be aggregated every 15 minutes (2w 15m rule).

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **VMWare** > **DATA STORAGE** tab.

2. In the **Compaction** region, click the **Condense Interval**, **Condense Raw Time**, and **Compaction Rules** fields and specify the desired settings.

Note: When you click in the **Compaction Rules** field, the **Copy default text to clipboard** link appears, which allows you copy the default text (that appears in the field) and paste it into the field. This allows you to easily edit the string rather than creating the string from scratch.

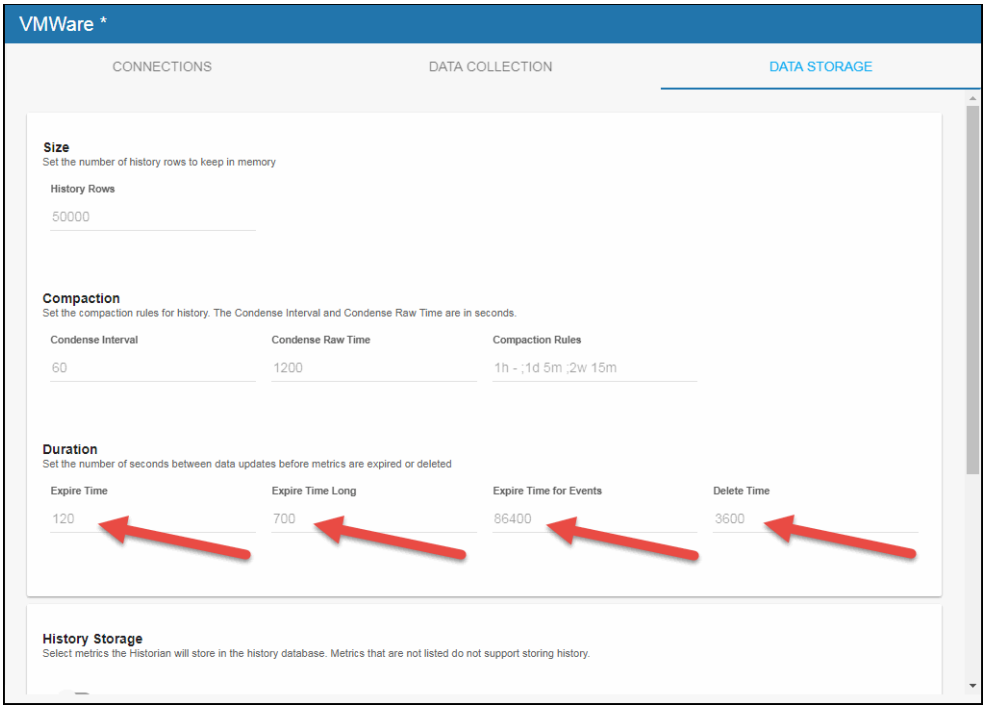


Defining Expiration and Deletion Duration for VMWare Metrics

The data for each metric is stored in a specific cache and, when the data is not updated in a certain period of time, that data will either be marked as expired or, if it has not been updated for an extended period of time, it will be deleted from the cache altogether. By default, metric data will be set to expired when the data in the cache has not been updated within 45 seconds. By default, expiration time is set to 120 seconds for caches impacted by the **Expire Time** field (VmwVirtualMachines, VmwHostSystems, VmwHostRuntimeStatus, VmwVmRuntimeStatus, VmwHostPhysicalNIC, and VmwHostVirtualNIC). The default expiration time is set to 700 seconds for caches impacted by the **Expire Time Long** field (VmwVmDiskUsage, VmwDatastoreRuntimeStatus, VmwDatastoreHosts, VmwDatastoreVMs, VmwHostSystemHealthInfo, VmwNetworkRuntimeStatus, VmwClusterComputeResources, and VmwAlarms). The default expiration time for the cache impacted by the **Expire Time for Events** field (VmwEvents) is 86,400 seconds. Also, by default, if the data has not been updated for the caches impacted by the **Expire Time** and **Expire Time Long** fields within 3600 seconds, it will be removed from the cache. The caches impacted by the **Delete Time** field are: VmwVirtualMachines, VmwHostSystems, VmwHostRuntimeStatus, VmwVmRuntimeStatus, VmwVmDiskUsage, VmwDatastoreRuntimeStatus, VmwDatastoreHosts, VmwDatastoreVMs, VmwHostSystemHealthInfo, VmwNetworkRuntimeStatus, VmwHostPhysicalNIC, VmwHostVirtualNIC, VmwEvents, and VmwClusterComputeResources. To modify these defaults:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **VMWare** > **DATA STORAGE** tab.

2. In the **Duration** region, click the **Expire Time**, **Expire Time Long**, **Expire Time for Events**, and **Delete Time** fields and specify the desired settings.

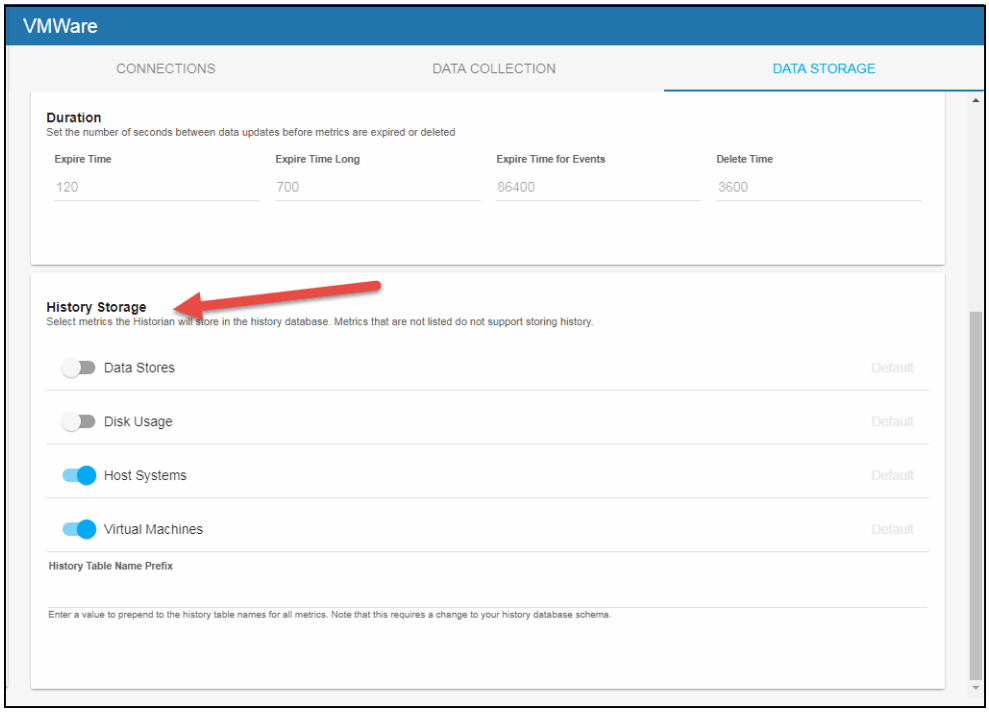


Enabling/Disabling Storage of VMWare Historical Data

The **History Storage** section allows you to select which metrics you want the Historian to store in the history database. By default, historical VMWare Data Stores and Data Usage data is not saved to the database. All other metrics are saved by default. To enable the collection of historical data, perform the following steps:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **VMWare** > **DATA STORAGE** tab.

2. In the **History Storage** region, select the toggles for the various metrics that you want to collect. Blue is enabled, gray is disabled.



Defining a Prefix for All History Table Names for VMWare Metrics

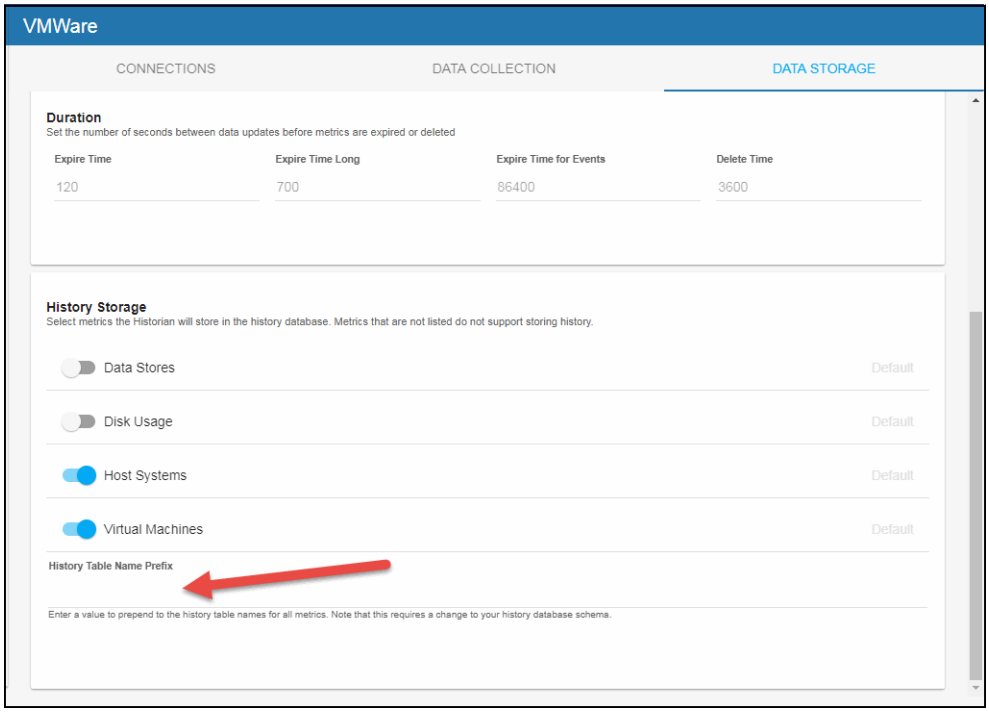
The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that RTView Enterprise Monitor can differentiate history data between data servers when you have multiple data servers with corresponding Historians using the same solution package(s) and database. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows:

- Locate the .sql template for your database under **RTVAPM_HOME**/**vmwmon**/**dbconfig** and make a copy of template.
- Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template.
- Use the copied .sql template to create the tables in your database.

To add the prefix:

1. Navigate to the RTView Configuration Application > **(Project Name)** > **Solution Package Configuration** > **VMWare** > **DATA STORAGE** tab.

2. Click on the **History Table Name Prefix** field and enter the desired prefix name.



Troubleshoot

This section includes:

Log Files

When a Monitor component encounters an error, it outputs an error message to the console and/or to the corresponding log file. If you encounter issues, look for errors in the following log files:

- **dataserver.log**
- **historian.log**

which are located in the **RTViewEnterpriseMonitor/emsample/servers/miscmon/logs** directory.

Logging is enabled by default. If you encounter issues with log files, verify the **logs** directory exists in the **RTViewEnterpriseMonitor/emsample/servers/miscmon** directory.

JAVA_HOME

If the terminal window closes after executing the **start_rtv** command, verify that JAVA_HOME is set correctly.

Permissions

If there are permissions-related errors in the response from the **start_rtv** command, check ownership of the directory structure.

Network/DNS

If any log file shows reference to an invalid URL, check your system's hosts file and confirm with your Network Administrator whether your access to the remote system is being blocked.

Verify Data Received from Data Server

If you encounter problems collecting data, restart the Data Server, start the Monitor, and go to the **Admin** tab and select **Architecture> RTView Cache Tables** in the navigation tree. Select **MISCMON-LOCAL** from the **Data Server** drop down list, and search for all caches that start with "Vmw." Make sure these caches are populated (the number of **Rows** and **Columns** in the table should be greater than 0). If not, there might be a problem with the connection to the Data Server.

Verify Port Assignments

If the display server or Historian fail to connect to the Data Server or they receive no data, verify the ports are assigned correctly in your properties files and restart the Data Server. If there is a port conflict between RTView EM services and other services on the host, then it may be necessary to modify the ports used by the RTView Services. After stopping all RTView services, use the "netstat" command to identify the currently used port on the host. SL Tech Support can provide any required assistance to reconfigure RTView services to use unused ports.

Common Problems when Connecting to a vSphere Server

The most common problems that occur when trying to connect to a vSphere server are:

- Incorrect IP address is being used.
- Invalid user name or password is specified.
- User name, as configured on the vSphere server, does not have READ permission for data collected by this solution package.

VMware vCenter Monitor Views/Displays

This section includes the following Views:

- "Clusters View": View all clusters that are configured on one server or on all servers, and view the high availability and the DRS settings for each of the clusters.
- "Hosts View": View performance and utilization data for hosts running on one or all clusters, view utilization data for a specific host running virtual machines, view a list of components contained on a selected host, and view physical and virtual network adapters located on a particular host.
- "Virtual Machines View": View current and historical data for your virtual machines.
- "Datastores View": The displays in this View provide a list of datastores on one or all servers, a list of all hosts mounted to a particular datastore, a list of all virtual machines hosted by a particular datastore, or data for a particular datastore.
- "Networks View": View a list of all networks, as well as data associated with the networks, that exist on one server or on all servers.
- "Events/Alarms View": View event data and alarm data for one server or for all servers.

Clusters View

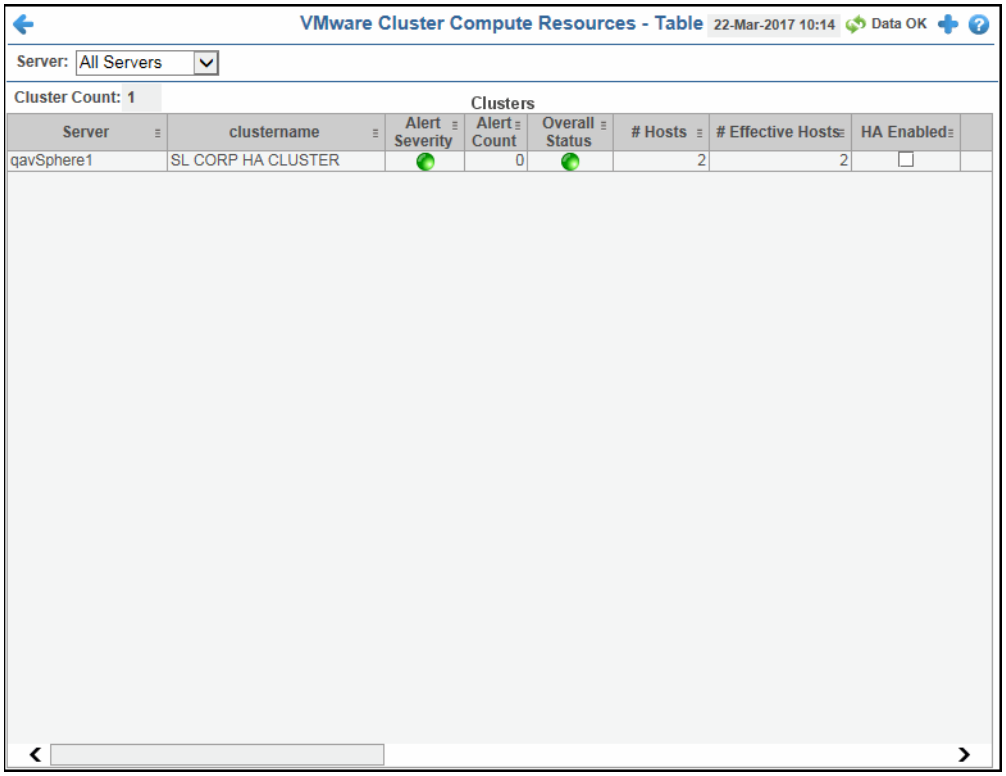
The display available in the View lists all clusters that are configured on a particular server or on all servers.

The display available in this view is:

- "All Clusters": View all clusters that are configured on one server or on all servers, and view the high availability and the DRS settings for each of the clusters.

All Clusters

View all clusters that are configured on one server or on all servers, and view the high availability and the DRS settings for each of the clusters.



Title Bar (possible features are):

- Open the previous and upper display.
- Open an instance of this display in a new window.
- Open the online help page for this display.
- Menu, Table open commonly accessed displays.
- 6,047 The number of items currently in the display.
- Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.
- 23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.
- Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields

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Filter By:
The display might include these filtering options:

Server	Select the server for which you want to view data.
Cluster Count	The total number of clusters in the selected server(s), which are listed in the **Clusters** table.

Clusters Table

Server	The name of the server.
clustername	The name of the cluster.
Alert Severity	The highest level alert on the cluster. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The number of alerts currently on the cluster.
Overall Status	The general health status of the cluster.* Red indicates that the host is experiencing a problem. Yellow indicates that the host might have a problem. Grey indicates that the status of the host's health is unknown. Green indicates that host's status is OK.
# Hosts	Lists the number of hosts on the cluster.*
# Effective Hosts	Lists the number of effective hosts.*
HA Enabled	When checked, this check box signifies that High Availability is enabled on the cluster.*
HA Admission Enabled	When checked, this check box signifies that High Availability strict admission is enabled.*
HA Admission Policy	Lists the High Availabilty admission policy for the cluster.*
HA Datastore Candidate	Displays the High Availability datastore candidate defined on the cluster.*
HA Host Monitoring	Lists whether or not High Availability host monitoring is enabled on the cluster.*
HA VM Monitoring	Lists whether or not High Availability virtual machine monitoring is enabled on the cluster.*
DRS Enabled	When checked, this check box signifies that DRS (Distributed Resource Scheduler) is enabled.*
DRS Enable Behavior Overrides	When checked, this check box signifies that DRS behavior overrides for individual virtual machines are enabled.*
DRS Default VM Behavior	Lists the cluster-wide default DRS behavior for virtual machines.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the data was last updated.

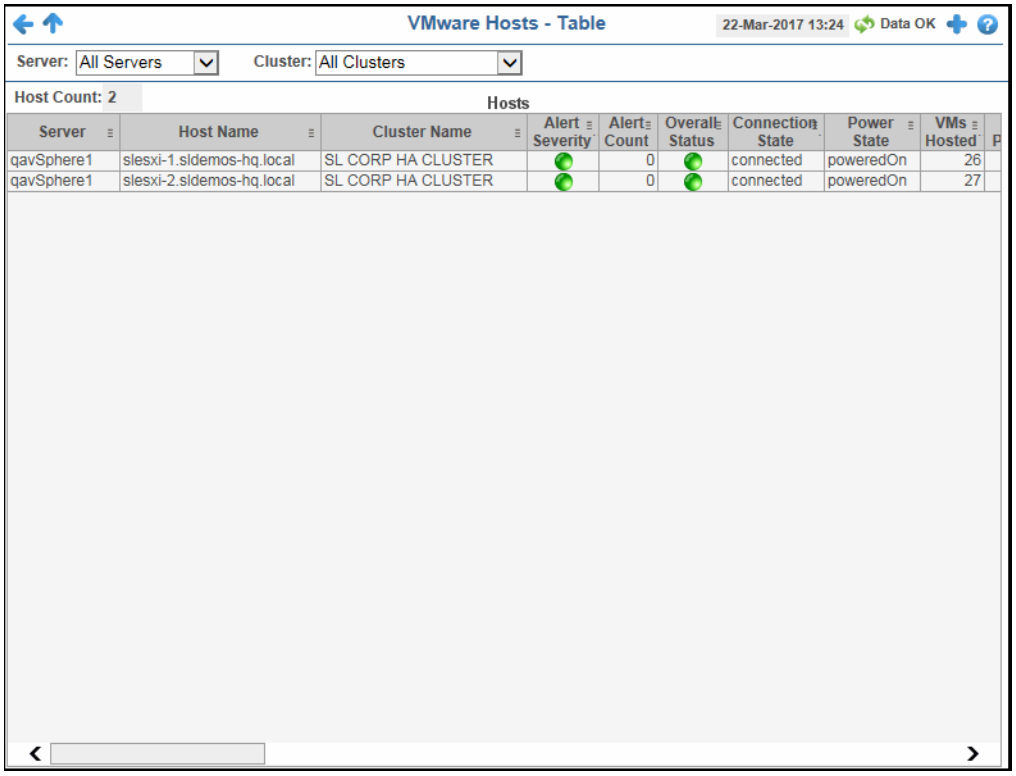
Hosts View

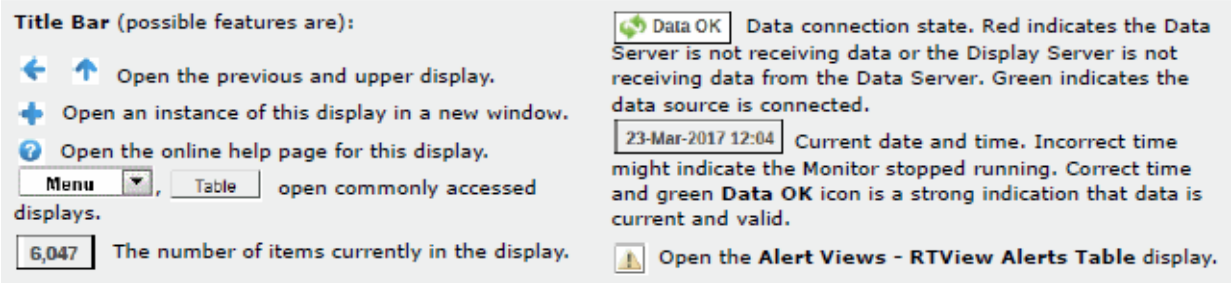
These displays present performance and utilization data for hosts running on one or all clusters, present utilization data for a specific host running virtual machines, list components contained on a selected host, and list physical and virtual network adapters for a particular host. Displays in this View are:

- "All Hosts": A tabular view of the utilization data for all hosts running on one or on all clusters.
- "Single Host Summary": Displays utilization data for a specific host running virtual machines.
- "Host Health": View the components contained on a selected host and the component's associated data.
- "Host NICs": View data for all physical and virtual network adapters (NICs) for a particular host.

All Hosts

View the utilization data for all hosts running on one cluster or on all clusters.





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Filter By:
The display might include these filtering options:

Server	Select the server for which you want to view data.
Cluster	Select the cluster for which you want to view data.
Host Count	The total number of hosts of the selected cluster(s), which are listed in the table

Hosts Table

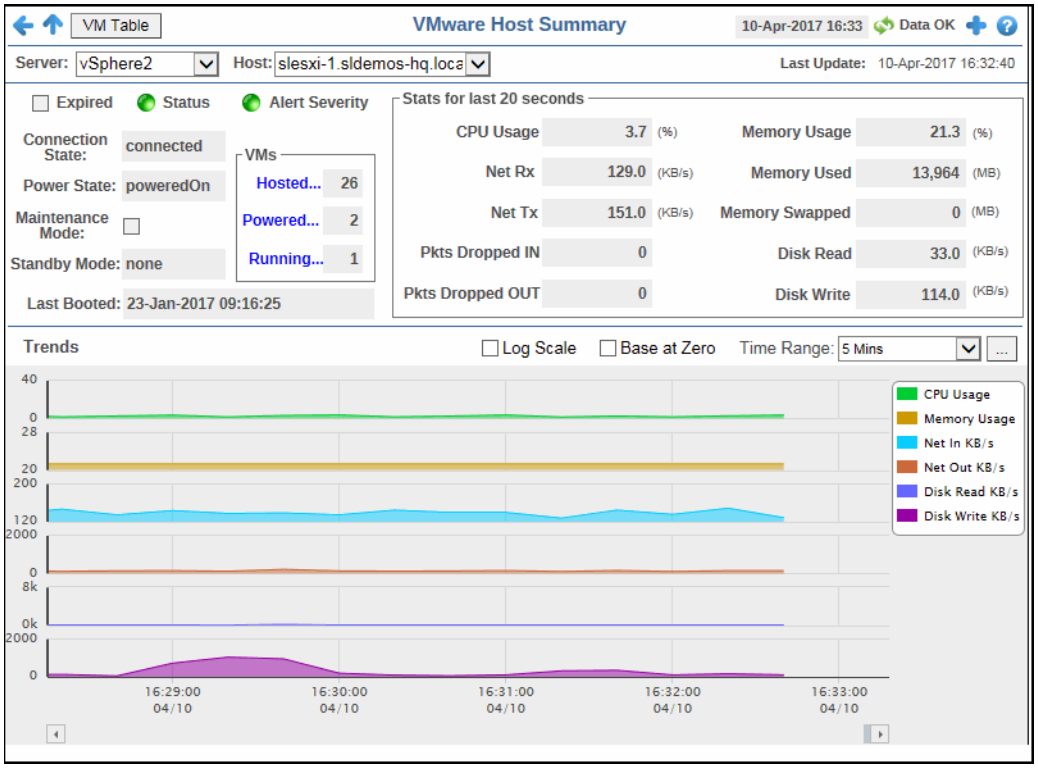
Server	The name of the server.
Host Name	The name of the host.
Cluster Name	The name of the cluster.
Alert Severity	The highest level alert on the host. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The number of alerts currently on the host.
Overall Status	The general health status of the host.* Red indicates that the host is experiencing a problem. Yellow indicates that the host might have a problem. Grey indicates that the status of the host's health is unknown. Green indicates that host's status is OK.
Connection State	Lists the status of the connection.*
Power State	Lists whether the host is powered on or powered off.*
VMs Hosted	The number of virtual machines that exist on the host.*
VMs Powered	The number of virtual machines powered on on the host.*
VMs Running	The number of virtual machines running on the host.*

Maintenance Mode	When checked, this check box signifies that the host is in maintenance mode.*
Standby Mode	The host's standby mode.*
CPU % Usage	The percentage of CPU used by the virtual machines.*
Num CPU Cores	The total number of cores on the CPU.*
Num CPU Threads	The total number of threads on the CPU.*
Memory % Usage	The percentage of the host's memory currently in use.*
Memory Used (MB)	The total memory used, in megabytes, on the host.*
Memory Total (MB)	The total amount of memory, in megabytes.*
Swap Used (MB)	The total amount of swap space used by the host, in megabytes.*
Disk Reads (KB/sec)	The amount of data being read from the disk per second, in kilobytes.*
Disk Writes (KB/sec)	The amount of data being written to the disk per second, in kilobytes.*
Net IN (KB/ sec)	The amount of network data being received per sec, in kilobytes.*
Net OUT (KB/ sec)	The amount of network data being transmitted per sec, in kilobytes.*
% IN Packet Loss (Drops)	The percentage of incoming packets that were dropped.*
% OUT Packet Loss (Drops)	The percentage of outgoing packets that were dropped.*
% IN Packet Loss (Errors)	The percentage of incoming packets that had errors.*
% OUT Packet Loss (Errors)	The percentage of outgoing packets that had errors.*
Packets IN	The number of incoming packets.*
Packets OUT	The number of outgoing packets.*
Packets IN Dropped	The number of incoming packets that were dropped.*
Packets OUT Dropped	The number of outgoing packets that were dropped.*
Packets IN Errors	The number of incoming packets that had errors.*
Packets OUT Errors	The number of outgoing packets that had errors.*
System Vendor	The name of the system vendor.
System Model	The name of the system model.

Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Last Booted	The date and time in which the host was last restarted.*
Timestamp	The date and time the data was last updated.

Single Host Summary

View the number of virtual machines running on a particular host, the most recent utilization data for the host, and the trend data for the host over a specified time range.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/

vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields.

Filter By:
The display might include these filtering options:

Server	The name of the server containing the host
Host	The host of the virtual machines for which you want to view data.
Last Update	The date and time that the data in the table was last updated.

Fields and Data:

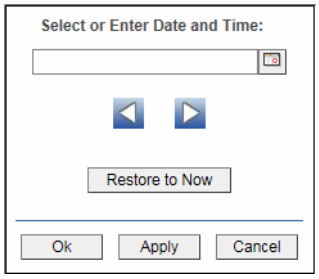
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Status	The general health status of the host.* Red indicates that the host is experiencing a problem. Yellow indicates that the host might have a problem. Grey indicates that the status of the host's health is unknown. Green indicates that host's status is OK.
Alert Severity	The alert severity for the selected host: Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Connection State	Displays the current state of the connection for the host (**connected**/**notConnected**).*
Power State	Lists whether the host is powered on or powered off.*
Maintenance Mode	Signifies whether or not the host is in maintenance mode.* **true**: host is in maintenance mode. **false**: host is not in maintenance mode.
Standby Mode	The host's standby mode.*
Last Booted	The date and time in which the host was last restarted.*
VMs	**Hosted...** The number of virtual machines on the host.*
	Powered... The number of virtual machines on the host that are powered on.*
	Running... The number of virtual machines currently up and running on the host.*
Stats for last 20 seconds	**CPU Usage** The percentage of CPU used in the last 20 seconds.*
	Net Rx The amount of network data received, in kilobytes per second, in the last 20 seconds.*
	Net Tx The amount of network data transmitted, in kilobytes per second, in the last 20 seconds.*

Pkts Dropped IN	The number of incoming packets that were dropped in the last 20 seconds.*
Pkts Dropped OUT	The number of outgoing packets that were dropped in the last 20 seconds.*
Memory Usage	The percentage of memory used in the last 20 seconds.*
Memory Used	The amount of memory used, in megabytes, in the last 20 seconds.
Memory Swapped	The amount of memory swapped, in megabytes, in the last 20 seconds.*
Disk Read	The amount of data read from the disk, in kilobytes per second, in the last 20 seconds.*
Disk Write	The amount of data written to the disk, in kilobytes per second, in the last 20 seconds.*

Trend Graphs
Traces the sum of process metrics for the host:

- **CPU Usage**: The percentage of CPU used.
- **Memory Usage**: The amount of memory used.
- **Net In KB/s**: The amount of network data received per second, in kilobytes per second.
- **Net Out KB/s**: The amount of network data transmitted per second, in kilobytes per second.
- **Disk Read KB/s**: The amount of data being read from the disk, in kilobytes per second.
- **Disk Write KB/s**: The amount of data being written to the disk, in kilobytes per second.

Log Scale	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.
Base at Zero	Select to use zero (**0**) as the Y axis minimum for all graph traces.
Time Range	Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



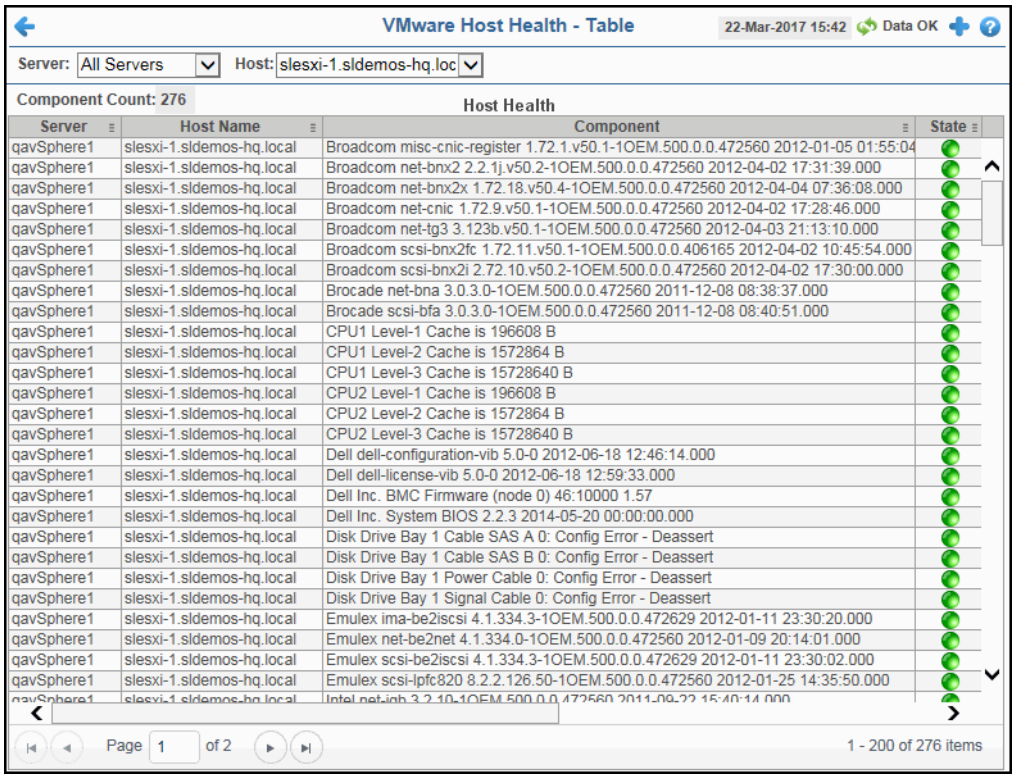
By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

Host Health

View detail data for all the components that are contained on a selected host. Clicking on a component in the table opens details about the associated host in the "Single Host Summary" display.



Title Bar (possible features are):

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Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields.

Filter By:
The display might include these filtering options:

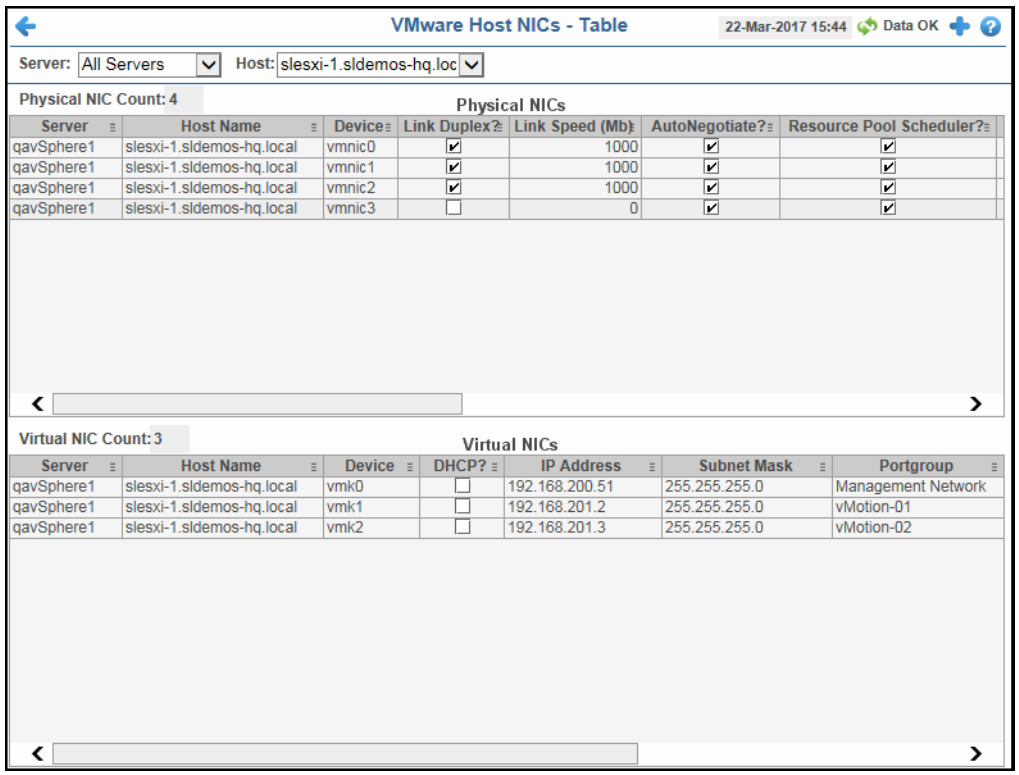
Server	The name of the server containing the host
Host	The host of the virtual machines for which you want to view data.
Component Count	The number of components found on the host, which are displayed in the table.

Host Health Table

Server	The name of the server.
Host Name	The name of the host.
Component	The name of the component.
State	The general health status of the host.* Red indicates that the host is experiencing a problem. Yellow indicates that the host might have a problem. Grey indicates that the status of the host's health is unknown. Green indicates that host's status is OK.
Sensor Type	Lists the component's sensor type.*
Current Reading	Lists the current reading of the element indicated by the sensor.*
Units	Indicates the base units in which the sensor reading is specified.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the data was last updated.

Host NICs

View data for all physical and virtual network adapters (NICs) for a particular host.



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Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields.

Filter By:
The display might include these filtering options:

Server The name of the server containing the host

Host	The host of the virtual machines for which you want to view data.
Physical NIC Count	The number of NICs found on the host, which are displayed in the table.

Physical NICs Table

Server	The name of the server.
Host Name	The name of the host.
Device	The name of the device.
Link Duplex?	When checked, indicates that the link is capable of full-duplex. When unchecked, indicates that the link is only capable of half-duplex.*
Link Speed (MB)	The bit rate on the link, in megabytes.*
AutoNegotiate?	When checked, indicates that the physical network adapter supports autonegotiate.*
Resource Pool Scheduler?	When checked, indicates that the physical network adapter allows resource pool-based scheduling for network I/O control.*
VM Direct Path Gen2?	When checked, indicates that the NIC supports VMDirectPath Gen 2.*
Wake On LAN?	When checked, indicates that the NIC is wake-on-LAN capable.*
Driver	The name of the driver.*
MAC	The media access control (MAC) address of the physical network adapter.*
DHCP?	When checked, indicates that the network adapter uses a DHCP server.*
IP Address	The IP address of the physical network adapter.*
Subnet Mask	The subnet mask for the physical network adapter.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the data was last updated.

Virtual NICs Table

Virtual NICs Count	The number of virtual NICs found on the host, which are displayed in the table.
Server	The name of the server.
Host Name	The name of the host.
Device	The name of the device.
DHCP?	When checked, indicates that the network adapter uses a DHCP server.*
IP Address	The IP address of the virtual network adapter.*
Subnet Mask	The subnet mask for the virtual network adapter.*
Port Group	The name of the port group in which the virtual network adapter resides.*
MAC	The media access control (MAC) address of the virtual network adapter.*
TSO Enabled?	When checked, indicates that TCP segment offloading (TSO) is enabled.*

Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the data was last updated.

Virtual Machines View

These displays present current and historical data for your virtual machines. Displays in this View are:

- "All VMs Heatmap": A color-coded heatmap view of utilization metrics.
- "All VMs Table": View data shown in the "All VMs Heatmap" display, as well as additional details, in a tabular format. Use this display to view all available data for each virtual machine by server and host.
- "All VMs Disk Table": View disk usage percentage, available disk space, and total capacity for one or all virtual machines on a specific server/host combination.
- "Single VM Summary": View current and historical utilization and performance metrics for a single virtual machine.

All VMs Heatmap

View the most critical CPU and memory usage, disk read and write utilization, and incoming and outgoing data metrics for your virtual machines. Use this display to quickly identify virtual machines with critical alerts.

Each rectangle in the heatmap represents a virtual machine. The rectangle color indicates the most critical alert state associated with the virtual machine, while the rectangle size represents the maximum memory used in the rectangle (a larger size is a larger value).

Choose a server and host from the drop-down menus to view their associated virtual machines. By default, this display shows **Alert Severity**, but you can choose a different metric to display from the **Color Metric** drop-down menu. Use the **Labels** check-box ☑ to include or exclude labels (virtual machine names for each rectangle) in the heatmap. You can hover your mouse over a rectangle to see additional metrics, and you can drill-down and investigate by clicking a rectangle in the heatmap to view details for the selected application in the "Single VM Summary" display.

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields

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Filter By:
The display might include these filtering options:

Server: Select the server for which you want to display data.

Host Select the host for which you want to display data.

VM Count: The total number of virtual machines in the heatmap display.

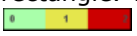
Fields and Data:

Labels Select this check box to include labels in the heatmap.

Log Scale Select this check box to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Show powered VMs Select this check box to include only those VMs that are powered on.

Color Metric Choose a metric to view in the display.

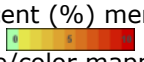
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

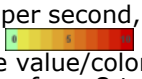
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

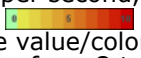
Overall Status The general health status of the virtual machine.*

- Red indicates that the host is experiencing a problem.
- Yellow indicates that the host might have a problem.
- Grey indicates that the status of the host's health is unknown.
- Green indicates that host's status is OK.

CPU Usage The percent (%) CPU used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Memory Usage The percent (%) memory used in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Disk Read KB/s The amount of data being read from the disk per second, in kilobytes, in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Disk Write KB/s The amount of data being written to the disk per second, in kilobytes, in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

Net IN KB/s The amount of network data received per second, in kilobytes, in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

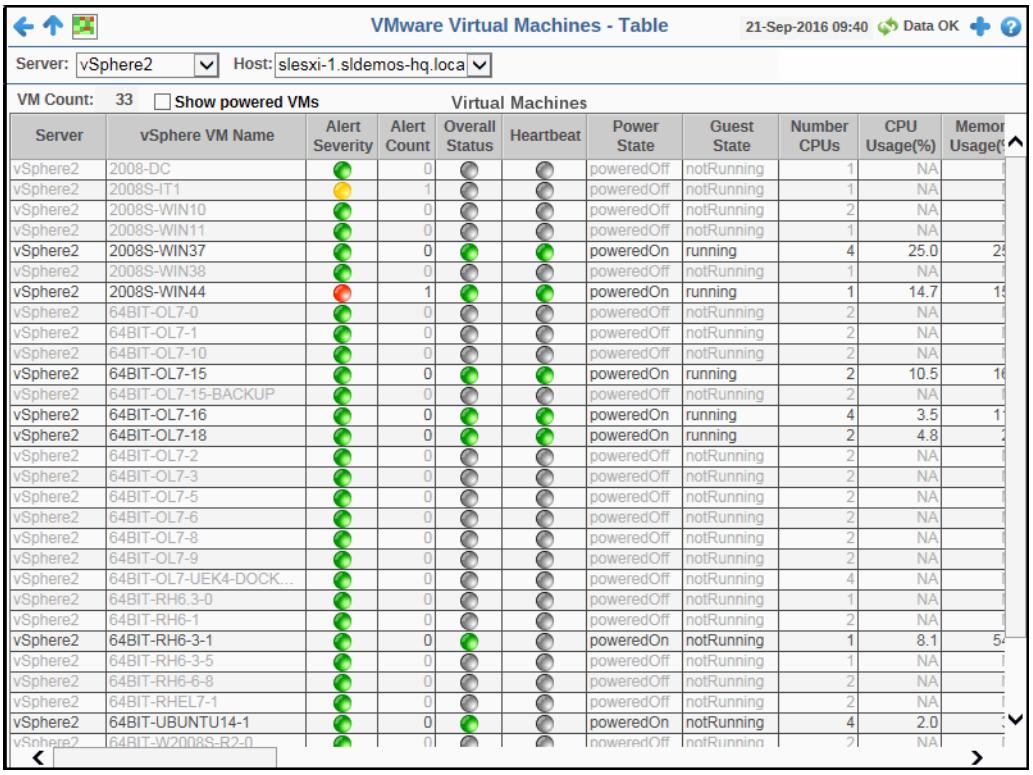
Net OUT KB/s	The amount of network data transmitted per second, in kilobytes, in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
% Net IN Pkts Dropped	The percentage of incoming packets that were dropped in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.
% Net OUT Pkts Dropped	The percentage of outgoing packets that were dropped in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average count.

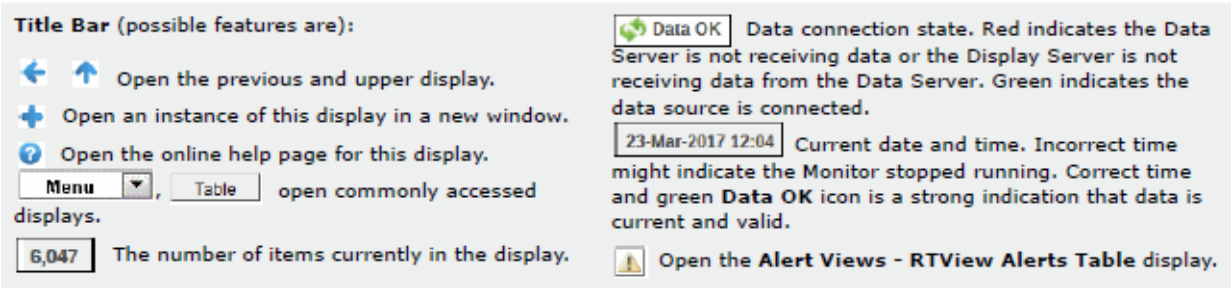
All VMs Table

View data shown in the "All VMs Heatmap" display, and additional details, in a tabular format. Use this display to view all available data for each virtual machine by server and host.

Each row in the table lists the details for a virtual machine. Choose a server and a host from the drop-down menus to view all virtual machines running on that server/host combination. You can click a column header to sort column data in numerical or alphabetical order.

Drill-down and investigate by clicking a row to view details for the selected virtual machine in the "Single VM Summary" display.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields

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Filter By:
The display might include these filtering options:

Server:	Select the server containing the virtual machines for which you want to view details.
Host	Select the host containing the virtual machines for which you want to view details.
VM Count:	The total number of virtual machines (rows) in the table.
Show powered VMs	Select to include only those VMs that are powered on.

Virtual Machines Table:
Column values describe the virtual machines running on the selected sever/host combination.

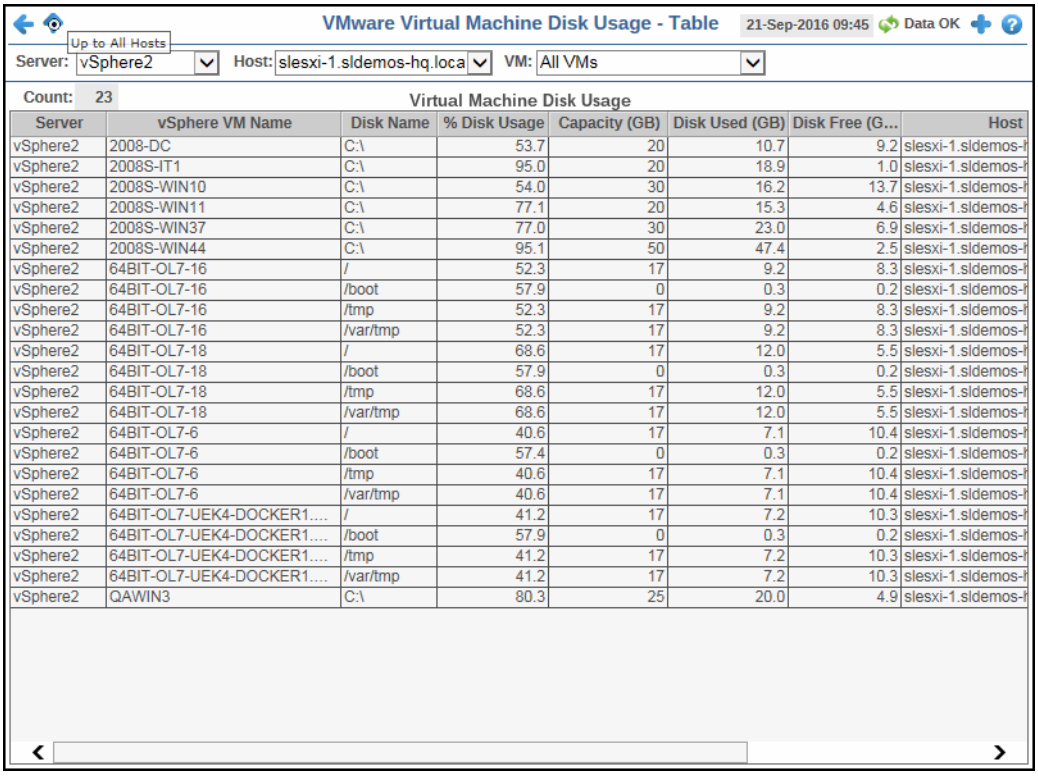
Server	The server on which the virtual machine resides.
vSphere VM Name	The name of the vSphere virtual machine.
Alert Severity	The severity of the alert for the virtual machine. Red indicates that one or more metrics exceeded their ALARM LEVEL threshold. Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold. Green indicates that no metrics have exceeded their alert thresholds.
Alert Count	The total number of active alerts for the virtual machine.
Overall Status	The general health status of the virtual machine.* Red indicates that the host is experiencing a problem. Yellow indicates that the host might have a problem. Grey indicates that the status of the host's health is unknown. Green indicates that host's status is OK.
Heartbeat	Displays whether or not the virtual machine has a heartbeat.* Red indicates that heartbeating has stopped. Grey indicates that heartbeat status is disabled. Green indicates that heartbeat status is OK.
Power State	Displays whether or not the virtual machine is powered on.*

Guest State	The state of the guest operating system.*
Number CPUs	The number of CPUs used by the virtual machine.*
CPU Usage %	The percentage (%) of CPUs used.*
Memory Usage (%)	The percentage (%) of memory used by the virtual machine.*
Memory Used (MB)	The amount of used memory, in megabytes.*
Memory Total (MB)	The total amount of memory, in megabytes.*
Disk Reads (KB/sec)	The amount of data being read from the disk per second, in kilobytes.*
Disk Writes (KB/sec)	The amount of data being written to the disk per second, in kilobytes.*
Net IN (KB/ sec)	The amount of network data received per second, in kilobytes.*
Net OUT (KB/ sec)	The amount of network data transmitted per second, in kilobytes.*
% Packet Loss IN	The percentage of incoming packets that have been lost.*
% Packet Loss OUT	The percentage of outgoing packets that have been lost.*
Packets IN	The total number of incoming packets.*
Packets OUT	The total number of outgoing packets.*
Packet IN Dropped	The number of incoming packets that were dropped.*
Packets OUT Dropped	The number of outgoing packets that were dropped.*
Host	The name of the host.*
Guest Host Name	The name of the guest host.*
Guest IP Address	The IP address of the guest.*
Guest Operating System	The operating system used by the guest.*
Connection State	The state of the current connection (**connected**/**notConnected**).*
Fault Tolerance	Displays whether or not fault tolerance is configured (**configured**/ **notConfigured**).*
VM Tools Run Status	Displays whether or not the guest's tools are running (**guestToolsRunning**/ **guestToolsNotRunning**).*
VM Tools Version Status	Displays the version status of the VMWare tools installed on the guest operating system.*

Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuration** > **VMWare** > **DATA STORAGE** tab.
Last Booted	The date and time the virtual machine was last rebooted.*
Timestamp	The date and time the row data was last updated.

All VMs Disk Table

View disk usage percentage, available disk space, and total capacity for one or all virtual machines on a specific server/host combination.



Server	vSphere VM Name	Disk Name	% Disk Usage	Capacity (GB)	Disk Used (GB)	Disk Free (G...	Host
vSphere2	2008-DC	C:\	53.7	20	10.7	9.2	slesxi-1.sldemos-h
vSphere2	2008S-IT1	C:\	95.0	20	18.9	1.0	slesxi-1.sldemos-h
vSphere2	2008S-WIN10	C:\	54.0	30	16.2	13.7	slesxi-1.sldemos-h
vSphere2	2008S-WIN11	C:\	77.1	20	15.3	4.6	slesxi-1.sldemos-h
vSphere2	2008S-WIN37	C:\	77.0	30	23.0	6.9	slesxi-1.sldemos-h
vSphere2	2008S-WIN44	C:\	95.1	50	47.4	2.5	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-16	/	52.3	17	9.2	8.3	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-16	/boot	57.9	0	0.3	0.2	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-16	/tmp	52.3	17	9.2	8.3	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-16	/var/tmp	52.3	17	9.2	8.3	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-18	/	68.6	17	12.0	5.5	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-18	/boot	57.9	0	0.3	0.2	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-18	/tmp	68.6	17	12.0	5.5	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-18	/var/tmp	68.6	17	12.0	5.5	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-6	/	40.6	17	7.1	10.4	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-6	/boot	57.4	0	0.3	0.2	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-6	/tmp	40.6	17	7.1	10.4	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-6	/var/tmp	40.6	17	7.1	10.4	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-UEK4-DOCKER1....	/	41.2	17	7.2	10.3	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-UEK4-DOCKER1....	/boot	57.9	0	0.3	0.2	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-UEK4-DOCKER1....	/tmp	41.2	17	7.2	10.3	slesxi-1.sldemos-h
vSphere2	64BIT-OL7-UEK4-DOCKER1....	/var/tmp	41.2	17	7.2	10.3	slesxi-1.sldemos-h
vSphere2	QAWIN3	C:\	80.3	25	20.0	4.9	slesxi-1.sldemos-h

Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

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vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these fields

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Filter By:
The display might include these filtering options:

Server	Select the server containing the virtual machine(s) for which you want to view data.
Host	Select the host containing the virtual machine(s) for which you want to view data.
VM	Select a virtual machine for which you want to view data, or select **All VMs** to view data for all virtual machines on the server/host combination.
Count	Displays the current number of virtual machines listed in the table.

Fields and Data:

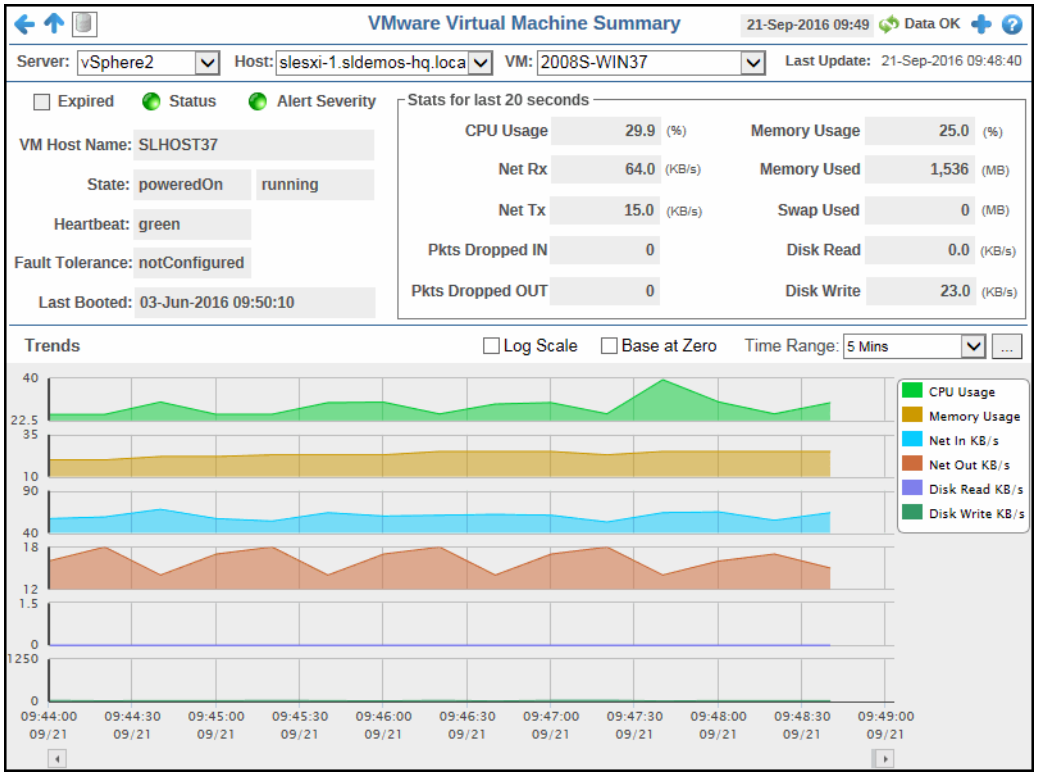
Server	The name of the server.*
vSphere VM Name	The name of the virtual machine.*
Disk Name	The name of the disk.*
% Disk Usage	Displays the current percentage of disk space that is being used.*
Capacity (GB)	Displays the total disk capacity, in gigabytes.*
Disk Used (GB)	Displays the total disk space currently being used.*
Disk Free (GB)	Displays the amount of available disk space, in gigabytes.*
Host	Displays the name of the host.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the row data was last updated.

Single VM Summary

View current and historical utilization and performance metrics for a single virtual machine. You can use this display to investigate performance issues for a particular virtual machine.

This display includes trend graphs tracing CPU and memory usage, amount of network data transmitted and received, number of incoming and outgoing packets that have been lost, and disk usage.

Choose a server, host, and virtual machine from the drop-down menus to view details for a specific virtual machine. You can use the **Time-Range** in the **Trends** region to "zoom-in" or "zoom-out" on a specific time frame in the trend graph.



Title Bar (possible features are):

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Filter By:
The display might include these filtering options:

Server	Select the server containing the virtual machine for which you want to view data.
Host	Select the host containing the virtual machine for which you want to view data.
VM	Select the virtual machine for which you want to view data.
Last Update	The date and time that the data in the display was last updated.

Fields and Data:

Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/**MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.	
Status	The general health status of the virtual machine.* Red indicates that the host is experiencing a problem. Yellow indicates that the host might have a problem. Grey indicates that the status of the host's health is unknown. Green indicates that host's status is OK.	
Alert Severity	The current severity of alerts for the virtual machine. One or more alerts exceeded their ALARM LEVEL threshold. One or more alerts exceeded their WARNING LEVEL threshold. No alert thresholds have been exceeded.	
VM Host Name	The name of the host.*	
State	Displays whether or not the host/virtual machine is powered on.*	
Heartbeat	Displays whether or not the virtual machine has a heartbeat.* Red indicates that heartbeating has stopped. Grey indicates that heartbeat status is disabled. Green indicates that heartbeat status is OK.	
Fault Tolerance	Displays whether or not fault tolerance is configured (**configured**/ **notConfigured**).*	
Last Booted	The date and time the virtual machine was last rebooted.*	
Status for last 20 seconds	**CPU Usage**	The percentage of CPU used in the last 20 seconds.*
	Net Rx	The amount of network data received, in kilobytes per second, in the last 20 seconds.*
	Net Tx	The amount of network data transmitted, in kilobytes per second, in the last 20 seconds.*
	Pkts Dropped IN	The number of incoming packets that were dropped in the last 20 seconds.*
	Pkts Dropped OUT	The number of outgoing packets that were dropped in the last 20 seconds.*
	Memory Usage	The percentage of memory used in the last 20 seconds.*
	Memory Used	The amount of memory used, in megabytes, in the last 20 seconds.*
	Swap Used	The amount of memory swapped, in megabytes, in the last 20 seconds.*
	Disk Read	The amount of data read from the disk, in kilobytes per second, in the last 20 seconds.*
	Disk Write	The amount of data written to the disk, in kilobytes per second, in the last 20 seconds.*

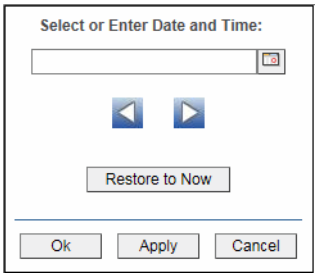
Trend Graphs
Traces the sum of process metrics for the virtual machine.

- **CPU Usage**: The percentage (%) CPU used.
- **Memory Usage**: The amount of memory used.
- **Net In KB/s**: The amount of network data received per second, in kilobytes.
- **Net Out KB/s**: The amount of network data transmitted per second, in kilobytes.
- **Disk Read KB/s**: The amount of data being read from the disk per second, in kilobytes.
- **Disk Write KB/s**: The amount of data being written to the disk per second, in kilobytes.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

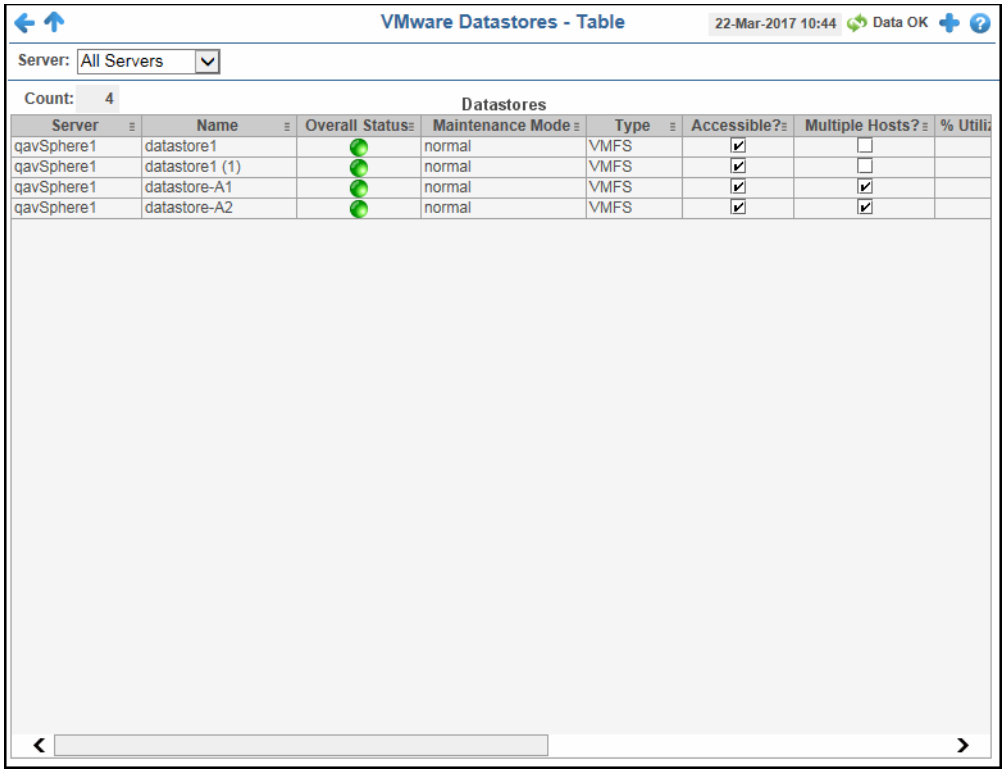
Datastores View

The displays in this view provide a list of datastores on one or all servers, a list of all hosts mounted to a particular datastore, a list of all virtual machines hosted by a particular datastore, or data for a particular datastore. This View contains the following displays:

- "All Datastores Table": View all datastores, as well as data associated with the datastores, that exist on one server or on all servers.
- "Hosts by Datastore Table": View all hosts that are mounted to a particular datastore.
- "VMs by Datastore Table": View all virtual machines that are hosted by a particular datastore.
- "Single Datastore Summary": View metrics and trend data for a single datastore, as well as those hosts and virtual machines that are using the datastore.

All Datastores Table

View all datastores, as well as data associated with the datastores, that exist on one server or on all servers.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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Filter By:
The display might include these filtering options:

Server	Select the server for which you want to view data.

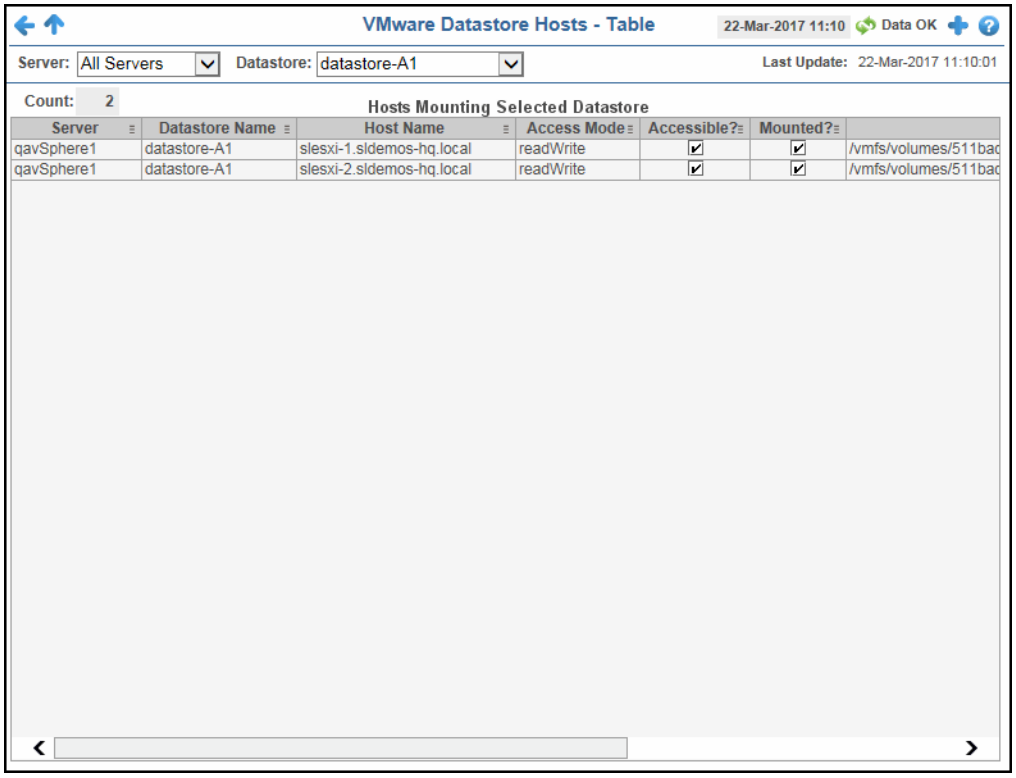
Count	The total number of datastores on the selected server(s), which are listed in the **Datastores** table.

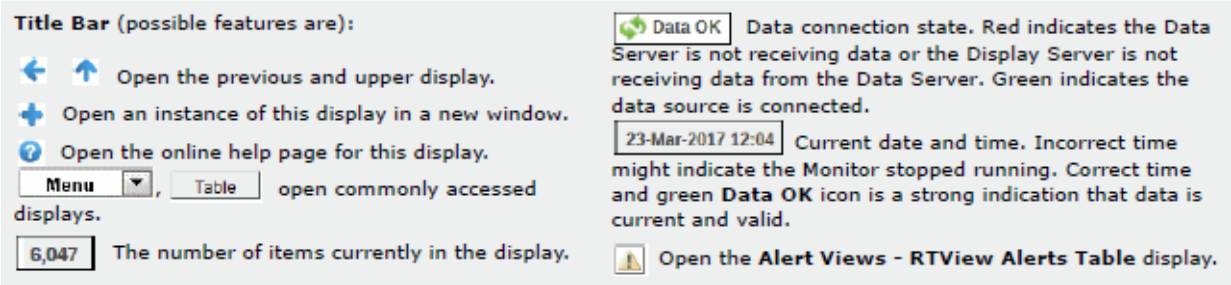
Datastores Table:

Server	The name of the server.
Name	The name of the datastore.
Overall Status	The general health status of the datastore.* Red indicates that the datastore is experiencing a problem. Yellow indicates that the datastore might have a problem. Grey indicates that the status of the datastore's health is unknown. Green indicates that datastore's status is OK.
Maintenance Mode	Lists current maintenance mode state of the datastore (normal, inMaintenance, enteringMaintenance).*
Type	Lists the type of file system volume, such as VMFS or NFS.*
Accessible?	The connectivity status of the datastore. When checked, indicates that the datastore is accessible.*
Multiple Hosts	When checked, indicates that more than one host has been configured with access to the datastore.*
% Utilization	Lists the current space utilization percentage for the datastore.*
Capacity (GB)	Displays the maximum capacity of the datastore, in gigabytes.*
Free Space (GB)	Displays the amount of available space in the datastore, in gigabytes.*
Space Uncommitted (GB)	Displays the amount of total additional storage space potentially used by all virtual machines on this datastore, in gigabytes.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the row data was last updated.

Hosts by Datastore Table

View all hosts that are mounted to a particular datastore.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these field.

Filter By:
The display might include these filtering options:

Server	Select the server containing the datastore for which you want to view data, or select **All Servers**.

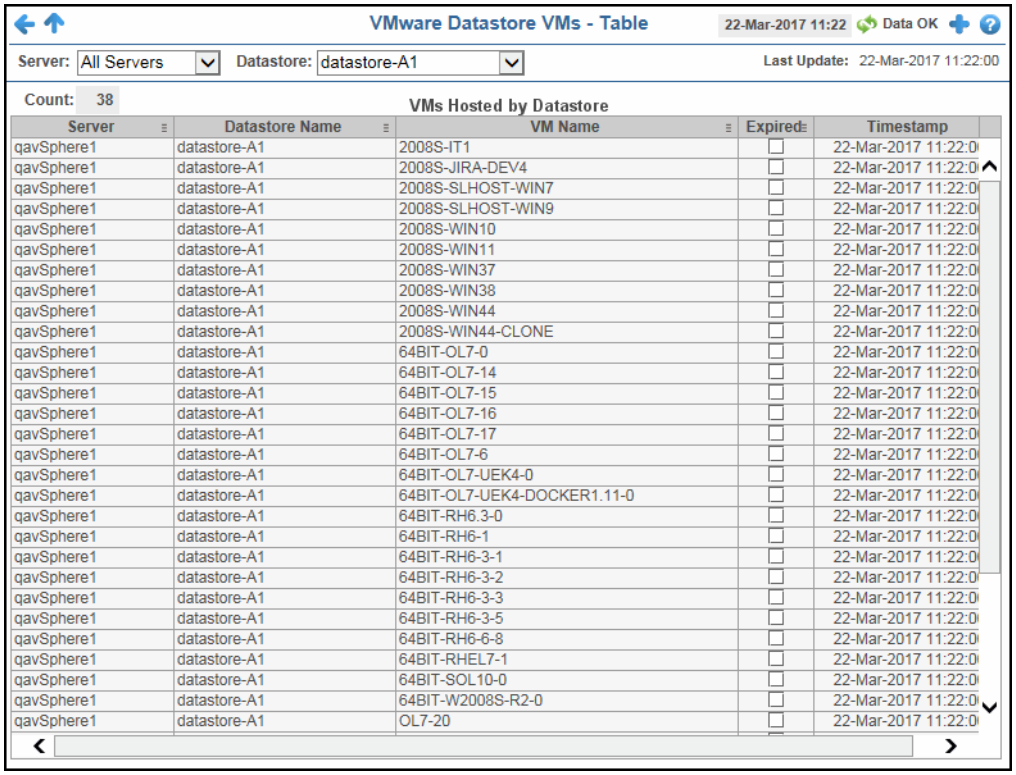
Datastore	Select the datastore for which you want to view data.
Count	The total number of hosts connecting to a datastore, which are listed in the table.

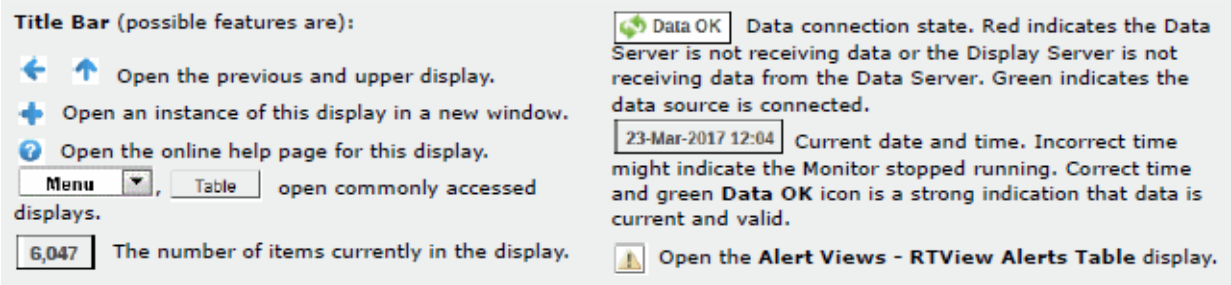
Hosts Mounting Selected Datastore Table:

Server	The name of the server.
Datastore Name	The name of the datastore.
Host Name	The name of the host.
Access Mode	Lists the host system's access mode to the datastore (readWrite or readOnly).*
Accessible?	The connectivity status of the datastore. When checked, indicates that the datastore is accessible.*
Mounted	When checked, indicates that the datastore is mounted on the host.*
Mount Path	Lists the file path where the file system volume is mounted.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the row data was last updated.

VMs by Datastore Table

View all virtual machines that are hosted by a particular datastore.





Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these field.

Filter By:
The display might include these filtering options:

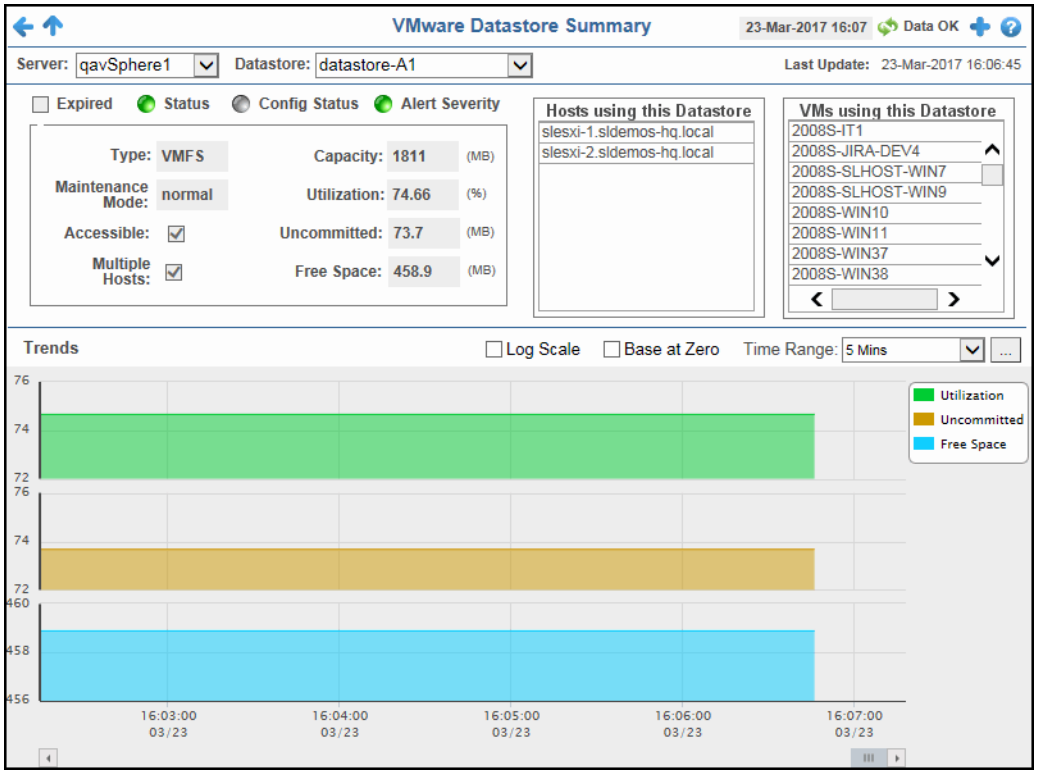
Server	Select the server containing the datastore for which you want to view data, or select **All Servers**.
Datastore	Select the datastore for which you want to view data.
Count	The total number of virtual machines connecting to a datastore, which are listed in the table.

VMs Hosted by Datastore Table:

Server	The name of the server.
Datastore Name	The name of the datastore.
VM Name	The name of the virtual machine hosted by the datastore.
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the row data was last updated.

Single Datastore Summary

View metrics and trend data for a single datastore, as well as those hosts and virtual machines that are using the datastore.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

6,047 The number of items currently in the display.

Data OK Data connection state. Red indicates the Data Server is not receiving data or the Display Server is not receiving data from the Data Server. Green indicates the data source is connected.

23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these field.

Filter By:
The display might include these filtering options:

Server Select the server containing the datastore for which you want to view data.

Datastore Select the datastore for which you want to view data.

Last Update The date and time the data in the display was last updated.

Fields and Data:

Expired When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.

Status The general health status of the datastore.*
- Red indicates that the datastore is experiencing a problem.
- Yellow indicates that the datastore might have a problem.
- Grey indicates that the status of the datastore's health is unknown.
- Green indicates that datastore's status is OK.

Config Status Indicates whether or not the system has detected a configuration issue involving the datastore.
- Red indicates that a problem has been detected involving the datastore.
- Yellow indicates a problem is about to occur or a transient condition has occurred.
- Grey indicates that configuration status of the datastore is not being monitored.
- Green indicates that no configuration issues have been detected.

Alert Severity The current severity of alerts for the datastore.
- One or more alerts exceeded their ALARM LEVEL threshold.
- One or more alerts exceeded their WARNING LEVEL threshold.
- No alert thresholds have been exceeded.

Type Lists the type of file system volume, such as VMFS or NFS.*

Maintenance Mode Lists current maintenance mode state of the datastore (normal, inMaintenance, enteringMaintenance).*

Accessible? The connectivity status of the datastore. When checked, indicates that the datastore is accessible.*

Multiple Hosts When checked, indicates that more than one host has been configured with access to the datastore.*

Capacity (MB) Displays the maximum capacity of the datastore, in megabytes.*

Utilization (%) Lists the current space utilization percentage for the datastore.*

Uncommitted (MB) Displays the amount of total additional storage space potentially used by all virtual machines on this datastore, in megabytes.*

Free Space (MB) Displays the amount of available space in the datastore, in megabytes.*

Hosts Using this Datastore -- Lists the hosts using the datastore.

VMs using this Datastore -- Lists the virtual machines using the datastore.

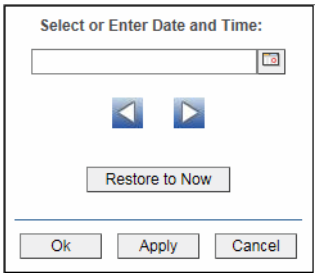
Trend Graphs
Traces the sum of process metrics for the virtual machine.

- **Utilization**: Traces the current space utilization percentage for the datastore.
- **Uncommitted**: Traces the amount of total additional storage space potentially used by all virtual machines on this datastore, in megabytes.
- **Free Space**: Traces the amount of available space in the datastore, in megabytes.

Log Scale Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log scale graphs. **Log Scale** makes data on both scales visible by applying logarithmic values rather than actual values to the data.

Base at Zero Select to use zero (**0**) as the Y axis minimum for all graph traces.

Time Range Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. To specify a time range, click Calendar .



By default, the time range end point is the current time. To change the time range end point, click Calendar and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

Use the navigation arrows to move forward or backward one time period. NOTE: The time period is determined by your selection from the **Time Range** drop-down menu.

Click **Restore to Now** to reset the time range end point to the current time.

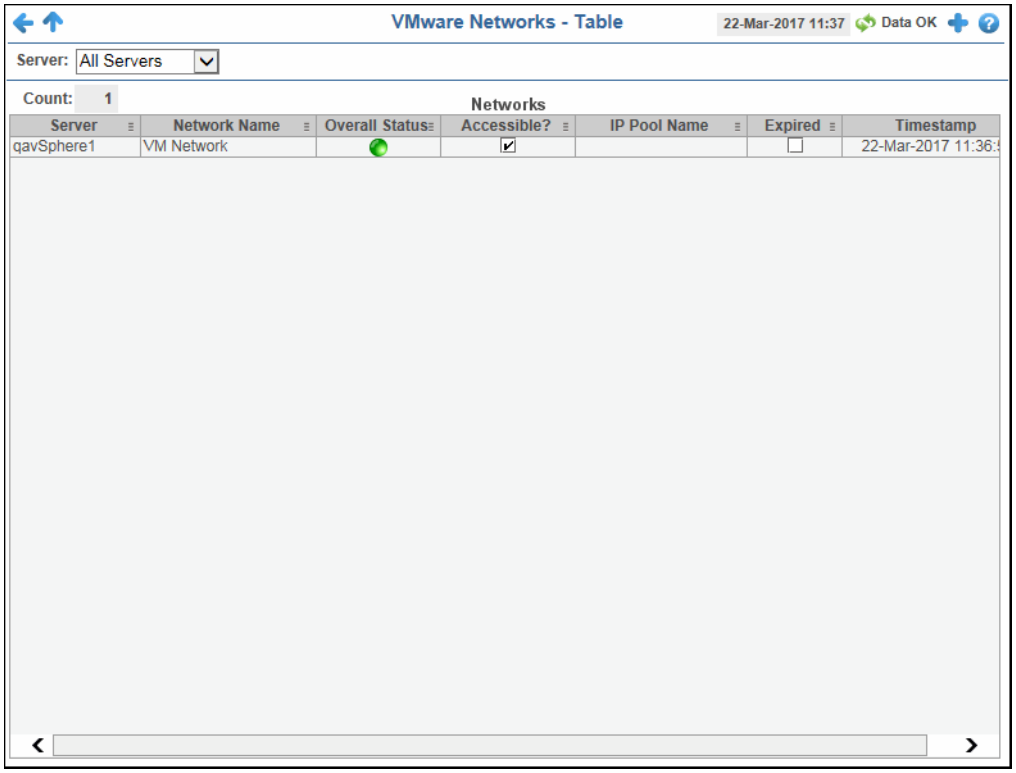
Networks View

The display in this View lists all networks, as well as data associated with the networks, that exist on one server or on all servers. The available display in this View is:

- "All Networks Table": View all networks, as well as data associated with the networks, that exist on one server or on all servers.

All Networks Table

View all networks, as well as data associated with the networks, that exist on one server or on all servers.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

Open the online help page for this display.

Menu, Table open commonly accessed displays.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these field.

Filter By:
The display might include these filtering options:

Server	Select the server for which you want to view data.
Count	The total number of networks on the selected server(s), which are listed in the table.

VM Networks Table:

Server	The name of the server.
Network Name	The name of the network.
Overall Status	The general health status of the network.* Red indicates that the network is experiencing a problem. Yellow indicates that the network might have a problem. Grey indicates that the status of the network's health is unknown. Green indicates that network's status is OK.
Accessible?	The connectivity status of the virtual machine. When checked, indicates that the virtual machine is accessible.*
IP Pool Name	Lists the name of the IP pool that is assigned to the network.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the row data was last updated.

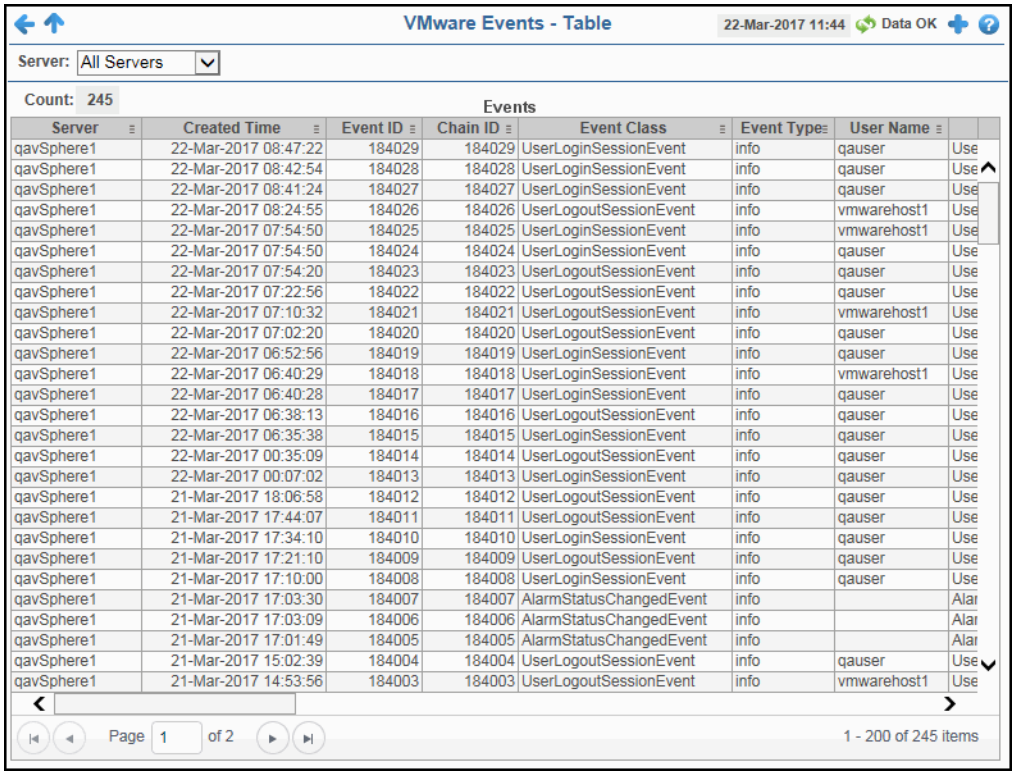
Events/Alarms View

The displays in this View allow you to view event data and alarm data for one server or for all servers. Available displays in this View are:

- "All Events Table": View all events, as well as data associated with the events, that exist on one server or on all servers.
- "All Alarms Table": View all alarms, as well as data associated with the alarms, that exist on one server or on all servers.

All Events Table

View all events, as well as data associated with the events, that exist on one server or on all servers.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

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23-Mar-2017 12:04 Current date and time. Incorrect time might indicate the Monitor stopped running. Correct time and green **Data OK** icon is a strong indication that data is current and valid.

Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these field.

Filter By:
The display might include these filtering options:

Server	Select the server for which you want to view data.

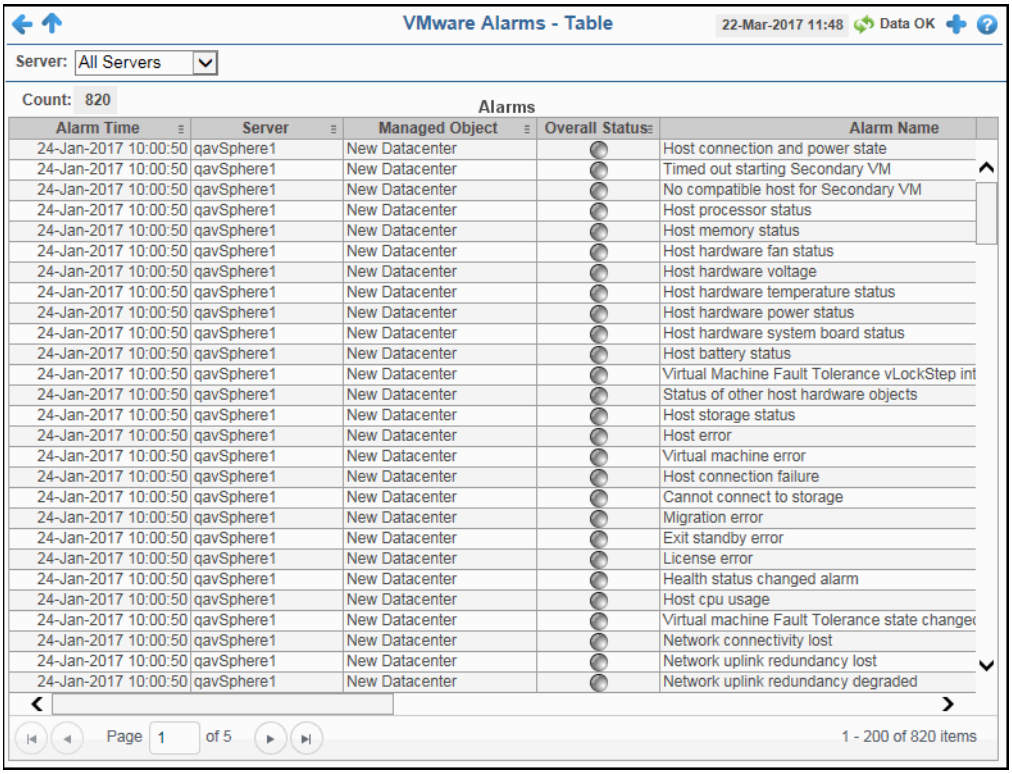
Count	The total number of events on the selected server(s), which are listed in the **Events** table.

Events Table:

Server	The name of the server.
Created Time	The date and time the event was created.*
Event ID	The ID of the event.*
Chain ID	The parent or group ID.*
Event Class	The type of event class.*
Event Type	The type of event.*
User Name	The user who caused the event.*
Message Text	A formatted text message describing the event.*
Host	The host object of the event.*
Virtual Machine	The event's virtual machine.*
Compute Resource	The event's compute resource.*
Datacenter	The event's datacenter.*
Datastore	The event's datastore.*
Distributed Virtual Switch	The event's DistributedVirtualSwitch.*
Network	The network associated with the event.*
Expired	When checked, performance data for that cluster has not been received in the time specified in the **Duration** region on the RTView Configuration > (Project Name/ **MISCMON-LOCAL**) > **Solution Package Configuratio**n > **VMWare** > **DATA STORAGE** tab.
Timestamp	The date and time the row data was last updated.

All Alarms Table

View all alarms, as well as data associated with the alarms, that exist on one server or on all servers.



Title Bar (possible features are):

Open the previous and upper display.

Open an instance of this display in a new window.

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Open the **Alert Views - RTView Alerts Table** display.

Note: Fields/columns with an asterisk (*) at the end of the field/column definition contain data that is provided by the VMWare vSphere. Refer to VMWare vsphere documentation (http://pubs.vmware.com/vsphere-65/index.jsp#com.vmware.wssdk.apiref.doc/mo-types-landing.html) for more information regarding these field.

Filter By:
The display might include these filtering options:

Server	Select the server for which you want to view data.

Count	The total number of datastores on the selected server(s), which are listed in the **Datastores** table.

Alarms Table:

AlarmTime	The date and time of the alarm.*
Server	The name of the server in which the alarm occurred.*
Managed Object	The name of the managed object.*
Overall Status	The general health status of the alarm.* Red indicates that the alarm is experiencing a problem. Yellow indicates that the alarm might have a problem. Grey indicates that the status of the alarm's health is unknown. Green indicates that alarm's status is OK.
Alarm Name	The name of the alarm.*
Acknowledged	Lists whether or not the alarm has been acknowledged.*
Acknowledged By	Lists the user who acknowledged the alarm.*
Acknowledged Time	Lists the date and time when the alarm was acknowledged.*
Description	The description of the alarm.*
Timestamp	The date and time the row data was last updated.

APPENDIX A RTView Configuration Application

This section describes settings to configure, manage and optimize your RTView Enterprise Monitor sytem using the RTView Configuration Application. This sections includes:

Open the RTView Configuration Application

1. In the RTView Enterprise Monitor, click (upper right) to open the RTView Configuration Application.

Note: The icon is only visible if you are logged in as admin. You also might need to disable your browser popup blocker. If you are not logged in as admin or cannot disable your popup blocker, open the RTView Configuration Application at the following URL:

http://localhost:8068/emsample_rtvadmin

2. Login to RTView Configuration Application.

   User: **rtvadmin**

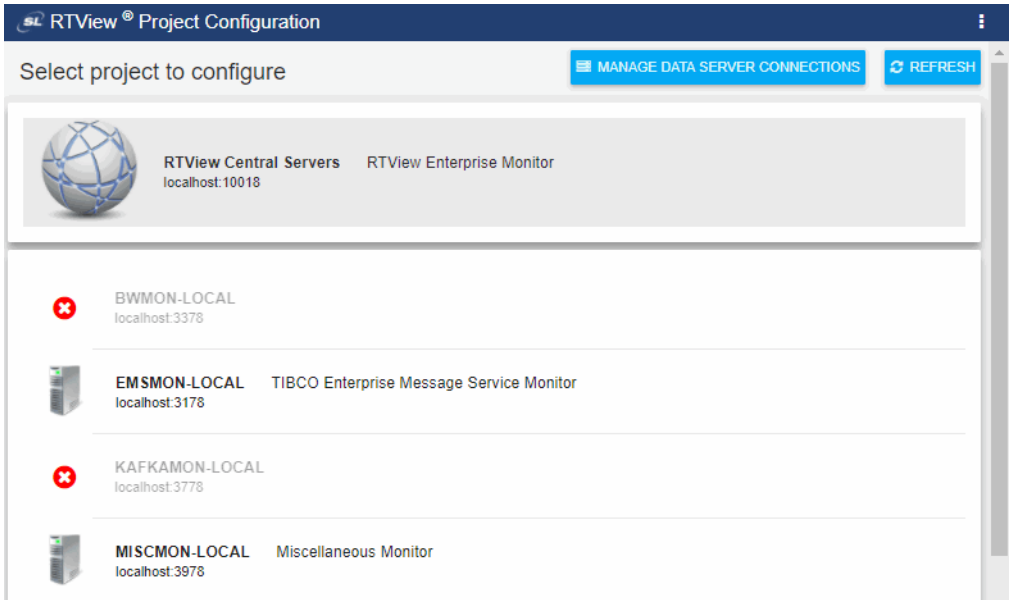
   Password: **rtvadmin**

The RTView Configuration Application **HOME** page opens.

3. Select the project you want to configure (scroll down if necessary).

HOME Page

The home page provides access to your Central Server Project and all of your Solution Package Projects. The Central Server Project allows you to configure the Enterprise Monitor Central Servers: Central Config Server, Central Alert Server, Central Alert Historian and Central Display Server. The Solution Package Projects allow you to configure all Solution Package Servers to which the Central Servers are connected.



Select a project in the list to configure that project. The **MANAGE DATA SERVER CONNECTIONS** button is a shortcut to the Data Servers tab in the Central Server Project. The **REFRESH** button refreshes the Solution Package Project list.

After you have saved changes to a project, you will see the following button on the line for that project (on the home page as well as at the top of the project):

RESTART DATASERVER - This button indicates that you have an unapplied change.

Click the button to automatically restart the data server, which will require you to wait for a couple of minutes for the data server to restart. Once the data server has restarted, you can select the project to verify your changes. Note that this process only restarts the data server. Changes for the display server or historian processes will not be applied until those processes are restarted using the **RTViewEnterpriseMonitor\bin\stop_central_servers** (.bat or .sh) and **start_central_servers** (.bat or.sh) scripts and cannot be restarted from the RTView Configuration Application.

Apply Changes

Execute the **stop_central_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_central_servers** script to restart the Central Servers Project.

Execute the **stop_data_servers** script, located in the **RTViewEnterpriseMonitor/bin** directory, then the **start_data_servers** script to restart the Solution Package Projects.

Settings for RTView Central Servers

This section describes pages and settings in the RTView Configuration Application for the RTView Central Servers. Pages are:

- "Central Server Configuration>General," next
- "Central Server Configuration>Data Servers>CONNECTIONS"
- "Central Server Configuration>Central Config Server"
- "Central Server Configuration>Central Alert Server"
- "Central Server Configuration>Central Alert Historian"
- "Central Server Configuration>Central Display Server"

The order of this section matches the RTView Configuration Application navigation tree.

TIP: If you don't see the navigation tree, click  (on the left side in the title bar).

Central Server Configuration>General

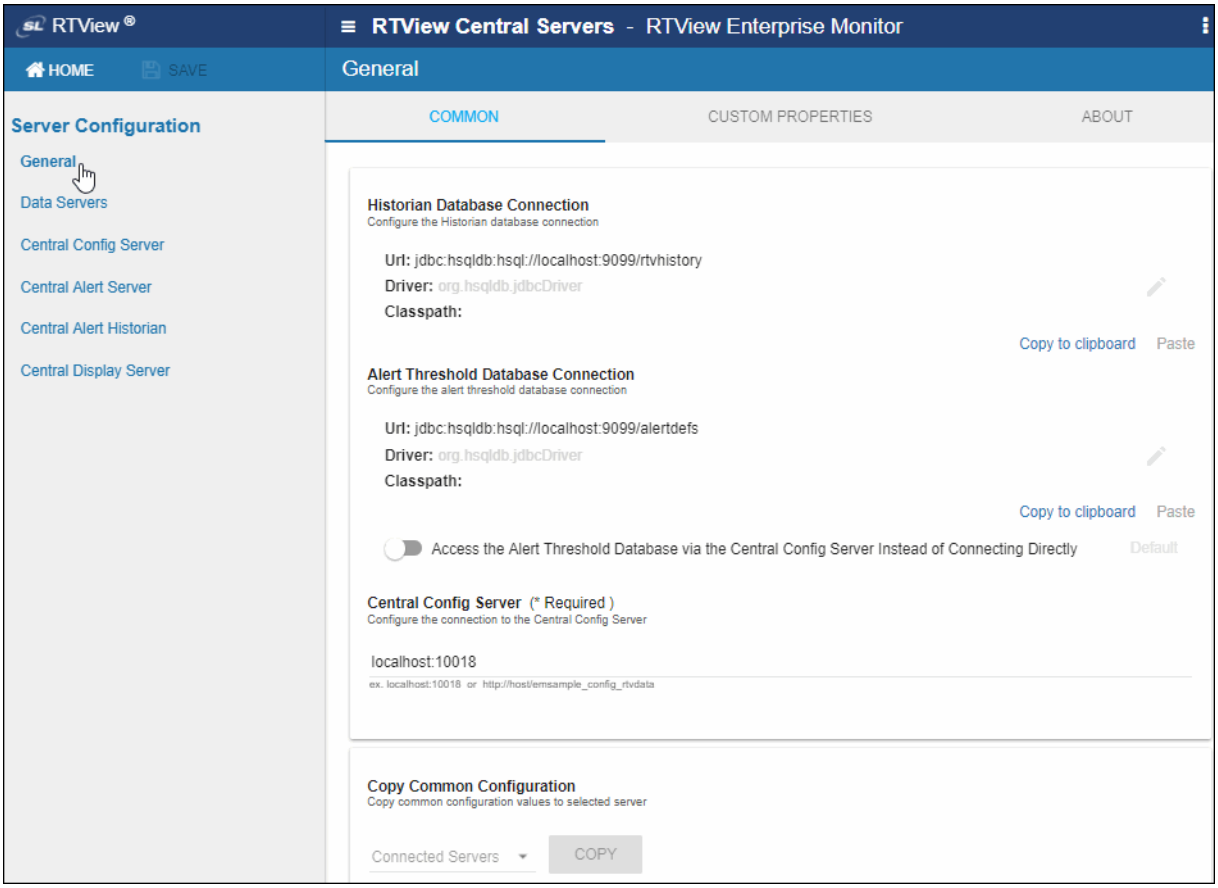
The **Central Server Configuration>General** page has three tabs, **COMMON**, **CUSTOM PROPERTIES** and **ABOUT**:

- "Central Configuration Server>General>COMMON Tab," next: Use this page to connect the Central Configuration Server, the Historian and Alert Threshold databases.
- "Central Server Configuration>General>CUSTOM PROPERTIES Tab": Use this page to enter custom properties.
- "Central Server Configuration>General>ABOUT Tab": Get details about your RTView Enterprise Monitor installation from this page.

Central Configuration Server>General>COMMON Tab

Location: In the RTView Configuration Application **HOME** page, choose **RTView Central Servers**. The **General>COMMON** tab is shown by default. Use this page to connect the Central Configuration Server, the Historian and Alert Threshold databases.

The settings you make in the **COMMON** tab are applied to all Central Servers as well as all Solution Package Project Servers. For example, when you change the historian database connection in this tab, the database connection for the Central Alert Historian also changes, as well as for the Solution Package for EMS Project Server (servers\emsmon historian).



The **COMMON** tab has the following fields:

Field Name	Description
Historian Database Connection	This is the connection to use for the Historian database. See the "Configure Databases of the Central Servers" instructions on how to populate this database with the correct table schemas. **URL** - Full URL to use when connecting to this database using the specified JDBC driver. **Driver** - Fully qualified name of the driver class to use when connection to this database via JDBC. **Classpath** - The classpath to the jar containing the driver class. **Username** - (optional) User name to enter into this database when making a connection. **Password** - (optional) Password to enter into this database when making a connection.

	Run Queries Concurrently - If true, each query on the connection is run on its own execution thread. ote: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads. TIP: Click Copy to clipboard on any RTView Central Servers database field to copy it to the clipboard. It can be pasted on any of the other RTView Central Servers database fields.
Alert Threshold Database Connection	This is the connection to use for the Alert Threshold database. This database contains all alert settings (warning and alarm thresholds, etc). See the "Configure Databases of the Central Servers" instructions on how to populate this database with the correct table schemas. **URL** - Full URL to use when connecting to this database using the specified JDBC driver. **Driver** - Fully qualified name of the driver class to use when connection to this database via JDBC. **Classpath** - The classpath to the jar containing the driver class. **Username** - (optional) User name to enter into this database when making a connection. **Password** - (optional) Password to enter into this database when making a connection. **Run Queries Concurrently** - If true, each query on the connection is run on its own execution thread. ote: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads. TIP: Click **Copy** to clipboard on any RTView Central Servers database field to copy it to the clipboard. It can be pasted on any of the other RTView Central Servers database fields.
Access the Alert Threshold Database via the Central Config Server Instead of Connecting Directly.	When enabled, the Solution Package Data Servers do not connect to the Alert Threshold Database. Instead all queries go through the Central Config Server.
Central Config Server Connection	Enter the url for connecting to the Central Config Server. This field is required. Example urls: direct socket connection - localhost:10018 servlet connection - http://localhost/emsample_config_rtvdata fault tolerant pair - %PRIMARYHOST%:10018,%BACKUPHOST%:10018
Copy Common Configuration to Remote Servers	Copy the settings on this tab to a remote server. This is needed when you have a Solution Package Project that is not located under the same emsample directory as the central servers.

Central Server Configuration>General>CUSTOM PROPERTIES Tab

Use the **CUSTOM PROPERTIES** page to enter custom properties for the Central Servers.

The **CUSTOM PROPERTIES** tab has the following fields:

Field Name	Description
Custom Properties	Click + to enter a custom property. To configure a custom property, you must know the name of the associated property, the syntax for the property value and the appropriate property filter. Property values are applied in the order specified with the last value taking precedence. **Name** - the property name **Value** - the property value **Filter** - the propery filter (optional) **Comment** - a comment describing this property (optional)

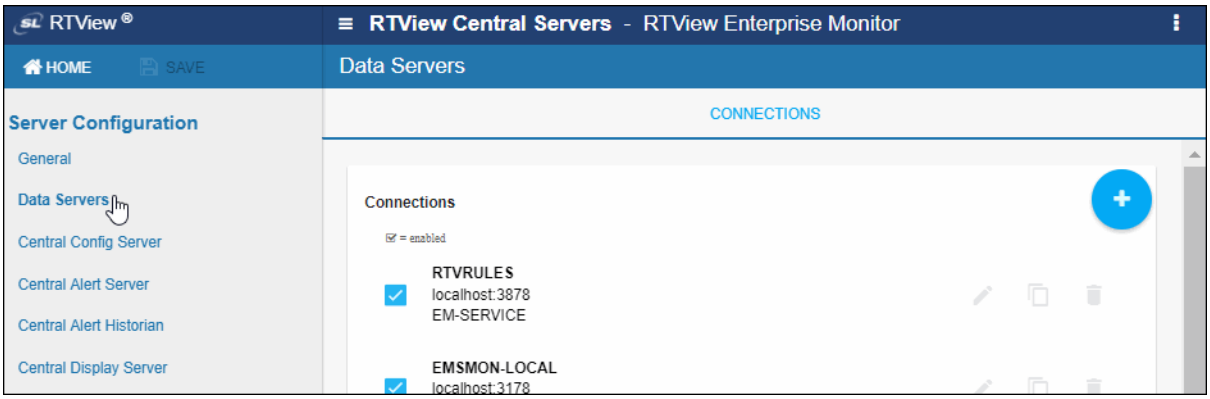
Central Server Configuration>General>ABOUT Tab

The **ABOUT** tab provides details about your RTView Enterprise Monitor installation:

Field Name	Description
Location	The location of the directory where the central servers are running.
Display Name	The display name.
Version	The version of the central servers.

Central Server Configuration>Data Servers>CONNECTIONS

In the RTView Configuration Application **HOME** page, choose **RTView Central Servers>Data Servers**. Use this page to configure, enable/disable, add/remove Data Servers and also to control which solution package displays are included in the **COMPONENTS** tab of the monitor. Changes are applied after you restart the Data Server.



The **Central Server Configuration**>**Data Servers**>**CONNECTIONS** page has the following fields:

Field Name	Description
Connections	Add and edit connections to Solution Package Data Servers. Click  to add a connection. **Name** - Connection name. This must be unique and will be the lable used on the top level of the Configuration Application for this connection. **URL** - The URL for this connection. This can be host:port or it can be a url to the rtvdata servlet. For example: **localhost:3178** **http://localhost:8068/emsmon_rtvdata** **Connection Enabled** - If true, the central servers will connect to this data server. **Select Solution Packages or CI Types hosted by this data server** - This controls which component types (CI Types) hosted by this data server will be included in the Service Model. Selecting Solution Packages includes all CI Types for that Solution Package. Optionally select **CI Types** to exclude when you do not want all CI Types to be included. **Monitor Data Server** (optional) - If true the RTView Manager will make a connection to the specified host:port so that you can monitor the process. This RTView Manager connection will use the Name. **Monitor Historian** (optional) - If true the RTView Manager will make a connection to the specified **host:port** so that you can monitor the process. This RTView Manager connection will use the Name followed by **-HISTORIAN**.
Select Mode for Including Solution Packages on the COMPONENTS Tab	Select a mode to control which Solution Package displays are included in the **COMPONENTS** tab: • **Include all solution packages in enabled connections**: This will include displays for all solution packages specified for all enabled Data Server Connections in the COMPONENTS tab of the monitor. • **Include all soluton packages in all connections**: This will include displays for all solution packages specified for all enabled and disabled Data Server Connections in the COMPONENTS tab of the monitor. • **Include all installed solution packages**: This will include displays for all installed solution packages in the COMPONENTS tab of the monitor. • **Choose solution packages to enable**: This allows you to select which solution packages will be included in the COMPONENTS tab of the monitor.

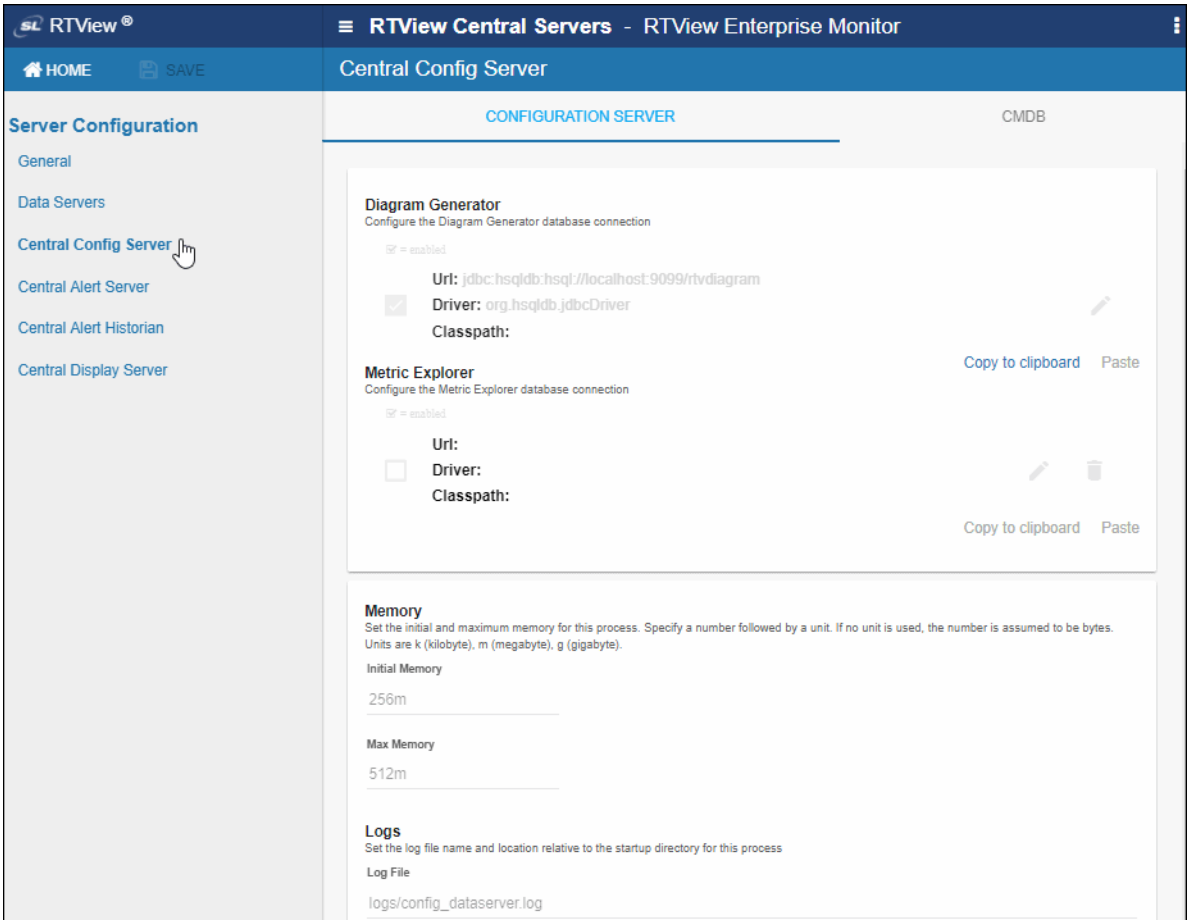
Central Server Configuration>Central Config Server

In the RTView Configuration Application **HOME** page, choose **RTView Central Servers>Central Config Serve**r. Use this page to configure the Central Config Server database connections, logging, memory and CMDB. This page has two tabs: the **CONFIGURATION SERVER** tab and the CMDB tab:

- "Central Config Server>CONFIGURATION SERVER Tab":
- "Central Config Server>CMDB Tab":

Central Config Server>CONFIGURATION SERVER Tab

Navigate to the RTView Configuration Application **HOME** page, choose **RTView Central Servers**, then choose **Central Config Server** from the navigation tree and the **CONFIGURATION SERVER** tab. Use this page to connect the Diagram Generator and Metric Explorer databases, and allocate memory.



The **CONFIGURATION SERVER tab** page has the following fields:

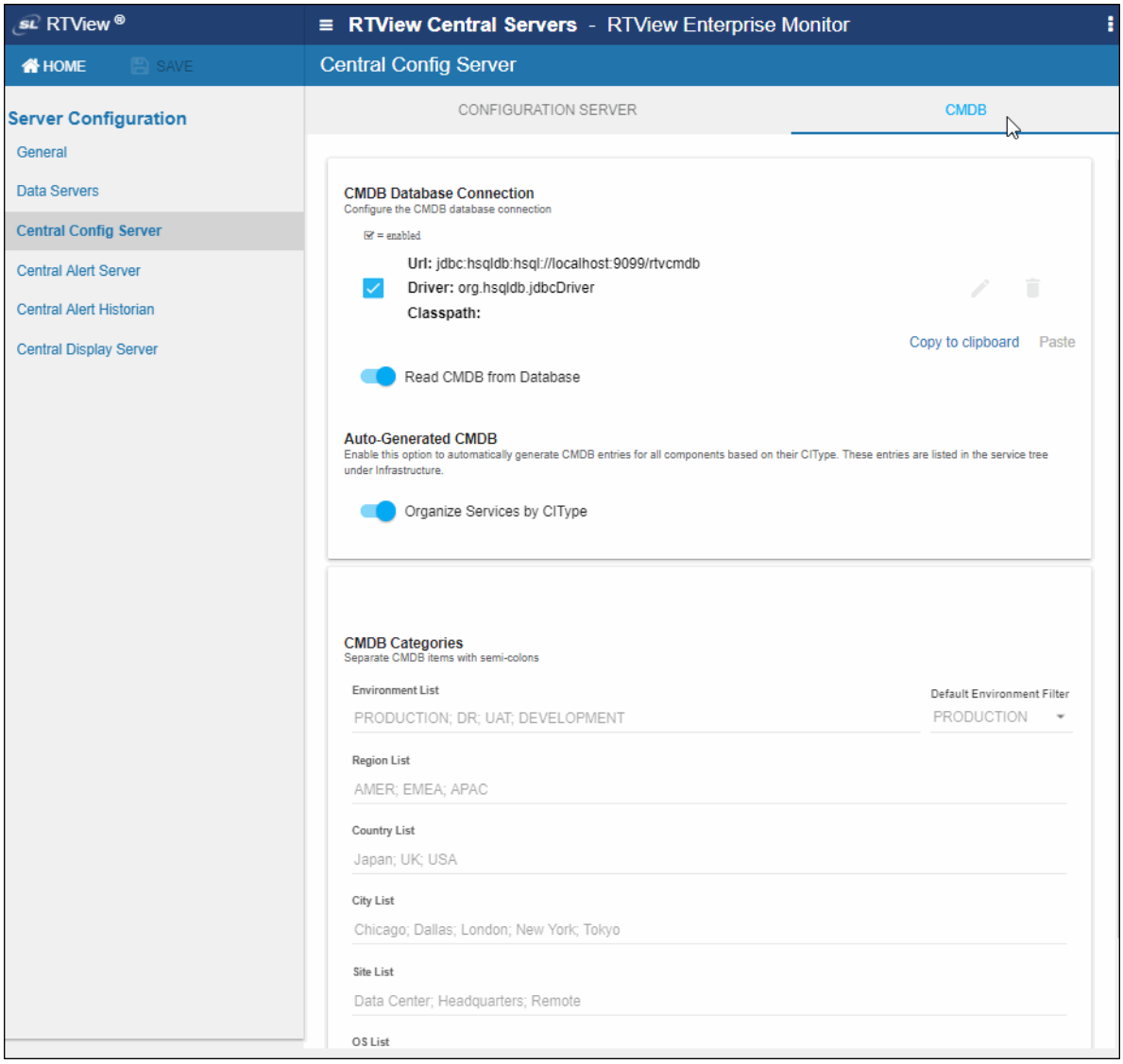
Field Name	Description
Diagram Generator	The connection to use for the Diagram Generator. This is only needed if you will be using the Diagram Generator. **URL** - Full URL to use when connecting to this database using the specified JDBC driver. **Driver** - Fully qualified name of the driver class to use when connection to this database via JDBC. **Classpath** - The classpath to the jar containing the driver class. **Username** - (optional) User name to enter into this database when making a connection. **Password** - (optional) Password to enter into this database when making a connection.

	Run Queries Concurrently - If true, each query on the connection is run on its own execution thread. ote: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads. **Enabled** - Set to false to disable this database connection. TIP: Click **Copy** to clipboard on any RTView Central Servers database field to copy it to the clipboard. It can be pasted on any of the other RTView Central Servers database fields.
Metric Explorer	The connection to use for the Metric Explorer. This is only needed if you will be using the Metric Explorer. **URL** - Full URL to use when connecting to this database using the specified JDBC driver. **Driver** - Fully qualified name of the driver class to use when connection to this database via JDBC. **Classpath** - The classpath to the jar containing the driver class. **Username** - (optional) User name to enter into this database when making a connection. **Password** - (optional) Password to enter into this database when making a connection. **Run Queries Concurrently** - If true, each query on the connection is run on its own execution thread. ote: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads. **Enabled** - Set to false to disable this database connection. TIP: Click Copy to clipboard on any RTView Central Servers database field to copy it to the clipboard. It can be pasted on any of the other RTView Central Servers database fields.
Initial Memory*	The initial amount of memory to allocate for this process.
Max Memory*	The maximum amount of memory to allocate for this process.
Log File	The log file name and location relative to the startup directory for this process.

***Note:** Units for memory are k (kilobyte), m (megabyte), g (gigabyte). If no unit is used, the number is assumed to be bytes. Use caution when you change the memory allocation. If the memory allocation is too small the server might crash during startup (with an out of memory exception). If too large the server might eventually exceed the available CPU/memory on your system and fail.

Central Config Server>CMDB Tab

In the RTView Configuration Application **HOME** page, choose **RTView Central Servers,** then choose **Central Config Server** from the navigation tree and the **CMDB** tab. Use this page to connect and setup the CMDB (the Service Model that maps CIs being monitored).



Field Name	Description
CMDB Database Connection	The database connection to use for the CMDB. This is required if you enable the Read CMDB from Database option. See "Configure Databases of the Central Servers" instructions on how to populate this database with the correct table schemas. **URL** - Full URL to use when connecting to this database using the specified JDBC driver. **Driver** - Fully qualified name of the driver class to use when connection to this database via JDBC. **Classpath** - The classpath to the jar containing the driver class.

	Username - (optional) User name to enter into this database when making a connection. **Password** - (optional) Password to enter into this database when making a connection. **Run Queries Concurrently** - If true, each query on the connection is run on its own execution thread. ote: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads. **Enabled** - Set to false to disable this database connection. TIP: Click Copy to clipboard on any RTView Central Servers database field to copy it to the clipboard. It can be pasted on any of the other RTView Central Servers database fields.
Read CMDB from Database	If **true**, read CMDB entries from the database defined in CMDB Database Connection
Organize Services by CIType	If **true**, enables automatic generation of CMDB entries for all components based on their CIType. When enabled, this option organizes CIs in the Service Tree based on their CI Type.
Environment List	A semi-colon delimited list of Environments to use for your CMDB entries. This populates the Environment filter list and also the list of available Environments in the CMDB Administration display.
Default Environment Filter	The initially selected value in the Environment filter field on the **SERVICE TREE** and **SERVICE VIEWS** tabs in the monitor.
Region List	A semi-colon delimited list of Regions to use for your CMDB entries. This populates the list of available Regions in the CMDB Administration display.
Country List	A semi-colon delimited list of Countries to use for your CMDB entries. This populates the list of available Countries in the CMDB Administration display.
City List	A semi-colon delimited list of Cities to use for your CMDB entries. This populates the list of available Cities in the CMDB Administration display.
Site List	A semi-colon delimited list of Site to use for your CMDB entries. This populates the list of available Site in the CMDB Administration display.
OS List	A semi-colon delimited list of Operating Systems to use for your CMDB entries. This populates the list of available Operating Systems in the CMDB Administration display.

Central Server Configuration>Central Alert Server

In the RTView Configuration Application **HOME** page, choose **RTView Central Servers** and then choose **Central Alert Server** from the navigation tree.

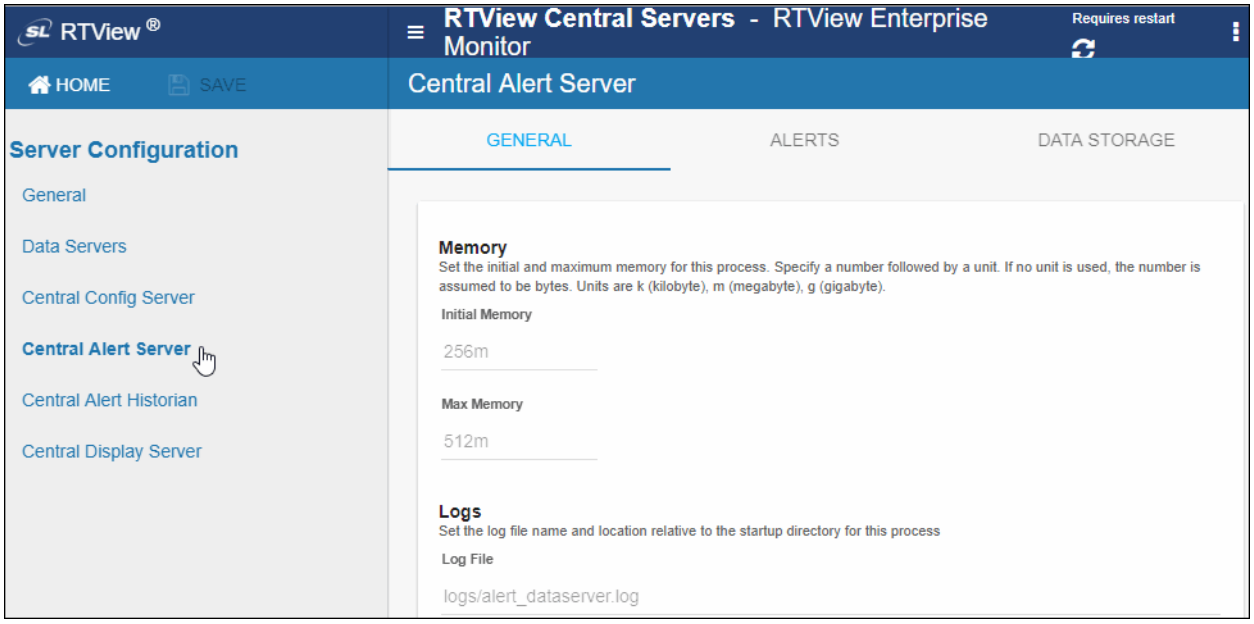
The **Central Alert Server** page has three tabs: the **GENERAL** tab, the **ALERTS** tab and the **DATA STORAGE** tab:

- "Central Alert Server>GENERAL Tab," next: Use this page to specify memory allocations and log files for the Central Alert Server.
- "Central Alert Server>ALERTS Tab": Use this page to configure alert notifications and persistence.
- "Central Alert Server>DATA STORAGE Tab": Use this page to configure alert history storage.

Central Alert Server>GENERAL Tab

This section describes how to allocate memory and log files for the Central Alert Server.

If you are resuming setup for a saved project: Navigate to the RTView Configuration Application **HOME** page and choose **RTView Central Servers**. The **GENERAL** tab is shown by default.



The **Central Alert Server>GENERAL tab** has the following fields:

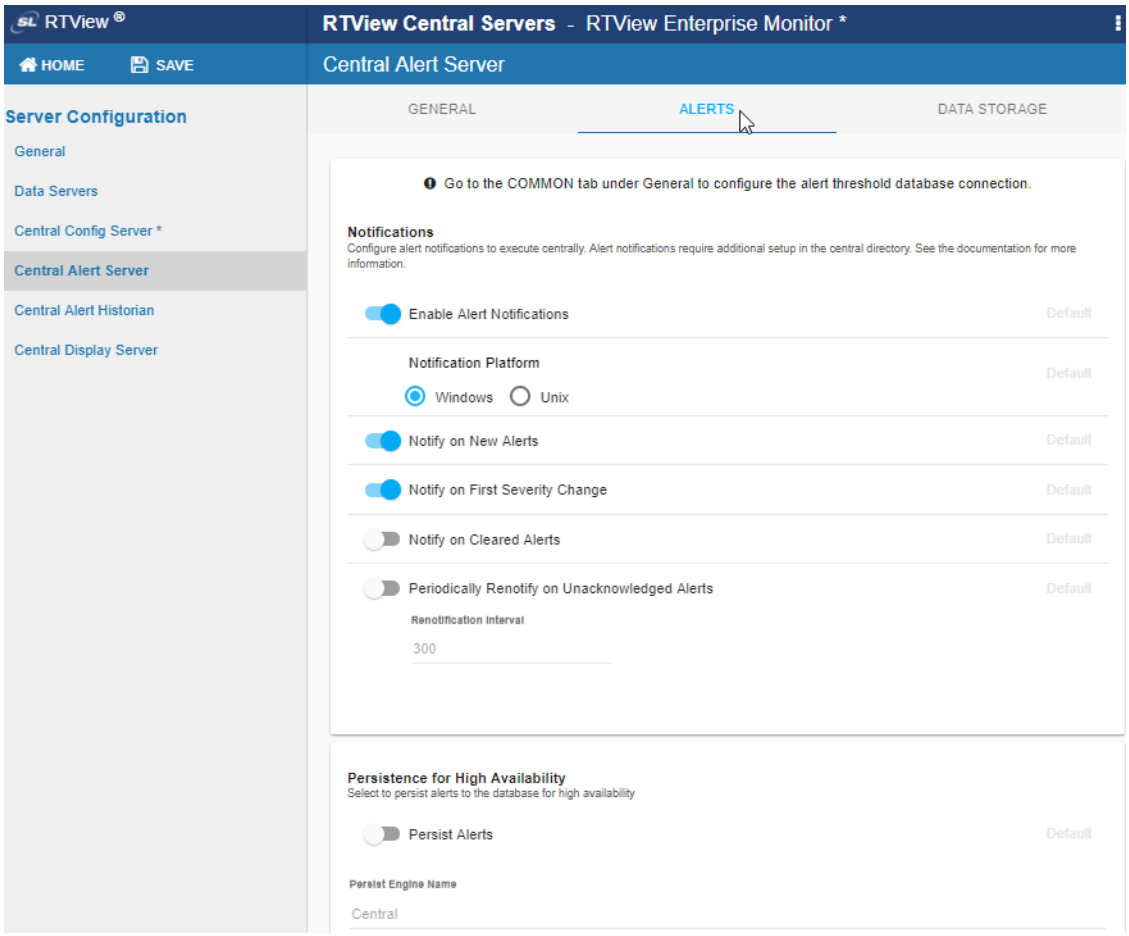
Field Name	Description
Initial Memory*	The initial amount of memory to allocate for this process.
Max Memory*	The maximum amount of memory to allocate for this process.
Log File	The log file name and location relative to the startup directory for this process.

***Note:** Units for memory are k (kilobyte), m (megabyte), g (gigabyte). If no unit is used, the number is assumed to be bytes. Note: Use caution when you change the memory allocation. If the memory allocation is too small the server might crash during startup (with an out of memory exception). If too large the server might eventually exceed the available CPU/ memory on your system and fail.

Central Alert Server>ALERTS Tab

This section describes how to setup alert notifications and persistence for high availability.

If you are resuming setup for a saved project: Navigate to the RTView Configuration Application **HOME** page and choose **Central Alert Server** and the **ALERTS** tab.



The **Central Alert Server>ALERTS tab** has the following fields:

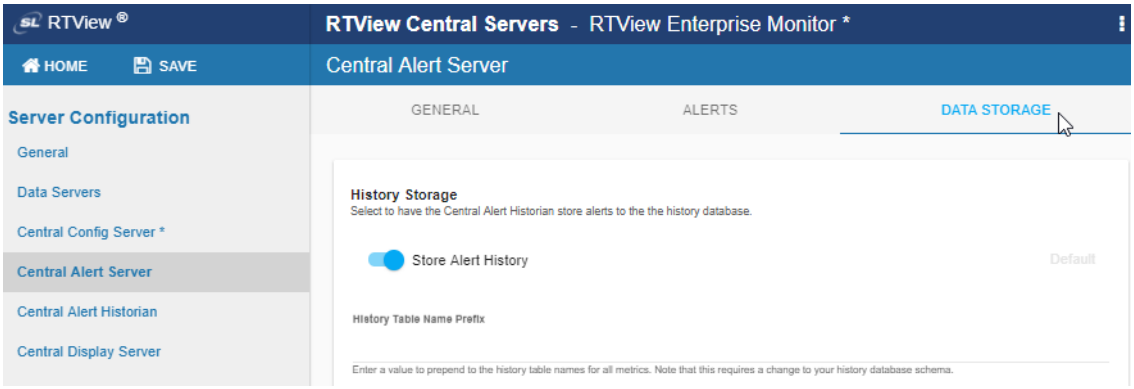
Field Name	Description
Enable Alert Notifications	Set to true to enable alert notifications. By default, alert notifications will execute a script in the **servers/central** directory.
Notification Platform	Select the platform where the central alert server is running.
Notify on New Alerts	Set to **true** to notify on new alerts. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/central** and modify it to execute the action you want to perform.
Notify on First Severity Change	Set to **true** to notify the first time the Severity value changes on an alert. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from R**TVAPM_HOME/common/bin to emsample/servers/central** and modify it to execute the action you want to perform.
Notify on Cleared Alerts	Set to true to notify when an alert is cleared. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/central**, rename it to **my_alert_actions.cleared**(.bat or .sh) and modify it to execute the action you want to perform.

Periodically Renotify on Unacknowledged Alerts	Set to **true** to notify on the Renotification Interval for all unacknowledged alerts. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/central**, rename it to **my_alert_actions.renotify**(.bat or .sh) and modify it to execute the action you want to perform.
Renotification Interval	Set to the interval on which you want to renotify on unacknowledged alerts.
Persist Alerts	Set to **true** to persist the current alert table to the Alert Threshold Database. See the "Configure Databases of the Central Servers" instructions on how to populate this database with the correct table schemas.
Persist Engine Name	Assign a unique name for this data server. This is needed when multiple data servers persist alerts to the same database.

Central Alert Server>DATA STORAGE Tab

This section describes how to enable storage of alert history to the history database and create a prefix for the names of metrics stored in the history database.

If you are resuming setup for a saved project: Navigate to the RTView Configuration Application **HOME** page and choose **Central Alert Server** and the **DATA STORAGE** tab.

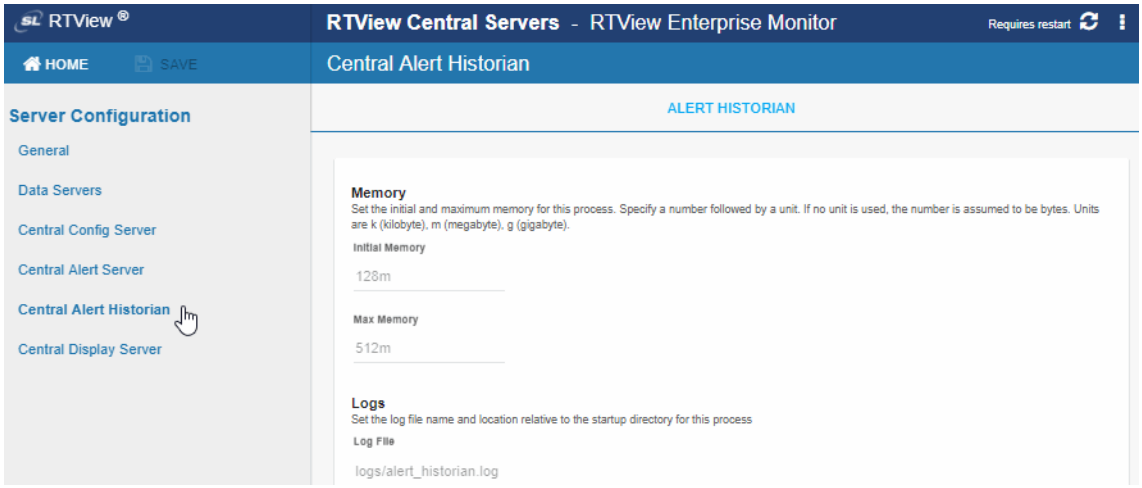


The **Central Alert Server>DATA STORAGE** tab has the following fields:

Field Name	Description
Store Alert History	Set to **true** to have the Central Alert Historian store alert history to the Historian database.
History Table Name Prefix	The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that EM can differentiate history data between data servers when you have multiple Central Alert Servers. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the **History Table Name Prefix**, you will need to create the corresponding tables in your database as follows: • Locate the .sql template for your database under **RTVAPM_HOME/common/dbconfig** and make a copy of it. • Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template. • Use the copied .sql template to create the tables in your database.

Central Server Configuration>Central Alert Historian

In the RTView Configuration Application **HOME** page and choose **RTView Central Servers>Central Alert Historian**. Use this page to allocate memory and set log files for the Central Alert Historian.



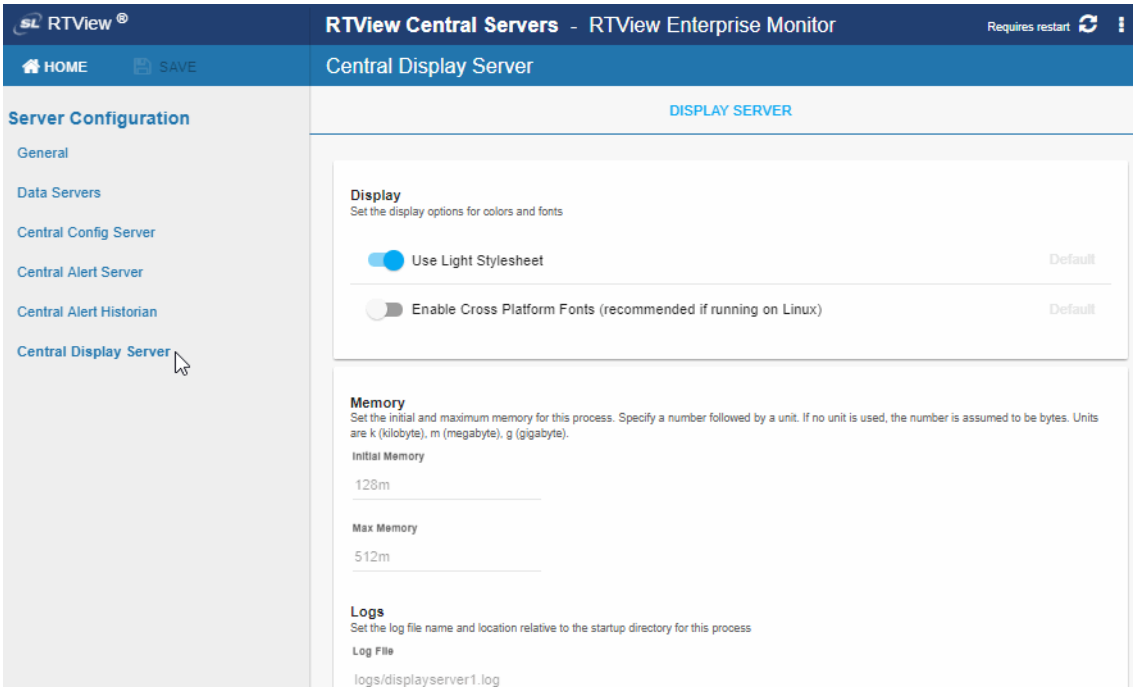
The **Central Alert Historian>ALERT HISTORIAN** tab has the following fields:

Field Name	Description
Initial Memory*	The initial amount of memory to allocate for this process.
Max Memory*	The maximum amount of memory to allocate for this process.
Log File	The log file name and location relative to the startup directory for this process.

***Note:** Units for memory are k (kilobyte), m (megabyte), g (gigabyte). If no unit is used, the number is assumed to be bytes. Note: Use caution when you change the memory allocation. If the memory allocation is too small the server might crash during startup (with an out of memory exception). If too large the server might eventually exceed the available CPU/ memory on your system and fail.

Central Server Configuration>Central Display Server

In the RTView Configuration Application **HOME** page choose **RTView Central Servers>Central Display Server**. Use this page to choose the light or dark version of the Monitor GUI, enable the use of cross platform fonts and allocate memory and log files for the Display Server process.



The **Central Display Server>DISPLAY SERVER** page has the following fields:

Field Name	Description
Use Light Stylesheet	Set to true to use the light colored stylesheet, false to use the dark stylesheet.
Enable Cross Platform Fonts	LINUX users might see inconsistently aligned labels in displays. To resolve, this to true.
Initial Memory*	The initial amount of memory to allocate for this process.
Max Memory*	The maximum amount of memory to allocate for this process.
Log File	The log file name and location relative to the startup directory for this process.

***Note:** Units for memory are k (kilobyte), m (megabyte), g (gigabyte). If no unit is used, the number is assumed to be bytes. Note: Use caution when you change the memory allocation. If the memory allocation is too small the server might crash during startup (with an out of memory exception). If too large the server might eventually exceed the available CPU/ memory on your system and fail.

Settings for Solution Package Servers

This section describes the pages and settings in the RTView Configuration Application for the Solution Package Servers. Pages are:

- "Solution Package Server Configuration>General"
- "Solution Package Server Configuration>Data Server"
- "Solution Package Server Configuration>Historian"
- "Solution Package Server->Solution Package Configuration"

Solution Package Server Configuration>General

This section describes how to configure General server settings for your Solution Package projects. This page has three tabs:

- "Solution Package Server Configuration>General>GENERAL Tab": Use this page to get details about your project, set unique identifier and ports.
- "Solution Package Server Configuration>General>ALERTS Tab": Use this page to configure alert settings.
- "Solution Package Server Configuration>General>CUSTOM PROPERTIES Tab": Use this page to enter custom properties.

  Note: We use the Solution Package for RTView Manager to illustrate. Remember that each Project has it's own specifications so you might see fields or values that are not in the Solution Package for RTView Manager.

Solution Package Server Configuration>General>GENERAL Tab

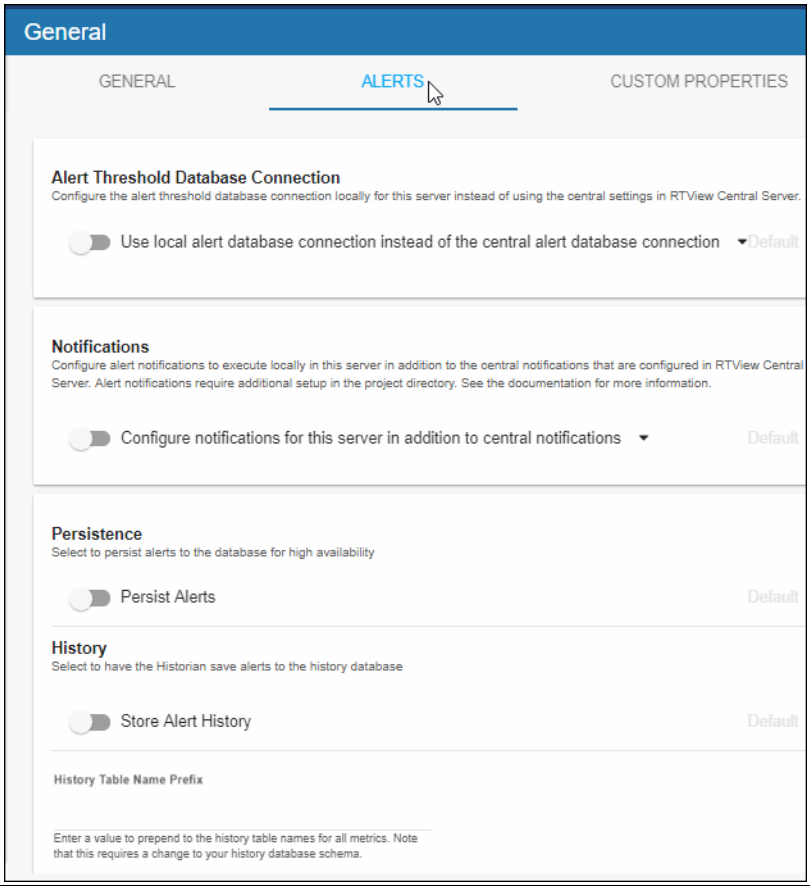
In the RTView Configuration Application home page, choose **<Project Name> ->Server Configuration>General**. The **GENERAL** tab is shown by default.

Field Name	Description
URL	The Data Server URL that was used to connect to this project. This cannot be edited.
Location	The path to the Solution Package project directory. This field cannot be edited.
Version	The version of the Solution Package Data Server. This field cannot be edited.
Project Type	Displays the type of project (Standard, Sender, or ConfigClient). This field cannot be edited.
Display Name	Set the name for the project which displays on the **HOME/ RTView Project Configuration** (top level) page. This field can be edited.
Description	Optionally specify a description that will display on the **HOME/ RTView Project Configuration** (top level) page.

Project ID	A default unique identifier for the project.
Port Prefix	Displays the default port prefix (first two numbers used for the port) that will be used for all ports, which you can modify. The latter two numbers in the port are predefined and cannot be modified. Click **Show Port Assignments** to view the Port Assignments.

Solution Package Server Configuration>General>ALERTS Tab

In the RTView Configuration Application home page, choose **<Project Name> ->Server Configuration>General** and go to the **ALERTS** tab.



Field Name	Description
Alert Threshold Database Connection	By default, all Solution Package projects use the Alert Threshold Database connection defined under **RTView Central Servers->General->COMMON** which is the recommended setup. To use a different database for this Solution Package project, turn on the **Use local alert database connection instead of the central alert database connection** toggle and fill in the database connection information as follows:
	URL - Full URL to use when connecting to this database using the specified JDBC driver.
	Driver - Fully qualified name of the driver class to use when connection to this database via JDBC.
	Classpath - The classpath to the jar containing the driver class.

	Username - (optional) User name to enter into this database when making a connection.
	Password - (optional) Password to enter into this database when making a connection.
	Run Queries Concurrently - If true, each query on the connection is run on its own execution thread. ote: This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads.
	Note that these limitations apply when you configure a Solution Package project to use a database other than the one specified under **RTView Central Servers->General->COMMON**:
	1. In the monitor, the **ADMIN-Alert Administration->Alert Administration** display cannot be used to set thresholds for this solution package project. Instead you must navigate to the **ADMIN-Architecture->Data Server Summary** display, select the data server for this project and click on the **Alert Admin** button.
	2. Key metrics get alert thresholds from the database defined under **RTView Central Servers->General->COMMON**.
Notifications	By default, alert notifications are disabled in the Solution Package projects since the Central Alert Server executes notifications for all alerts. To notify from this Solution Package project in addition to notifying from the Central Alert Server, turn on the Configure notifications for this server in addition to central notifications toggle and fill in the fields as follows:
	Enable Alert Notifications: Set to **true** to enable alert notifications. By default, alert notifications will execute a script in the **emsample/servers/<project directory>** directory.
	Notification Platform: Select the platform where the solution package project is running.
	Notify on New Alerts: Set to **true** to notify on new alerts. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/<project directory>** and modify it to execute the action you want to perform.
	Notify on First Severity Change: Set to **true** to notify the first time the Severity value changes on an alert. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/<project directory>** and modify it to execute the action you want to perform.
	Notify on Cleared Alerts: Set to **true** to notify when an alert is cleared. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/<project directory>**, rename it to **my_alert_actions**.cleared(.bat or .sh) and modify it to execute the action you want to perform.
	Periodically Renotify on Unacknowledged Alerts: Set to **true** to notify on the Renotification Interval for all unacknowledged alerts. This requires some additional setup: Copy the **my_alert_actions**(.bat or .sh) script from **RTVAPM_HOME/common/bin** to **emsample/servers/<project directory>**, rename it to **my_alert_actions**.renotify(.bat or .sh) and modify it to execute the action you want to perform.
	Renotification Interval: Set to the interval on which you want to renotify on unacknowledged alerts.

Persist Alerts	Set to **true** to persist the current alert table to the Alert Threshold Database. See "Configure Databases of the Central Servers" instructions on how to populate this database with the correct table schemas.
History	Set to **true** to have the Historian save alert history to the history database (the Historian must be running).
History Table Name Prefix	The **History Table Name Prefix** field allows you to define a prefix that will be added to the database table names so that EM can differentiate history data between data servers when you have multiple Central Alert Servers. In this case, each Historian needs to save to a different table, otherwise the corresponding data server will load metrics from both Historians on startup. Once you have defined the History Table Name Prefix, you will need to create the corresponding tables in your database as follows:
	Locate the .sql template for your database under **RTVAPM_HOME/common/dbconfig** and make a copy of it.
	Add the value you entered for the **History Table Name Prefix** to the beginning of all table names in the copied .sql template
	Use the copied .sql template to create the tables in your database.

Solution Package Server Configuration>General>CUSTOM PROPERTIES Tab

Use the **CUSTOM PROPERTIES** page to enter custom properties for the Solution Package Servers.

The **CUSTOM PROPERTIES** tab has the following fields:

Field Name	Description
Custom Properties	Click  to enter a custom property. To configure a custom property, you must know the name of the associated property, the syntax for the property value and the appropriate property filter. Property values are applied in the order specified with the last value taking precedence. **Name** - the property name. **Value** - the property value. **Filter** - the propery filter (optional). **Comment** - a comment describing this property (optional).

Solution Package Server Configuration>Data Server

This section describes how to configure data server settings for your Solution Package projects. This page has two tabs:

- "Solution Package Server Configuration>Data Server>DATA SERVER Tab": Use this page to allocate memory and set log files.
- "Solution Package Server Configuration>Data Server>SENDER Tab": Use this page to configure sender settings. This tab is only visible if the project type is sender (i.e. the project is run with the **-propfilter:sender** command line argument).

Solution Package Server Configuration>Data Server>DATA SERVER Tab

In the RTView Configuration Application home page, choose **<Project Name> ->Server Configuration>Data Server.** The **DATA SERVER** tab is shown by default.

Field Name	Description
Initial Memory*	The initial amount of memory to allocate for this process.
Max Memory*	The maximum amount of memory to allocate for this process.
Log File	The log file name and location relative to the startup directory for this process.
HTML Server Enabled	Enable the Eclipse Jetty HTML Server in the Data Server. If enabled, it will host the RTView Servlets at **http://localhost:XX70** where **XX** is the port prefix specified on the General tab. Note that you cannot disable this option if the Configuration Application is being hosted by Eclipse Jetty in the Data Server. All RTView Servlets hosted by Eclipse Jetty are automcatically configured with the correct Data Server port at runtime. The following RTView Servlets are hosted in Eclipse Jetty: rtvadmin rtvdata rtvquery rtvagent rtvpost
Use Https	Enable to use Https. This requires that you set the **Keystore File**.
	Keystore File - Set to the key store file name (including the path) that contains the certificate for your domain. This is required to use https.
	Keystore Password - Set to the password for the keystore. This field is optional.
	Key Manager Password - Set to the password for the key manager. This field is optional.

***Note:** Units for memory are k (kilobyte), m (megabyte), g (gigabyte). If no unit is used, the number is assumed to be bytes. Note: Use caution when you change the memory allocation. If the memory allocation is too small the server might crash during startup (with an out of memory exception). If too large the server might eventually exceed the available CPU/ memory on your system and fail.

Solution Package Server Configuration>Data Server>SENDER Tab

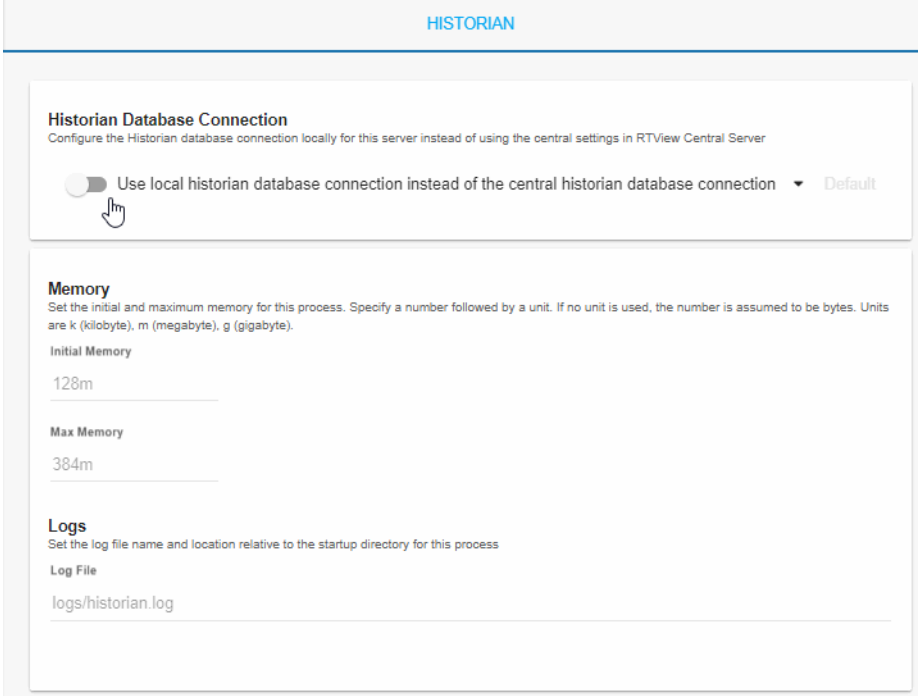
In the RTView Configuration Application home page, choose **<Project Name> ->Server Configuration>Data Server** and go to the **SENDER** tab. This tab is only visible if the project was run with the **-propfilter:sender** command line argument.

Field Name	Description
Sender Targets	**Sender Targets**: You can specify multiple targets by adding them one at a time. All fields on the **Add Sender** dialog are required. Click the icon to open the **Add Sender** dialog, which has the following fields:
	ID: A unique name for the target.

	URL: Specify the URL for the receiver. The url can be host:port (for example, somehost:3372) or an http url for the rtvagent servlet on the receiver (for example, http://somehost:8068/bwmon_rtvagent or http://somehost:8068/bw6mon_rtvagent).
	Targets: Select the All solution packages option.
	Enabled: Select this check box to enable the target.
Logs	The log file name and location relative to the startup directory for this process.
Sender Identifier	A unique name for the sender data server, which is typically your machine's name.

Solution Package Server Configuration>Historian

In the RTView Configuration Application home page, choose **<Project Name> ->Server Configuration>Historian**.



Field Name	Description
Historian Database Connection	By default,all Solution Package projects use the Historian Database connection defined under **RTView Central Servers->General->COMMON** which is the recommended setup. To use a different database for this Solution Package project, turn on the **Use local historian database connection instead of the central alert database connection** toggle and fill in the database connection information as follows:
	URL - Full URL to use when connecting to this database using the specified JDBC driver.
	Driver - Fully qualified name of the driver class to use when connection to this database via JDBC.

	Classpath - The classpath to the jar containing the driver class.
	Username - (optional) User name to enter into this database when making a connection.
	Password - (optional) Password to enter into this database when making a connection.
	Run Queries Concurrently - If **true**, each query on the connection is run on its own execution thread. **Note:** This option should be used with caution since it may cause SQL errors when used with some database configurations and may degrade performance due to additional database server overhead. See your database documentation to see whether it supports concurrent queries on multiple threads.
Initial Memory*	The initial amount of memory to allocate for this process.
Max Memory*	The maximum amount of memory to allocate for this process.
Log File	The log file name and location relative to the startup directory for this process.

***Note:** Units for memory are k (kilobyte), m (megabyte), g (gigabyte). If no unit is used, the number is assumed to be bytes. Note: Use caution when you change the memory allocation. If the memory allocation is too small the server might crash during startup (with an out of memory exception). If too large the server might eventually exceed the available CPU/ memory on your system and fail.

Solution Package Server->Solution Package Configuration

This section describes how to add/remove and configure solution packages in your Solution Package projects. In the RTView Configuration Application home page, choose **<Project Name>**. In the naviagation tree, look for **Solution Package Configuration**. Listed under that heading are the solution packages that are included in this Solution Package project.

To add or remove a solution package, click  .

Select the solution packages you want to include and click **SAVE** to close the dialog. Note that the list of solution packages in the navigation tree updates to show the solution packages you selected.

Note that you must restart your solution package project after adding a solution package before you can configure it.

APPENDIX B RTView EM Scripts

This section describes scripts that are available for RTView Enterprise Monitor as well as the **rtvservers.dat** configuration file. This section includes:

Scripts

The following scripts are available when used from an initialized command window. The scripts can be executed from a Windows Command Prompt or UNIX terminal window. On Windows, you can type the commands as described in this section. On UNIX systems, you must add **.sh** to each command. For example, **rtvapm_init.sh**.

These instructions assume use of a BASH or a BASH-compliant shell.

Script Name	Description
my_alert_actions.bat/sh	Sample script to define actions for alerts. Location: **rtvapm/common/bin** Format: **my_alert_actions** (Append **.sh** on UNIX)
rtv_setup.bat/sh	Initializes a command prompt or terminal window. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. Format: **rtv_setup** (Append **.sh** on UNIX)
rtvapm_init.bat/sh	Initializes a command window. Location: **rtvapm_home** This script must be executed in the directory in which it resides. Format: **rtvapm_init** (Append **.sh** on UNIX)

rtvapm_user_init.bat/sh	Initializes a user command window. Note that this script is called by **rtv_setup.bat/sh** as well as the start/stop server scripts. Location: **project directory** This script must be executed in the directory in which it resides. Format: **rtvapm_user_init** (Append **.sh** on UNIX) **Note:** This script is not available in RTViewDataCollectorSPs and RTViewDataServerSPs.
start_central_servers.bat/sh	Starts the RTView Enterprise Monitor Central Servers. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **start_central_servers** (Append **.sh** on UNIX)
start_cmd.bat	Starts an initialized Command Prompt window on Windows. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window.
start_collector.bat/sh	Starts the RTViewDataCollectorSP server. Location: **<installation directory>** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **start_collector** (Append **.sh** on UNIX)

start_rtv.bat/sh

Starts processes in an RTView Enterprise Monitor configuration as specified in the **rtvservers.dat** configuration file.

Location:
project directory

This script must be executed in the project directory (the directory containing the **rtvservers.dat** file).

An RTView Enterprise Monitor configuration might include a Data Server or Display Server, an Historian and a Central Server Database. **start_rtv** only attempts to start processes it detects are not running. The action can be applied to all RTView Enterprise Monitor configurations, a single RTView Enterprise Monitor configuration or a single process in an RTView Enterprise Monitor configuration.

Additional arguments can be included on the command line in which case they are passed to every server specified by the command. Additional arguments can also be included in the **rtvservers.dat** file, in which case they are only applied to the specific server in whose command they are included.

Note: If you use the **-properties** or **-propfilter** argument with **start_rtv**, you should also use them with **status_rtv** and **stop_rtv**. Those commands use the JMX ports defined for the server, and if any of the properties specified by **-properties** or **-propfilter** arguments change those ports, subsequent commands will be unable to find the server unless also given those properties.

–console (or **–c**) - Start the processes with a command window (which is useful for testing).

When used without arguments, this script returns usage information and a list of available configurations. For example, **start_rtv** returns:

```
Usage: start_rtv config or 'all' [server or 'all']
[args...]
Available configs:
     default
          dataserver
          historian
          displayserver
          database
     sender
          dataserver
```

all

Starts all RTView Enterprise Monitor configurations that are specified in the **rtvservers.dat** file.

all applies the action to all RTView Enterprise Monitor configurations specified in the **rtvservers.dat** file (and corresponding servers or clients specified in each configuration). **Note:** When multiple configurations are specified in the **rtvservers.dat** file and they have different project settings directory locations, the **all** argument processes all the configurations. However, if the configurations have the same project settings directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations.

Example:

start_rtv all
(Append **.sh** on UNIX)

	[Configuration Name] Starts a single RTView Enterprise Monitor configuration specified in the **rtvservers.dat** file: **start_rtv [Configuration Name]** (Append **.sh** on UNIX) Configuration Name is the RTView Enterprise Monitor configuration name specified in the **rtvservers.dat** file. The action applies to all servers or clients specified in the configuration. Example: **start_rtv web_deployment** (Append **.sh** on UNIX)
	[Server Name] Starts a single process in an RTView Enterprise Monitor configuration specified in the **rtvservers.dat** file: **start_rtv [Configuration Name] [Server Name]** (Append **.sh** on UNIX) Server Name is the name of a server or client member in the configuration. For example, **dataserver**, **displayserver**, **historian** and **database**. The action applies only to that server or client in the configuration. Example: **start_rtv web_deployment dataserver** (Append **.sh** on UNIX)
start_server.bat/sh	Starts the RTViewDataServerSP server. Location: **<installation directory>** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **start_server** (Append **.sh** on UNIX)
start_servers.bat/sh	Starts the RTView Enterprise Monitor servers. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **start_servers** (Append **.sh** on UNIX)
start_tomcat.bat/sh	Starts Apache Tomcat. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **start_tomcat** (Append **.sh** on UNIX)

status_rtv.bat/sh	Returns the status of all RTView Enterprise Monitor configurations that are specified in the **rtvservers.dat** configuration file. Location: **project directory** This script must be executed in the project directory (the directory containing the **rtvservers.dat** file). This action uses defined JMX ports. An RTView Enterprise Monitor configuration might include a Data Server, a Display Server or Viewer, an Historian and a Central Server Database. **status_rtv** only attempts to start processes it detects are not running. The action can be applied to all RTView Enterprise Monitor configurations, a single RTView Enterprise Monitor configuration or a single process in an RTView Enterprise Monitor configuration. Additional arguments can be included on the command line in which case they are passed to every server specified by the command. Additional arguments can also be included in the **rtvservers.dat** file, in which case they are only applied to the specific server in whose command they are included. Note that if you use **-properties** or **-propfilter** arguments with **start_rtv**, you should also use them with **status_rtv** and **stop_rtv**. Those commands use the JMX ports defined for the server, and if any of the properties specified by **-properties** or **-propfilter** arguments change those ports, subsequent commands will be unable to find the server unless also given those properties.
	all Returns the status of all RTView Enterprise Monitor configurations specified in the **rtvservers.dat** file. **Note:** When multiple configurations are specified in the **rtvservers.dat** file and they have different project settings directory locations, the **all** argument processes all the configurations. However, if the configurations have the same project settings directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations. Example: **status_rtv all** (Append **.sh** on UNIX)
	[Configuration Name] Returns the status of a single RTView Enterprise Monitor configuration specified in the **rtvservers.dat** file: **status_rtv [Configuration Name]** (Append **.sh** on UNIX) Configuration Name is the RTView Enterprise Monitor configuration name specified in the **rtvservers.dat** file. The action applies to all servers or clients specified in the configuration. Example: **status_rtv web_deployment** (Append **.sh** on UNIX)

	[Server Name] Returns the status of a single process in an RTView Enterprise Monitor configuration specified in the **rtvservers.dat** file: **status_rtv [Configuration Name] [Server Name]** (Append **.sh** on UNIX) Server Name is the name of a server or client member in the configuration. For example, **dataserver**, **displayserver**, **historian** and **database**. The action applies only to that server or client in the configuration. Example: **status_rtv web_deployment dataserver** (Append **.sh** on UNIX)
stop_central_servers.bat/sh	Stops the RTView Enterprise Monitor Central Servers. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **stop_central_servers** (Append **.sh** on UNIX)
stop_collector.bat/sh	Stops the RTViewDataCollectorSP server. Location: **<installation directory>** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **stop_collector** (Append **.sh** on UNIX)
stop_data_servers.bat/sh	Stops the data servers. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **stop_data_servers** (Append **.sh** on UNIX)

stop_rtv.bat/sh	Stops processes in an RTView Enterprise Monitor configuration as specified in the **rtvservers.dat** configuration file. Location: **project directory** This script must be executed in the project directory (the directory containing the **rtvservers.dat** file). This action uses defined JMX ports. An RTView Enterprise Monitor configuration might include a Data Server or a Display Server, an Historian and a Central Server Database. **stop_rtv** only attempts to start processes it detects are not running. The action can be applied to all RTView Enterprise Monitor configurations, a single RTView Enterprise Monitor configuration or a single process in an RTView Enterprise Monitor configuration. Additional arguments can be included on the command line in which case they are passed to every server specified by the command. Additional arguments can also be included in the **rtvservers.dat** file, in which case they are only applied to the specific server in whose command they are included. Note that if you use **-properties** or **-propfilter** arguments with **start_rtv**, you should also use them with **status_rtv** and **stop_rtv**. Those commands use the JMX ports defined for the server, and if any of the properties specified by **-properties** or **-propfilter** arguments change those ports, subsequent commands will be unable to find the server unless also given those properties. Location: **project directory** This script must be executed in the project directory (the directory containing the **rtvservers.dat** file).
	all Stops all RTView Enterprise Monitor configurations that are specified in the **rtvservers.dat** file. **all** applies the action to all RTView Enterprise Monitor configurations specified in the **rtvservers.dat** file (and corresponding servers or clients specified in each configuration). **Note:** When multiple configurations are specified in the **rtvservers.dat** file and they have different project settings directory locations, the **all** argument processes all the configurations. However, if the configurations have the same project settings directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations. Example: **stop_rtv all** (Append **.sh** on UNIX)
	[Configuration Name] Stops a single RTView Enterprise Monitor configuration specified in the **rtvservers.dat** file: **stop_rtv [Configuration Name]** (Append **.sh** on UNIX) Configuration Name is the RTView Enterprise Monitor configuration name specified in the **rtvservers.dat** file. The action applies to all servers or clients specified in the configuration. Example: **stop_rtv web_deployment** (Append **.sh** on UNIX)

	[Server Name] Stops a single process in an RTView Enterprise Monitor configuration specified in the **rtvservers.dat** file: **stop_rtv [Configuration Name] [Server Name]** (Append **.sh** on UNIX) **Server Name** is the name of a server or client member in the configuration. For example, **dataserver**, **displayserver**, **historian** and **database**. The action applies only to that server or client in the configuration. Example: **stop_rtv web_deployment dataserver** (Append **.sh** on UNIX)
stop_server.bat/sh	Stops the RTViewDataServerSP server. Location: **project directory/bin** This script must be executed in the directory in which it resides. Format: **stop_server** (Append **.sh** on UNIX)
stop_servers.bat/sh	Stops the RTView Enterprise Monitor servers. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. You can also execute the script by double-clicking in an Explorer window. Format: **stop_servers** (Append **.sh** on UNIX)

stop_tomcat.bat/sh	Stops Apache Tomcat. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. Format: **start_tomcat** (Append **.sh** on UNIX)
validate_install.bat/sh	Use this script if you encounter error messages when starting servers, to verify your system environment (for example, to verify that Java is installed) as well as your installation directories. Location: **<installation directory>/bin** This script must be executed in the directory in which it resides. Also, in Unix, this script checks and corrects file permissions and file formats (if, for example, the wrong unzip command was used during installation). If file permissions or formats are fixed, the script returns a count of the files fixed. Additionally, if invoked with the argument "-v" (verbose) it returns the names of the files fixed. The script returns the following information (where **<RTViewInstallation>** is your RTView installation): • In Windows Validating installation in /opt/rtview/<RTViewInstallation> ... Java installation correct. ... rtvapm installation correct. • In UNIX Validating installation in /opt/rtview/<RTViewInstallation> ... Java installation correct. ... rtvapm installation correct. ... file permissions correct. ... file formats correct.

rtvservers.dat

This section describes the **rtvservers.dat** configuration file which is used to manage your RTView Enterprise Monitor deployment and RTView Enterprise Monitor processes. This section includes:

- "Single Configuration File"
- "Multiple Configuration File"

The **rtvservers.dat** text file contains one or more RTView Enterprise Monitor configurations. An RTView Enterprise Monitor configuration is a group of servers that should be started together. For example, the configuration might include any of the following: a Data Server, Historian, HSQLDB database, and a Display Server (for a Web Deployment). The **rtvservers.dat** file is used when the following scripts are executed:

- start_rtv Starts RTView Enterprise Monitor processes specified in the **rtvservers.dat** file.
- stop_rtv Stops the RTView Enterprise Monitor processes specified in the **rtvservers.dat** file.
- status_rtv Returns status information for RTView Enterprise Monitor processes specified in the **rtvservers.dat** file.

Single Configuration File

The following **rtvservers.dat** file, located in your project directory, contains a single RTView Enterprise Monitor configuration, named **default**.

```
default . dataserver rundata
default . historian runhist -ds
default . displayserver rundisp -ds
default . database rundb
```

Note: The last line in the **rtvservers.dat** file must end with a new line, or be followed by a blank line.

In this example, to start the **default** configuration type: **start_rtv default** or **start_rtv all**. To start a single server in the configuration, type **start_rtv <Configuration Name> <Server Name>**. For example: **start_rtv default displayserver**.

Each line has the following format consisting of four fields:

<Configuration Name> <Project Settings Directory Location> <Property Filter Identifying the Server> <Command>

<Configuration Name>	The name of the RTView Enterprise Monitor configuration (**default** in this example).
<Project Settings Directory Location>	The RTView Enterprise Monitor project settings directory location, relative to the location of the **rtvservers.dat** file (**.**, the current directory, in this example).
<Property Filter Identifying the Server>	The property filter that identifies the server, which is the property filter under which the server's JMX port is defined. By default, this is the server name, such as **dataserver**, **displayserver** and **historian**.
<Command>	The script used to start the process. Valid values are: • rundata: Starts the Data Server. • runhist: Starts the Historian. • rundisp: Starts the Display Server. • rundb: Starts the HSQLDB Database.

Multiple Configuration File

When multiple configurations are specified in the **rtvservers.dat** file and they have different project settings directory locations, the **all** argument processes all the configurations. However, if the configurations have the same project settings directory locations, the all argument processes only the first configuration as the others are considered alternative configurations. Alternative configurations allow you to alternate between two configurations for a single RTView Enterprise Monitor deployment.

For example, the following **rtvservers.dat** file, located in your project directory**/servers** directory, contains two configurations, **bwmon** and **emsmon**. Note that the project settings directory locations differ (**./bwmon** and **./emsmon**, respectively).

```
bwmon ./bwmon dataserver rundata
bwmon ./bwmon historian runhist -ds
bwmon ./bwmon displayserver rundisp -ds


emsmon ./emsmon dataserver rundata
emsmon ./emsmon historian runhist -ds
emsmon ./emsmon displayserver rundisp –ds
```

Because the project settings directory locations differ, you can use type **start_rtv all** to start both configurations. To start only the bwmon configuration, type: **start_rtv bwmon**. To start a single server in the **bwmon** configuration, type **start_rtv <Configuration Name> <Server Name>**. For example: **start_rtv bwmon displayserver**.

APPENDIX C Properties

This section describes properties that are available for RTView Enterprise Monitor and how to configure them. This section includes:

- "Overview," next
- "Properties File Format": Describes property format and naming conventions.
- "Applying Properties Files and Filters": Describes how to use properties files and filters on the command line and by editing the **rtvservers.dat** file.
- "Sample Properties Files": Describes where to get sample properties files for Solution Packages, the configurations that sample properties specify and how to create custom properties files.

Overview

RTView Enterprise Monitor configuration is specified using a series of properties. Most properties are configured via the "RTView Configuration Application" which reads and writes the following properties files:

- emsample/servers/<project directory>/**project.properties**
- emsample/servers/<project directory>/**project.properties.json**
- emsample/conf/**project-common.properties**
- emsample/conf/**project-common.properties.json**

These properties files are automatically read at startup. They are added to the end of the properties file list so that they will override properties in all other properties files. Users should never modify these files directly. They should only be edited via the "RTView Configuration Application". However, you can optionally create additional properties files in a text editor. This is required for solution packages that are not included in the "RTView Configuration Application" and can be useful in cases where you want to generate a properties file of connections from an existing list.

Properties File Format

The properties files used by RTView Enterprise Monitor are the in standard Java properties file format. Each property is specified on a separate line as follows:

propertyName=propertyValue

For example,

sl.rtview.cache.config=mycachefile.rtv

Filters are available to limit the scope to which a property is applied.

Property Filters

Filters precede the property name as follows:

propertyFilter.sl.rtview.cache.config=mycachefile.rtv

The following RTView Enterprise Monitor property filters are predefined and apply automatically depending on what tool is being executed:

Filter	Description
builder	Applies the property to the Display Builder. For example: **builder.sl.rtview.stylesheet**
collector	Applies the property to the Data Collection Server. For example: **collector.sl.rtview.jmx.jmx_metrics_period=15000**
dataserver	Applies the property to the Data Server. For example: **dataserver.sl.rtview.dataserver.socket=true**
displayserver	Applies the property to the Display Server. For example: **displayserver.sl.rtview.displayserver.port=3079**
historian	Applies the property to the Historian. For example: **historian.sl.rtview.historian.driver=org.hsqldb.jdbcDriver**
proxyclient	Applies the property to the proxy client. For example: **proxyclient.sl.rtview.dataserver.port=2078**
rtvanalyzer	Applies the property to the RTView Analyzer. For example: **rtvanalyzer.sl.rtview.stylesheet=rtv_default,rtv_flat**

You can also define your own property filters and use them as prefixes in your properties files.

Applying Properties Files and Filters

To use a properties file, add it to the command line as follows:

-properties:propertyFileName

To specify a property filter, add it to the command line as follows:

-propfilter:propertyFilter

These command line options can be added to the end of the line in **emsample/servers/rtvservers.dat** so that they are automatically applied by the start and stop server scripts. For example, to add a properties file named **myproperties.properties** and a propfilter named **mypropfilter** to the miscmon project, you would edit the **rtvservers.dat** as follows:

miscmon ./miscmon dataserver rundata -properties:myproperties -propfilter:mypropfilter

miscmon ./miscmon historian runhist -ds -properties:myproperties -propfilter:mypropfilter

Sample Properties Files

A sample properties file is provided for each solution package in **RTVAPM_HOME/<sp>/conf/sample.properties**. For example, the sample properties file for the Solution Package for TIBCO Enterprise Monitor is located under **RTVAPM_HOME/emsmon/conf/sample.properties**. This file contains the properties needed to configure classpath, connections and history. When creating your own properties file, copy properties from the appropriate **sample.properties** file into the properties file in your project directory.

APPENDIX D Alert Definitions

This section describes alerts that are available with RTView Enterprise Monitor and Solution Packages. This section includes:

Amazon Web Services

The following alerts are available for Amazon Web Services. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
AcwInstanceCpuHigh Executes a single warning and single alarm if the CPU used exceeds the specified threshold. Index Type: PerInstance Metric: CPUUtilization	70	80	30	FALSE
AcwInstanceDiskReadBytesHigh Executes a single warning and single alarm if the number of bytes read from the disk exceeds the specified threshold. Index Type: PerInstance Metric: DiskReadBytes	10000	20000	30	FALSE
AcwInstanceDiskReadOpsHigh Executes a single warning and single alarm if the number of disk reads exceeds the specified threshold. Index Type: PerInstance Metric: DiskReadOps	100	200	30	FALSE
AcwInstanceDiskWriteBytesHigh Executes a single warning and single alarm if the number of bytes written to the disk exceeds the specified threshold. Index Type: PerInstance Metric: DiskWriteBytes	1000000	2000000	30	FALSE
AcwInstanceDiskWriteOpsHigh Executes a single warning and single alarm if the number of disk writes exceeds the specified threshold. Index Type: PerInstance Metric: DiskWriteOps	100	200	30	FALSE
AcwInstanceNetworkReadBytesHigh Executes a single warning and single alarm if the number of bytes read from the network exceeds the specified threshold. Index Type: PerInstance Metric: NetworkIn	1000000	20000	30	FALSE
AcwInstanceNetworkWriteBytesHigh Executes a single warning and single alarm if the number of bytes written across the network exceeds the specified threshold. Index Type: PerInstance Metric: NetworkOut	10000	20000	30	FALSE

Apache Kafka

The following alerts are available for Apache Kafka. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
KafkaBrokerBytesInPerSecHigh The number of incoming bytes per second exceeds the defined threshold for the broker. **Index Type(s)**: PerKafkaServer	1600	2000	30	FALSE
KafkaBrokerBytesOutPerSecHigh The number of outgoing bytes per second exceeds the defined threshold for the broker. **Index Type(s)**: PerKafkaServer	1600	2000	30	FALSE
KafkaBrokerExpired The Kafka Broker is not responding. **Index Type(s)**: PerKafkaServer	NaN	NaN	30	FALSE
KafkaBrokerLogFlushLatency95PHigh The current log flush latency exceeds the 95th percentile. **Index Type(s)**: PerKafkaServer	1600	2000	30	FALSE
KafkaBrokerMsgsInPerSecHigh The number of incoming messages per second exceeds the defined threshold for the broker. **Index Type(s)**: PerKafkaServer	1600	2000	30	TRUE
KafkaBrokerNetProcAvgIdlePctHigh The average percent idle for the network processor exceeds the threshold. **Index Type(s)**: PerKafkaServer	.05	.3	30	FALSE
KafkaBrokerOfflinePartitionCountHigh The number of partitions without an active leader is not zero. **Index Type(s)**: PerKafkaServer	NaN	1	30	TRUE
KafkaBrokerReqHdlrAvgIdleHigh The average fraction of time the broker request handler is idle exceeds the threshold. **Index Type(s)**: PerKafkaServer	.5	.3	30	TRUE
KafkaBrokerUncInLderElecsPerSecHigh The available replicas were not in sync during leader election. Data loss has probably occurred. **Index Type(s)**: PerKafkaServer	1600	2000	30	FALSE
KafkaBrokerUnderReplicatedPartnsHigh The number of under-replicated partitions is not zero. **Index Type(s)**: PerKafkaServer	NaN	1	30	FALSE

KafkaClusterLeadersUnbalancedHigh The partition leaders for the cluster are not evenly distributed across the available brokers. **Index Type(s)**: PerKafkaCluster	10	10	30	FALSE
KafkaClusterNoActiveController There is more than one active controller per cluster, which could indicate a split-brain error. **Index Type(s)**: PerKafkaCluster	NaN	NaN	30	FALSE
KafkaClusterPartitionsUnbalancedHigh Partitions supported by the cluster are not evenly distributed across the available brokers. **Index Type(s)**: PerKafkaCluster	10	1	30	FALSE
KafkaClusterSplitBrain One (or more) zookeeper/broker is not acting as part of the main cluster. **Index Type(s)**: PerKafkaCluster	NaN	NaN	30	FALSE
KafkaoConsumerBytesPerSecHigh The consumer message load (bytes per second) exceeds the threshold. **Index Type(s)**: PerKafkaConsumer	1600	2000	30	FALSE
KafkaConsumerExpired The consumer is not responding. **Index Type(s)**: PerKafkaConsumer	NaN	NaN	30	FALSE
KafkaConsumerFetchLatencyHigh The consumer fetch latency exceeds the threshold. **Index Type(s)**: PerKafkaConsumer	1600	2000	30	TRUE
KafkaConsumerFetchRateHigh The consumer is pulling records from Kafka at a slower than expected rate. **Index Type(s)**: PerKafkaConsumer	1600	2000	30	FALSE
KafkaConsumerLagIncreasing The consumer lag rate of change is greater than zero for the specified duration, which could mean that lag is steadily increasing. **Index Type(s)**: PerKafkaConsumer	NaN	NaN	300	FALSE
KafkaConsumerMaxLagHigh The consumer is falling too far behind the producer. **Index Type(s)**: PerKafkaConsumer	1600	2000	30	TRUE
KafkaConsumerMsgsPerSecHigh The consumer message load (messages per second) exceeds the threshold. **Index Type(s)**: PerKafkaConsumer	1600	2000	30	TRUE
KafkaConsumerPartitionStalled The consumer lag delta is not negative and the current offset delta is positive for the defined duration for a topic on a partition, which could mean that new messages are being added to the partition but the consumer is not reading them. **Index Type(s)**: PerKafkaConsumer	NaN	NaN	300	FALSE

KafkaConsumerSlow This alert is triggered for a topic when consumer lag delta is not negative and the current offset delta is positive for the specified duration, which could mean that the consumer is slow in reading messages. **Index Type(s)**: PerKafkaConsumer	NaN	NaN	300	FALSE
KafkaProducerExpired The producer is not responding. **Index Type(s)**: PerKafkaProducer	NaN	NaN	30	FALSE
KafkaProducerIncomingByteRateHigh The producer's incoming byte rate exceeds the threshold. **Index Type(s)**: PerKafkaProducer	1600	2000	30	TRUE
KafkaProducerIoWaitTimeMSHigh The producer is waiting for IO longer than expected (on average). **Index Type(s)**: PerKafkaProducer	1600	2000	30	FALSE
KafkaProducerOutgoingByteRateHigh The producer output byte rate exceeds the threshold. **Index Type(s)**: PerKafkaProducer	1600	2000	30	TRUE
KafkaProducerRequestLatencyHigh The producer request latency exceeds the threshold. **Index Type(s)**: PerKafkaProducer	1600	2000	30	TRUE
KafkaProducerRequestRateHigh The producers request rate exceeds the threshold. **Index Type(s)**: PerKafkaProducer	1600	2000	30	TRUE
KafkaProducerResponseRateHigh The producer response rate exceeds the threshold. **Index Type(s)**: PerKafkaProducer	1600	2000	30	TRUE
KafkaZookeeperAvgLatencyHigh The average time for the zookeeper to respond to a request exceeds the threshold. **Index Type(s)**: PerKafkaZookeeper	1600	2000	30	TRUE
KafkaZookeeperExpired The zookeeper is not responding. **Index Type(s)**: PerKafkaZookeeper	NaN	NaN	30	FALSE
KafkaZookeeperNumAliveConnsHigh The total number of connections to a given zookeeper exceeds the threshold. **Index Type(s)**: PerKafkaZookeeper	1600	2000	30	TRUE
KafkaZookeeperOutstandingReqsHigh Clients are making requests faster than the zookeeper can process them. **Index Type(s)**: PerKafkaZookeeper	1600	2000	30	FALSE

KafkaZookeeperRatePktsRcvdHigh The rate that the zookeeper is receiving packets exceeds the threshold. **Index Type(s)**: PerKafkaZookeeper	1600	2000	30	TRUE
KafkaZookeeperRatePktsSentHigh The rate that the zookeeper is sending packets exceeds the threshold. **Index Type(s)**: PerKafkaZookeeper	1600	2000	30	TRUE

Docker

The following alerts are available for Docker. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
DocContainerCpuUsageHigh A Docker Container's CPU usage is above the defined threshold. **Index Type(s)**: PerContainer **Metric**: cpu.usage	24	50	30	FALSE
DocContainerExpired A Docker Container has expired. **Index Type(s)**: PerContainer **Metric**: Expired	NaN	NaN	30	FALSE
DocContainerNetBytesInHigh A Docker Container's incoming network data rate is above the defined thresholds. **Index Type(s)**: PerContainer **Metric**: net.rxbytes.avg	750000	1000000	30	FALSE
DocContainerNetBytesOutHigh A Docker Container's outgoing network data rate is above the defined thresholds. **Index Type(s)**: PerContainer **Metric**: net.txbytes.avg	750000	1000000	30	FALSE
DocEngineCpuUsageHigh A Docker Engine's CPU usage is above the defined thresholds. **Index Type(s)**: PerEngine **Metric**: cpu.usage	50	75	30	TRUE

DocEngineExpired A Docker Engine has expired. **Index Type(s)**: PerEngine **Metric**: Expired	NaN	NaN	30	FALSE
DocEngineNetBytesInHigh A Docker Engine's incoming network data rate is above the defined thresholds. **Index Type(s)**: PerEngine **Metric**: net.rxbytes.avg	750000	1000000	30	TRUE
DocEngineNetBytesOutHigh A Docker Engine's outgoing network data rate is above the defined thresholds. **Index Type(s)**: PerEngine **Metric**: net.txbytes.avg	750000	1000000	30	TRUE

Microsoft SQL Server

The following alerts are available for Microsoft SQL Server. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
MssqlInstanceDeadlocksDetected The number of current deadlocks has exceeded its threshold. **Index Type(s)**: PerServer **Metric**: DeltaNumber of Deadlocks	1	2	0	TRUE
MssqlInstanceLatchWaitsHigh The number of current latch waits has exceeded its threshold. **Index Type(s)**: PerServer **Metric**: DeltaLatch Waits	15	30	0	TRUE
MssqlInstanceLockWaitsHigh The amount of seconds on lock waits has exceeded its threshold. **Index Type(s)**: PerServer **Metric**: DeltaLock Waits	15	30	0	TRUE
MssqlInstancePacketErrorsDetected The amount of current packet errors has exceeded its threshold. **Index Type(s)**: PerServer **Metric**: DeltaPacket Errors	1	2	0	TRUE

MssqlInstanceSqlCpuUsedHigh The percentage of CPU utilization on SQL processing has exceeded its threshold. **Index Type(s)**: PerServer **Metric**: CPU Util	10	15	0	TRUE
MssqlInstanceUsedMemoryHigh The percentage of memory used by the SQL Server has exceeded its threshold. **Index Type(s)**: PerServer **Metric**: Memory In Use (%)	65	85	0	TRUE

MongoDB

The following alerts are available for MongoDB. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
MongoCollectionExpired A collection was not able to be contacted for longer than the normal expiration window. **Index Type(s)**: PerCollection **Metric**: Expired	NaN	NaN	30	FALSE
MongoCollectionNumObjectsHigh The number of objects for the collection exceeds a given threshold. **Index Type(s)**: PerCollection **Metric**: numberOfObjects	1600	2000	30	FALSE
MongoDatabaseDataSizeHigh The database size for the database exceeds a given threshold. **Index Type(s)**: PerDatabase **Metric**: dataSize	80000	100000	30	FALSE
MongDatabaseExpired The database was not able to be contacted for longer than the normal expiration window. **Index Type(s)**: PerDatabase **Metric**: Expired	NaN	NaN	30	FALSE
MongoInstanceExpired The instance was not able to be contacted for longer than the normal expiration window. **Index Type(s)**: PerInstance **Metric**: Expired	60	80	30	FALSE

MongoInstanceNotConnected The instance was not able to be contacted for longer than the normal expiration window. **Index Type(s)**: PerInstance **Metric**: connectionStatus	NaN	NaN	30	FALSE
MongoInstanceOpenCursorsHigh The number of Open Cursors for the Instance exceeds a given threshold. **Index Type(s)**: PerInstance **Metric**: openCursors	160	200	30	TRUE

MySQL Database

The following alerts are available for MySQL Database. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
MysqlBytesReceivedHigh Executes a single warning and a single alarm if the amount of kilobytes received exceeds the specified threshold. Index Type: PerServer Metric: Received	5	10	na	FALSE
MysqlBytesSentHigh Executes a single warning and a single alarm if the amount of kilobytes sent exceeds the specified threshold. Index Type: PerServer Metric: Sent	5	10	na	FALSE
MysqlDelayedWritesHigh Executes a single warning and a single alarm if the number of delayed writes exceeds the specified threshold. This alert only applies to previous versions to MySQL 5.7 as delayed inserts are not supported in later versions. Index Type: PerServer Metric: Delayed Writes	1	2	na	FALSE
MysqlLocksWaitedHigh Executes a single warning and a single alarm if the number of times that requests for a table lock requires a wait before being granted exceeds the specified threshold. Index Type: PerServer Metric: Table_locks_waited	1	2	na	FALSE

MysqlQcacheLowMemPrunesHigh Executes a single warning and a single alarm if the number of queries deleted from the query cache because of low memory exceeds the specified threshold. Index Type: PerServer Metric: Qcache_lowmem_prunes	1	2	na	FALSE
MysqlSlowQueriesHigh Executes a single warning and a single alarm if the number of queries that exceed the number of seconds specified for **long_query_time** exceeds the specified threshold. Index Type: PerServer Metric: Slow Queries	1	2	na	FALSE
MysqlSlowThreadsHigh Executes a single warning and a single alarm if the number of threads that exceed the number of seconds specified for **slow_launch_time** to create exceeds the specified threshold. Index Type: PerServer Metric: Slow_launch_threads	1	2	na	FALSE

Node.js

The following alerts are available for Node.js. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
NodeMasterCpuUsageHigh A master node's CPU usage is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Master - CPU %	30	50	30	FALSE
NodeMasterExpired A master node has expired. **Index Type(s)**: PerConnection **Metric**: Node Master - Expired	NaN	NaN	30	FALSE
NodeMasterRequestRateHigh The request rate of a master node is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Requests - Requests Per Second	1600	2000	30	FALSE

NodeMasterResponseTimeHigh The response time of a URL is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Requests - Avg Response Time	5	10	30	FALSE
NodeProcessCpuUsageHigh A worker node's CPU usage is above the defined thresholds. **Index Type(s)**: PerConnection **Metric**: Node Processes - CPU Used %	5	50	30	TRUE
NodeProcessExpired A worker node has expired. **Index Type(s)**: PerConnection **Metric**: Node Processes - Expired	NaN	NaN	30	FALSE
NodeProcessMemUsageHigh A master node's memory usage has exceeded the defined limits. **Index Type(s)**: PerConnection **Metric**: Node Processes - Memory Used %	90	95	30	TRUE

Oracle Coherence

The following alerts are available with both the solution package and standalone versions for Oracle Coherence.

OcAvailableMemoryLowCluster	A single alert is executed if the average percent memory used over max memory of all nodes in the cluster exceeds the specified thresholds.
OcAvailableMemoryLowNode	For each node in the cluster, an alert is executed if the percent memory used over max memory available for that node exceeds the specified thresholds.
OcAvailableMemoryLowNodeSpike	For each node in the cluster, an alert is executed if the percent memory used exceeds the specified threshold for the percent above average memory used in the previous 24 hours. For example, if the threshold is set to 50% of total memory used, and the average memory consumption on a particular node for the previous 24 hours is 40%, an alert will be executed if current memory usage exceeds 60% of the total. NOTE: The 24 hour time span (86400 seconds) is controlled by the $AVERAGE_MEMORY_TIME_WINDOW substitution. The warning default setting is **115** (percent) of the previous 24 hours and the alarm default setting is **125** (percent) of the previous 24 hours. By default the alert is disabled.
OcBadCommunicationCluster	A single alert is executed if the average communication failure rate of all nodes in the cluster exceeds the specified thresholds.
OcBadCommunicationNode	For each node in the cluster, an alert is executed if the communication failure rate for that node exceeds the specified thresholds.

OcBadCommunicationNodesInTimeRange	Executes a single warning and a single alert if the percentage of nodes in a cluster exceeds the specified threshold for the BadCommunicationNode alert within a time range specified. To specify the time range, modify the $BAD_COMMUNICATION_NODES_TIME_RANGE substitution. The default time range setting is 5 minutes (300 seconds), the warning default setting is **40** (percent) and the alarm default setting is **50** (percent). By default the alert is enabled.
OcCacheHitPercentageLow	This alert is executed when the current **Hit%** (total current hits/total current gets) is below the specified threshold for a sampling period and the specified cache(s).
OcCacheQueueSizeHigh	A single alert is executed when the CacheQueueSize for all nodes in the cluster exceeds the specified thresholds. By default the alert is disabled with the following default settings: Warning is **100** (total objects), Alarm is **200** (total objects) and Duration is **60** (total objects).
OcCacheRateCacheMissesHigh	Executes when the Misses per second exceed the specified threshold and duration. The rate is for a given tier of a cache for a given service in a cluster. The tier can be front, where appropriate, or back. Caches and services are named, and clusters are represented by their named monitoring connection. This alert has PerCluster, PerService, PerCache and overrides. This alert appears in the Other Category when triggered. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. By default the alert is disabled with the following default settings: Warning is **1000**, Alarm is **2000** and Duration is **0** (seconds). Before enabling this alert, you MUST change the default settings to values that are suitable for your environment.
OcCacheRateStoreReadsHigh	Executes when the cache StoreReads rate per second exceeds the specified thresholds and durations. The rate is for a given tier of a cache for a given service in a cluster. The tier can be front, where appropriate, or back. Caches and services are named, and clusters are represented by their named monitoring connection. This alert has PerCluster, PerService, PerCache and overrides. This alert appears in the Other Category when triggered. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. By default the alert is disabled with the following default settings: Warning is **1000**, Alarm is **5000** and Duration is **0** (seconds). Before enabling this alert, you MUST change the default settings to values that are suitable for your environment.
OcCacheRateStoreWritesHigh	Executes when the cache StoreWrites rate per second exceeds the specified thresholds and durations. The rate is for a given tier of a cache for a given service in a cluster. The tier can be front, where appropriate, or back. Caches and services are named, and clusters are represented by their named monitoring connection. This alert has PerCluster, PerService, PerCache and overrides. This alert appears in the Other Category when triggered. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. By default the alert is disabled with the following default settings: Warning is **1000**, Alarm is **5000** and Duration is **0** (seconds). Before enabling this alert, you MUST change the default settings to values that are suitable for your environment.

OcCacheRateTotalGetsHigh	Executes when the cache total gets rate per second exceeds the specified thresholds and durations. The rate is for a given tier of a cache for a given service in a cluster. The tier can be front, where appropriate, or back. Caches and services are named, and clusters are represented by their named monitoring connection. This alert has PerCluster, PerService, PerCache and overrides. This alert appears in the Other Category when triggered. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. By default the alert is disabled with the following default settings: Warning is **1000**, Alarm is **5000** and Duration is **0** (seconds). Before enabling this alert, you MUST change the default settings to values that are suitable for your environment.
OcCacheRateTotalPutsHigh	Executes when the cache DeltaTotalPuts rate per second exceeds the specified thresholds and durations. The rate is for a given tier of a cache for a given service in a cluster. The tier can be front, where appropriate, or back. Caches and services are named, and clusters are represented by their named monitoring connection. This alert has PerCluster, PerService, PerCache and overrides. This alert appears in the Other Category when triggered. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. By default the alert is disabled with the following default settings: Warning is **1000**, Alarm is **5000** and Duration is **0** (seconds). Before enabling this alert, you MUST change the default settings to values that are suitable for your environment.
OCCacheSizeHigh	Executes when the number of objects in a cache exceeds the specified threshold. By default the alert is disabled with the following default settings: Warning is **1000** (count), Alarm is **5000** (count) and Duration is **60** (seconds). This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. NOTE: If you want to know when the size of a specific cache exceeds specific thresholds, it might be preferable to use the **Per Cache** or **Per Storage Class** override settings, allowing you set specific thresholds for specific caches.
OCCacheSizeLow	Executes when the number of objects in a cache goes below the specified threshold. By default the alert is disabled with the following default settings: Warning is **1000** (count), Alarm is **5000** (count) and Duration is **60** (seconds). NOTE: If you want to know when the size of a specific cache goes below specific thresholds, it might be preferable to use the **Per Cache** or **Per Storage Class** override settings, allowing you set specific thresholds for specific caches.
OcCapacityLimitAllCaches	An alert is executed if the percent cache used over cache capacity for any cache in the cluster exceeds the specified thresholds. There is one highWarning and one highAlert threshold. For example, if there are 3 caches in a cluster, where: **cache1 val = 95** **cache2 val = 100** **cache3 val = 70** and the CapacityLimitAllCaches highWarning is **80** and highAlert is **90**, one high alert is executed.

OcCapacityLimitCache	Executes when the average CPU usage for the cluster / storage class exceeds the specified thresholds and durations. This alert has a per cluster and a per (cluster) storage class override. This alert appears in the Other Category when executed. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. By default the alert is disabled with the following default settings: Warning is **95** (percent), Alarm is **95** (percent) and Duration is **60** (seconds).
OcClusterNodesRcvdFailureRateHigh	Executes when the average network/packet received failure rate for the cluster/storage class exceeds the specified thresholds and durations. The metrics are averaged across all nodes of a storage class in a cluster. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. This alert has a per cluster and a per (cluster) storage class override. Note that this alert appears in the Network Category when executed. By default the alert is disabled with the following default settings: Warning is **95** (percent), Alarm is **95** (percent) and Duration is **60** (seconds).
OcClusterNodesSentFailureRateHigh	Executes when the average network/packet sent failure rate for the cluster / storage class exceeds the specified thresholds and durations. The metrics are averaged across all nodes of a storage class in a cluster. This is a Key Metrics alert that is available with the RTView Enterprise Monitor when the Oracle Coherence Monitor is installed. This alert has a per cluster and a per (cluster) storage class override. Note that this alert appears in the Memory Category when executed. By default the alert is disabled with the following default settings: Warning is **95** (percent), Alarm is **95** (percent) and Duration is **60** (seconds).
OcDepartedNode	For each node in the cluster, an alert is executed if the time a node is absent from the cluster exceeds the specified thresholds. When the departed node rejoins the cluster, the alert is cleared.
OcDepartedNodesPercentage	This scalar alert executes a single warning and a single alert if the percentage of nodes departed from the cluster exceeds the specified thresholds within the specified time periods. The percentage is measured against the total number of nodes in the cluster, including both running and departed nodes. The time period is set in the **rtview.properties** file using the $NODES_DEPARTED_TIME_WINDOW substitution. The time period can also be overridden using the command line interface. For example, the following sets a time window of 300 seconds: -sub:$NODES_DEPARTED_TIME_WINDOW:300 The time period default setting is **600** (10 minutes), the warning default setting is **90** (percent) and the alarm default setting is **95** (percent). By default the alert is disabled.
OcEndangeredAllCaches	This alert is executed if the StatusHA for the cache service is NODE_SAFE (high warning) or ENDANGERED (high alert).
OcEndangeredCache	For each node in the cluster, an alert is executed if the StatusHA value is ENDANGERED. By default the alert is disabled.
OcExtendConnectionByteBacklogHigh	This limits alert executes a single warning and a single alert if the OutgoingByteBacklog for a Proxy Extend Connection exceeds the specified thresholds. By default the alert is disabled with the following default settings: Warning is **1000** (bytes), Alert is **5000** (bytes).

OcHATargetFailed	This alert executes when the distributed service target status (HATarget) is not met. The HATarget value is determined using the PartitionAsignment MBean in Coherence Versions 12 and above. In prior Coherence versions, the default value of MACHINE-SAFE is used. The default value can be overridden by setting the substitution variable $ocmDefaultHATarget to the desired value.
OcHighGCDutyCycleNode	This scalar alert executes a single warning and a single alert if a node exceeds the specified duty cycle threshold (the percent of time spent in Garbage Collection). By default the alert is enabled with the following default settings: Warning is **10** (percent), Alarm is **20** (percent) and Duration is **10** seconds.
OcHighPendingRequestNode	A single alert is executed if the RequestPendingCount amount exceeds the specified threshold. This alert allows for setting the warning level, alarm level and duration. By default the alert is disabled.
OcHighTaskBacklogNode	A single warning and a single alert are executed if the number of backlogged tasks exceeds the specified user threshold. This alert allows for setting the warning level, alarm level and duration. The default setting executes a warning if the number of backlogged tasks exceeds **10**, and executes an alert if the number of backlogged tasks exceeds **20**. By default the alert is disabled.
OcHighThreadAbandonedNode	A single alert is executed if the Coherence Thread Abandoned Count amount exceeds the specified threshold. This alert allows for setting the warning level, alarm level and duration. The default setting executes a warning and an alert if the Thread Abandoned Count amount exceeds **0**. The default duration setting is **60**. By default the alert is enabled.
OcJmxProcessingTime	This alert is executed if the sum of time for JMX queries and all data processing functions exceeds the specified threshold for the **jmxsampleperiod** property. By default the alert is disabled with the following default settings: Warning is **80** (percent), Alarm is **90** (percent) and Duration is **0** (seconds). NOTE: The OcJmxProcessingTime alert does not support overrides. For that alert the Override Count is displayed as **-1**.

OcLongGCDurationNode	A single warning and a single alert are executed if any of the last garbage collection times exceed the specified duration. The default setting executes a warning if the duration exceeds 1 second, and executes an alert if the duration exceeds 2 seconds. It is possible for GC times to exceed the specified duration and NOT execute an alert. This is possible if it occurs between the alert duration time and an alert condition time. For example, if your alert duration is 60 seconds, and there is also an alert condition set at 27 seconds into that 60 seconds, the following scenarios could occur (where XX:XX:XX is Hours:Minutes:Seconds): **Scenario 1:** 12:00:00 GC amount is below the specified threshold. No alert executed. 12:00:27 GC amount exceeds the specified threshold. Alert ignored for now. 12:01:00 C amount is below the specified threshold. No alert executed. **Scenario 2:** 12:00:00 GC amount is below the specified threshold. No alert executed. 12:00:27 GC amount exceeds the specified threshold. Alert ignored for now. 12:01:00 GC amount remains above the specified threshold. Alert executed. By default the alert is enabled.
OcLowClientNodeCount	This alert executes if the total number of nodes being monitored, including storage enabled nodes, client nodes, and management (JMX) nodes, exceeds the specified threshold. When the count returns to above to above the threshold (departed nodes rejoin the cluster), the alert is cleared. By default the alert is disabled.
OcLowStorageNodeCount	This alert executes if the total number of storage nodes in the cluster exceeds the specified threshold. When the count returns to above to above the threshold (departed nodes rejoin the cluster), the alert is cleared. By default the alert is disabled.
OcLowTotalNodeCount	This alert executes if the total number of client nodes being monitored exceeds the specified threshold. When the count returns to above to above the threshold (departed nodes rejoin the cluster), the alert is cleared. By default the alert is disabled.
OcMemoryUsedPercentageAfterGC	This alert is executed if the percent of memory used on a node after garbage collection exceeds the specified threshold. By default the alert is disabled with the following default settings: Warning is **70** (percent), Alarm is **80** (percent) and Duration is **30** (seconds).
OcNodeSafeCache	For each node in the cluster, an alert is executed if the StatusHA value is **NODE-SAFE**. By default the alert is disabled.
OcNoJmxConnection	This alert is executed if a JMX connection remains disconnected after a specified duration of time. The default duration of time is **60** seconds. By default, this alert is enabled.
OcObjectCountDeltaUpCache	This tabular alert executes a single warning and a single alert for each cache in the cluster if the cache object count delta increases and exceeds the specified threshold. In addition to setting the warning and alarm levels, this alert also allows for setting the duration for each cache. When this alert is selected in the Active Alert Table, the Per Cache Alert Setting box is displayed (rather than the scalar alert box). By default the alert is disabled.

OcObjectCountDeltaDownCache	This tabular alert executes a single warning and a single alert for each cache in the cluster where the cache object count delta decreases and exceeds the specified threshold. In addition to setting the warning and alarm levels, this alert also allows for setting the duration for each cache. When this alert is selected in the Active Alert Table, the Per Cache Alert Setting box is displayed (rather than the scalar alert box). By default the alert is disabled.
OcProxyNodeByteBacklogHigh	This limits alert executes a single warning and a single alert if the OutgoingByteBacklog for a Proxy Node exceeds the specified threshold. This is often indicates overloaded capacity on an individual proxy node. By default the alert is disabled with the following default settings: Warning is **100** (bytes), Alert is **50** (bytes).
OcSendQueueSize	For each node in the cluster, an alert is executed if the Send Queue for that node exceeds the specified thresholds. By default the alert is disabled with the following default settings: Warning is **100** (seconds), Alarm is **200** (seconds) and Duration is **60** (seconds).
OcStoreFailure	This alert is executed if the number of StoreFailures exceeds the specified threshold. By default the alert is disabled with the following default settings: Warning is **1** (second), Alarm is **10** (seconds) and Duration is **30** (seconds).
OcStoreReadMillisHigh	This alert is executed if the current average read per millisecond (total current StoreReadMillis/total current StoreReads) exceeds the specified threshold for a sampling period and the specified cache(s).

Oracle Database

The following alerts are available for Oracle Database. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
OraDatabaseConnectionLoss Executes a single alert if the SQL database connection state is false. Index Type: Per Database Metric: Connected	NaN	NaN	30	FALSE
OraDatabaseQueryError Executes a single alert if the if the last query state is false (an error). Index Type: Per Database Metric: Last Query Status	NaN	NaN	30	FALSE

OraDatabaseResponseTimeHigh Executes a single warning and a single alarm if the time (in milliseconds) to execute a SQL query exceeds the specified threshold. Index Type: Per Database Metric: ResponseTimeMilliSec	200	220	30	FALSE
OraDatabaseSpaceUsedHigh Executes a single warning and a single alarm if the percent utilization of the space allocated to the database exceeds the specified threshold. Index Type: Per Database Metric: PercentUsedSpace	80	90	30	FALSE
OraDatabaseTablespaceUsedHigh Executes a single warning and a single alarm if the percent utilization of the database used by the tablespace exceeds the specified threshold. Index Type: Per Table Space Metric: USED_PERCENT	80	90	30	FALSE
OraInstanceAvgQueryTimeHigh Executes a single warning and a single alarm if the average time (in milliseconds) to perform a query exceeds the specified threshold. Index Type: Per Instance Metric: AVGQUERYTIME	300	400	30	FALSE
OraInstanceCommitRateHigh Executes a single warning and a single alarm if the number of commits per second exceeds the specified threshold. Index Type: Per Instance Metric: RateCOMMITS	250	300	30	FALSE
OraInstanceNumCurrentLoginsHigh Executes a single warning and a single alarm if the number of database clients exceeds the specified threshold. Index Type: Per Instance Metric: CURRENT_LOGINS	12	15	30	FALSE
OraInstanceDataDictHitRatioLow Executes a single warning and a single alarm if the data dictionary hit ratio goes below the specified threshold. Index Type: Per Instance Metric: DD_HIT_RATIO	95	90	30	FALSE
OraInstanceDiskReadRateHigh Executes a single warning and a single alarm if the number of physical disk reads per second exceeds the specified threshold. Index Type: Per Instance Metric: RatePHYSICAL_READS	250	300	30	FALSE

OraInstanceDiskWriteRateHigh Executes a single warning and a single alarm if the number of physical disk writes per second exceeds the specified threshold. Index Type: Per Instance Metric: RatePHYSICAL_WRITES	250	300	30	FALSE
OraInstanceLatchHitRatioLow Executes a single warning and a single alarm if the latch hit ratio goes below the specified threshold. Index Type: Per Instance Metric: LatchHitPerCent	95	90	30	FALSE
OraInstanceMaxQueryTimeHigh Executes a single warning and a single alarm if the query time (in milliseconds) exceeds the specified threshold. Index Type: Per Instance Metric: MAXQUERYTIME	10000	15000	30	FALSE
OraInstanceNumActiveSessionsHigh Executes a single warning and a single alarm if the number of active sessions for the instance exceeds the specified threshold. Index Type: Per Instance Metric: ACTIVE_SESSIONS	12	15	30	FALSE
OraInstanceNumCurrentLoginsHigh Executes a single warning and a single alarm if the number of current logins for the instance exceeds the specified threshold. Index Type: Per Instance Metric: CURRENT_LOGINS	12	15	30	FALSE
OraInstanceRollbackRateHigh Executes a single warning and a single alarm if the number of rollbacks per second exceeds the specified threshold. Index Type: Per Instance Metric: RateROLLBACKS	5	10	30	FALSE
OraInstanceSqlHitRatioLow Executes a single warning and a single alarm if the SQL hit ratio goes below the specified threshold. Index Type: Per Instance Metric: SQL_HIT_RATIO	95	90	30	FALSE
OraInstanceState Executes a single warning and a single alarm if the database is not in an ACTIVE or OPEN state for queries. Index Type: Per Instance Metric: AlertStatus	NaN	NaN	30	FALSE

Oracle WebLogic

The following alerts are available for Oracle WebLogic. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
WlsAppNewSessionsRateLow The rate per second of newly opened sessions is below the specified threshold. **Index Type(s)**: PerApplication	10	1	30	FALSE
WlsAppOpenSessionsHigh The maximum total number of open sessions for that application has been reached. **Index Type(s)**: PerApplication	7	10	30	FALSE
WlsClusterServersPercentNotRunningHigh The percentage of cluster not running is high. **Index Type(s)**: PerCluster	33	50	30	FALSE
WlsHoggingThreadsHigh The maximum number of hogging threads for that server has been reached. **Index Type(s)**: PerServer	15	20	30	FALSE
WlsJDBCConnectionsWaitingHigh Triggered when the number of threads waiting for a JDBC connection exceeds the threshold. **Index Type(s)**: PerConnection, PerLocation, PerModule, PerName	1	10	0	FALSE
WlsJmsBytesCurrentHigh The current number of bytes stored on this JMS server has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsJmsBytesPendingHigh The current number of bytes pending (unacknowledged or uncommitted) stored on this JMS Server has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsJmsConnectionsCurrentHigh The current number of connections to this JMS WebLogic Server has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsJmsDestinationBytesCurrentHigh The current number of bytes stored in the destination, not including the pending bytes, has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE

WlsJmsDestinationBytesPendingHigh The number of pending bytes stored in the destination has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsJmsDestinationConsumersCurrentLow The number of pending bytes stored in the destination has reached its minimum. **Index Type(s)**: PerServer	15	5	30	FALSE
WlsJmsDestinationMessagesCurrentHigh The current number of messages in the destination has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsJmsDestinationMessagesPendingHigh The number of pending messages in the destination has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE

WlsJmsDestinationsCurrentLow
The current number of destinations on this JMS Server has reached its minimum.
Index Type(s): PerServer
Note: To enable this alert, you must uncomment the following options under the **Collect all other metrics** section in the **sample.properties** file:
`# Collect all other metrics; all or none`
 	
`collector.sl.rtview.cache.config=wls_workmgr_cache.rtv`
`collector.sl.rtview.cache.config=wls_auxiliary_cache.rtv`
`collector.sl.rtview.cache.config=wls_jmsserver_cache.rtv`
`collector.sl.rtview.cache.config=wls_jmsbridge_cache.rtv`
`collector.sl.rtview.cache.config=wls_jmspstore_cache.rtv`
	85	95	30	FALSE

WlsJmsMessagesPendingHigh The current number of messages pending (unacknowledged or uncommitted) stored on this JMS Server has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsJmsServerHealthNotOK The health state of this JMS Server is not OK. **Index Type(s)**: PerServer	NaN	NaN	30	FALSE

WlsLockedUserCurrentHigh
The maximum number of current locked users for that server has been reached.
Index Type(s): PerServer
Note: To enable this alert, you must uncomment the following options under the **Collect all other metrics** section in the **sample.properties** file:
`# Collect all other metrics; all or none`
 	
`collector.sl.rtview.cache.config=wls_workmgr_cache.rtv`
`collector.sl.rtview.cache.config=wls_auxilary_cache.rtv`
`collector.sl.rtview.cache.config=wls_jmsserver_cache.rtv`
`collector.sl.rtview.cache.config=wls_jmsbridge_cache.rtv`
`collector.sl.rtview.cache.config=wls_jmspstore_cache.rtv`
	85	95	30	FALSE

WlsOpenSocketsHigh The maximum number of open sockets for that server has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsPendingRequestCurrentHigh The maximum number of current requests for that server has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsQueueLengthHigh The number of pending requests in the priority queue has reached its maximum. This is the total of internal system requests and user requests. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerCpuHigh The server CPU has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerHealthNotOK The server health is not OK. **Index Type(s)**: PerServer	NaN	NaN	30	FALSE
WlsServerHostCpuHigh The CPU percentage of the host server has reached its maximum. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerMemoryUsageHigh The maximum used memory established for the server has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerNewSessionsLow The number of new sessions created is below the threshold. **Index Type(s)**: PerServer	15	5	30	FALSE

WlsServerOpenSessionsHigh The maximum number of open sessions for that server has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerPendingUserRequestsHigh The maximum number of pending user requests has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerReloadsHigh The maximum number of reloads for that server has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE
WlsServerStaleData The server has stale data. **Index Type(s)**: PerServer	NaN	NaN	30	FALSE
WlsServerStateNotRunning The state of the server is different from "Running." **Index Type(s)**: PerServer	NaN	NaN	30	FALSE
WlsThreadsTotalHigh The total number of threads for that server has been reached. **Index Type(s)**: PerServer	50	95	30	FALSE
WlsTransactionRolledBackTotalHigh The total number of transactions rolled back has been reached. **Index Type(s)**: PerServer	85	95	30	FALSE

RTView Host Agent

The following alerts are available for RTView Host Agent. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
HostCpuLoadAvg1High Executes a single warning alert and a single alarm alert if the average CPU load per minute exceeds the specified threshold. Index Type(s): PerHost Metric: loadAvg1	50	75	30	FALSE

HostCpuLoadAvg5High Executes a single warning alert and a single alarm alert if the average CPU load per 5 minutes exceeds the specified threshold. Index Type(s): PerHost Metric: loadAvg5	50	75	30	FALSE
HostCpuLoadAvg15High Executes a single warning alert and a single alarm alert if the average CPU load per 15 minutes exceeds the specified threshold. Index Type(s): PerHost Metric: loadAvg15	50	75	30	FALSE
HostCpuPercentHigh Executes a single warning alert and a single alarm alert if the percent CPU load exceeds the specified threshold. Index Type(s): PerHost Metric: hostCpuPercent	50	75	30	FALSE
HostMemoryUsedHigh Executes a single warning alert and a single alarm alert if the percent of physical memory used exceeds the specified threshold. Index Type(s): PerHost Metric: MemUsedPerCent	75	90	5	FALSE
HostNetworkRxRateHigh Executes a single warning alert and a single alarm alert if the inbound network data rate, in kilobytes per second, exceeds the specified threshold. Index Type(s): PerHost Metric: RateRxKBytes	50	75	30	FALSE
HostNetworkTxRateHigh Executes a single warning alert and a single alarm alert if the outbound network transmission rate, in kilobytes per second, exceeds the specified threshold. Index Type(s): PerHost Metric: RateTxKBytes	50	75	30	FALSE
HostProcessCountLow Executes a single warning alert and a single alarm alert if the process count exceeds the specified threshold. Index Type(s): PerHost Metric: Count	80	90	30	FALSE
HostStaleData Executes a single alarm alert and sets the Expired flag to **true** if data is not received from the given host within the specified expiration time interval. Index Type(s): PerHost Metric: Expired	NaN	NaN	30	FALSE

HostStorageUsedHigh Executes a single warning alert and a single alarm alert if the percent of space used on the storage medium exceeds the specified threshold. Index Type(s): PerStorage Metric: percentused	80	90	5	FALSE
HostSwapUsedHigh Executes a single warning alert and a single alarm alert if the percent of used swap space exceeds the specified threshold. Index Type(s): PerHost Metric: swapUsedPerCent	75	90	30	FALSE
HostVirtualMemoryUsedHigh Executes a single warning alert and a single alarm alert if the percent of used virtual memory exceeds the specified threshold. Index Type(s): PerHost Metric: VMemUsedPerCent	75	90	30	FALSE

RTView Manager and RTView Rules

If the Solution Packages for RTView Server Mangaer and RTView Rules (which come with RTView Enterprise Monitor) are installed on your system you might see the following alert types for RTView Servers (Data Servers, Display Servers and Historian Servers):

RTView Server Manager Alert Types

JvmCpuPercentHigh	Executes a single warning alert and a single alarm alert if the percent of JVM CPU used exceeds the specified threshold. Index Type: Per JVM Metric:: CpuPercent
JvmGcDutyCycleHigh	Executes a single warning alert and a single alarm alert if the garbage collector duty cycle exceeds the specified threshold. Index Type: Per GC Source Metric: DutyCycle
JvmMemoryUsedAfterGCHigh	Executes a single warning alert and a single alarm alert if the percent of memory used after garbage collection exceeds the specified threshold. Index Type: Per GC Source Metric: PctMemoryUsedAfterGC
JvmMemoryUsedHigh	Executes a single warning alert and a single alarm alert if the percent of memory used exceeds the specified threshold. Index Type(s): Per JVM Metric: MemoryUsedPercent

JvmNotConnected	Executes a single alert if the JVM is disconnected, indicating that it might have crashed. Index Type(s): Per JVM Metric: Connected
JvmStaleData	Executes a single alert if the data update wait time exceeds the specified duration threshold. Index Type(s): Per JVM Metric: Expired
JvmThreadCountHigh	Executes a single warning alert and a single alarm alert if the number of threads exceeds the specified threshold. Index Type(s): Per JVM Metric: ThreadCount
TomcatAccessRateHigh	Executes a single warning alert and a single alarm alert if the number of accesses per second exceeds the specified threshold. Index Type(s): Per Server Metric: RateaccessCount
TomcatActiveSessionsHigh	Executes a single warning alert and a single alarm alert if the number of active sessions exceeds the specified threshold. Index Type(s): Per Server Metric: activeSessions
TomcatAppAccessRateHigh	Executes a single warning alert and a single alarm alert if the number of accesses per second exceeds the specified threshold. Index Type(s): Per Application Metric: RateaccessCount
TomcatAppActiveSessionsHigh	Executes a single warning alert and a single alarm alert if the number of active sessions exceeds the specified threshold. Index Type(s): Per Application Metric: activeSessions

RTView Rules Alert Types

RtvEmServiceAlert	This discrete alert is generated when a Service has one or more alerts on any associated CIs.
RtvEmServiceAlertImpactHigh	This limits alert is generated when a Service has an Alert Impact value that exceeds the specified threshold on any associated CI.

Solace Message Router

The following alerts are available with both the solution package and standalone versions for Solace. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
SolBridgeInboundByteRateHigh The number of inbound bytes per second across the bridge has reached its maximum. Index Type: PerBridge	8000000	10000000	30	FALSE
SolBridgeInboundMsgRateHigh The number of inbound messages per second across the bridge as a whole has reached its maximum. Index Type: PerBridge	40000	50000	30	FALSE
SolBridgeOutboundByteRateHigh The number of outbound bytes per second across the bridge has reached its maximum. Index Type: PerBridge	8000000	10000000	30	FALSE
SolBridgeOutboundMsgRateHigh The number of outbound messages per second across the bridge has reached its maximum. Index Type: PerBridge	40000	50000	30	FALSE
SolClientInboundByteRateHigh The number of outbound bytes per second for the client has reached its maximum. Index Type: PerClient	8000000	10000000	30	FALSE
SolClientInboundMsgRateHigh The number of outbound messages per second for the client as a whole has reached its maximum. Index Type: PerClient	40000	50000	30	FALSE
SolClientOutboundByteRateHigh The number of outbound bytes per second for the client has reached its maximum. Index Type: PerClient	8000000	10000000	30	FALSE
SolClientOutboundMsgRateHigh The number of outbound messages per second for the client as a whole has reached its maximum. Index Type: PerClient	40000	50000	30	FALSE
SolClientSlowSubscriber One or more clients are consuming messages too slowly; endpoints may drop messages! Index Type: PerClient	1	NaN	30	FALSE
SolCspfNeighberDown State is not "OK" for one or more CSPF neighbors. Index Type: PerNeighbor	1	NaN	30	FALSE

SolEndpointPendingMsgsHigh The number of pending messages on a queue has reached its maximum. Index Type: PerEndpoint	8000	10000	30	FALSE
SolEndpointSpoolUsageHigh The endpoint is consuming too much message router memory for storing spooled messages. (Threshold units are megabytes.) Index Type: PerEndpoint	40	50	30	FALSE
SolGuaranteedMsgingHbaLinkDown For Guaranteed Messaging only, the Operational State for each HBA Fibre-Channel should be Online (e.g., not Linkdown). Index Type: PerHbaLink	0	NaN	30	FALSE
SolGuaranteedMsgingMatePortDown For Guaranteed Messaging only, the Mate Link Ports for ADB should have status OK. Index Type: PerADB	0	NaN	30	FALSE
SolGuaranteedMsgingNoMsgSpoolAdActive For Guaranteed Messaging only with Redundancy, at least one message router in an HA pair should show "AD-Active." Index Type: PerPair	0	NaN	30	FALSE
SolMsgRouterActiveDiskUtilHigh The utilization of the active disk partition for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterByteEgressUtilHigh The egress rate (bytes/sec) utilization (current egress rate divided by max allowed) for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterByteIngressUtilHigh The ingress rate (bytes/sec) utilization (current ingress rate divided by max allowed) for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterConnectionUtilHigh The connection utilization for the message router (current number of connections divided by max allowed) is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterCpuTemperatureHigh CPU temperature margin is above threshold. Index Type: PerApplianceSensor	-30	-15	30	FALSE
SolMsgRouterCspfNeighborDown Link-detect = no for CSPF neighbor. Index Type: PerAppliance	1	NaN	30	FALSE

SolMsgRouterDelvrdUnAckMsgUtilHigh The delivered unacked messages as a percentage of all messages delivered for the application is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterFailoverDetected The backup message router in a HA pair has assumed control. Index Type: PerAppliance	1	NaN	30	FALSE
SolMsgRouterFanSensorCheckFailed The speed measured for one or more fans is below threshold. Index Type: PerApplianceSensor	5000	2657	30	FALSE
SolMsgRouterInboundByteRateHigh The number of inbound bytes per second for the message router has reached its max threshold. Index Type: PerAppliance	400000	500000	30	FALSE
SolMsgRouterInboundMsgRateHigh The number of inbound messages per second for the message router has reached its max threshold. Index Type: PerAppliance	400000	500000	30	FALSE
SolMsgRouterIngressFlowUtilHigh The ingress flow utilization (current flows divided by max allowed) for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterInterfaceDown Link-detect = no for one or more enabled network interfaces. Index Type: PerSolInterface	NaN	NaN	30	FALSE
SolMsgRouterMsgCountUtilHigh The message count utilization for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterMsgEgressUtilHigh The message egress rate utilization (current message egress rate divided by max allowed) for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterMsgIngressUtilHigh The message ingress rate utilization (current message ingress rate divided by max allowed) for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterNABUsageHigh Network Acceleration Blade memory usage is excessive. Index Type: PerNAB	60	80	30	FALSE
SolMsgRouterNotConnected The message router is not ready for collecting performance monitoring data. Index Type: PerAppliance	NaN	NaN	30	FALSE

SolMsgRouterOutboundByteRateHigh The number of outbound bytes per second for the message router has reached its max threshold. Index Type: PerAppliance	400000	500000	30	FALSE
SolMsgRouterOutboundMsgRateHigh The number of outbound messages per second for the message router has reached its max threshold. Index Type: PerAppliance	400000	500000	30	FALSE
SolMsgRouterPendingMsgsHigh The total number of pending messages for this message router has reached its maximum. Index Type: PerAppliance	400000	500000	30	FALSE
SolMsgRouterPowerSupplyFailed A power supply has failed. Index Type: PerAppliance	0	NaN	30	FALSE
SolMsgRouterSpoolUtilization The amount of spool space used for messages is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterStandbyDiskUtilHigh The utilization of the standby disk partition for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterSubscriptionUtilHigh The subscription utilization (current number of subscriptions divided by max allowed) for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterSwapUsedHigh The amount of swap space used by the message router operating system is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterSyslogAlert This alert executes when a Solace Syslog Warning or Critical message is received. To get Syslog event alerts (in RTView Enterprise Monitor or the standalone Monitor), go to the Alert Administration display and enable the **SolMsgRouterSyslog** alert.	-	-	-	-
SolMsgRouterTemperatureSensorCheckFailed A chassis temperature measurement is above threshold. Index Type: PerAppliance	40	45	30	FALSE
SolMsgRouterTranSessionCntUtilHigh The transacted session count utilization for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterTranSessionResUtilHigh The transacted session resource utilization for the message router is excessive. Index Type: PerAppliance	70	85	30	FALSE
SolMsgRouterVoltageSensorCheckFailed A power supply voltage is high or low. Index Type: PerApplianceSesor	NaN	NaN	30	FALSE

SolVpnConnectionCountHigh The number of connections to the server has reached its maximum. Index Type: PerVPN	60	80	30	FALSE
SolVpnInboundByteRateHigh The number of inbound bytes per second for the vpn has reached its maximum. Index Type: PerVPN	8000000	10000000	30	FALSE
SolVpnInboundDiscardRateHigh The number of discarded inbound messages per second for the server is excessive. Index Type: PerVPN	1	5	30	FALSE
SolVpnInboundMsgRateHigh The number of inbound messages per second for the vpn as a whole has reached its maximum. Index Type: PerVPN	40000	50000	30	FALSE
SolVpnOutboundByteRateHigh The number of outbound bytes per second for the VPN has reached its maximum. Index Type: PerVPN	8000000	10000000	30	FALSE
SolVpnOutboundDiscardRateHigh The number of discarded outbound messages per second for the server is excessive. Index Type: PerVPN	1	5	30	FALSE
SolVpnOutboundMsgRateHigh The number of outbound messages per second for the server as a whole has reached its maximum. Index Type: PerVPN	40000	50000	30	FALSE
SolVpnPendingMsgsHigh The total number of pending messages for this destination has reached its maximum. Index Type: PerVPN	8000000	10000000	30	FALSE
SolVpnSubscriptionCountHigh The number of endpoints in this VPN has reached its maximum. Index Type: PerVPN	8000	10000	30	FALSE

TIBCO ActiveMatrix BusinessWorks

The following alerts are available with both the solution package and standalone versions for TIBCO® ActiveMatrix BusinessWorks™. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
BW6AppErrorState BW6 application status is not Running or Stopped (status is Impaired, AppError or StartFailed) Index Type: PerApp Metric: State	NaN	NaN	30	FALSE
Bw6AppExpired BW6 application expired due to application inactivity. Index Type: PerApp Metric: Stopped	NaN	NaN	30	FALSE
Bw6AppNodeCpuUsedHigh BW6 AppNode CPU usage exceeded limit. CPU Usage is the CPU time in use by all processes expressed as a percentage of the total CPU time available. Index Type: PerAppNode Metric: CPU Usage%	50	80	30	FALSE
Bw6AppNodeMemUsedHigh BW6 AppNode memory usage exceeded limit. Memory usage is the percentage of total JVM memory currently consumed by this appnode. Index Type: PerAppNode Metric: Memory Usage%	50	80	30	FALSE
Bw6AppNodeStopped BW6 AppNode stopped purposefully (for example, an administrator stopped the AppNode process). Index Type: PerAppNode Metric: State	NaN	NaN	10	FALSE
Bw6AppNodeUnreachable BW6 AppNode stopped abnormally (for example, the AppNode process crashed). Index Type: PerAppNode Metric: State	NaN	NaN	10	FALSE
Bw6AppProcessCreatedRateHigh BW6 Process created rate for application exceeded limit. Index Type: PerApp Metric: App Created Rate	50	80	30	FALSE
Bw6AppProcessElapsedTimeHigh BW6 Process delta elapsed time rate of increase for application exceeded limit. Index Type: PerApp Metric: App Elapsed Rate	200	400	30	FALSE

Bw6AppProcessExecutionTimeHigh BW6 Process delta execution time rate of increase for application exceeded limit. Index Type: PerApp Metric: App Execution Rate	200	400	30	FALSE
Bw6AppProcessFailedRateHigh BW6 Process failed rate for application exceeded limit. Index Type: PerApp Metric: App Failed Rate	50	80	30	FALSE
Bw6AppStopped BW6 application stopped. Index Type: PerApp Metric: Stopped	NaN	NaN	30	FALSE
Bw6ProcessActivityErrorRateHigh BW6 Process error rate exceeded limit. Index Type: PerProcess Metric: Process Failed Rate	50	80	30	FALSE
Bw6ProcessCreatedRateHigh BW6 Process error rate exceeded limit. Index Type: PerProcess Metric: Process Failed Rate	50	80	30	FALSE
Bw6ProcessElapsedTimeHigh BW6 Process delta elapsed time rate of increase exceeded limit. Index Type: PerProcess Metric: Delta Exec Rate	200	400	30	FALSE
Bw6ProcessExecutionTimeHigh BW6 Process delta execution time rate of increase exceeded limit. Index Type: PerProcess Metric: Delta Time Rate	200	400	30	FALSE
Bw6ProcessFailedRateHigh BW6 Process suspended rate exceeded limit. Index Type: PerProcess Metric: Suspended Rate	50	80	30	FALSE
Bw6ProcessSuspendRateHigh BW6 Process failed rate exceeded limit. Index Type: PerProcess Metric: Failed Rate	50	80	30	FALSE
BwActivityErrorRateHigh BW5 Activity error rate exceeded limit. The rate is calculated by taking the delta of total error returns in this update period and dividing by the length of the period. Index Type: PerActivity Metric: RateErrorCount	50	80	30	FALSE

BwActivityExecutionTimeHigh BW5 Activity execution time rate of increase exceeded limit The rate is calculated by taking the delta of total execution time in this update period and dividing by the length of the period. Index Type: PerActivity Metric: RateExecutionTime	200	400	30	FALSE
BwEngineCpuUsedHigh BW Engine CPU usage (% of total) exceeded limit. CPU Usage is the CPU time used by the BW engine expressed as a percentage of the total CPU time available. Index Type: PerEngine Metric: CPU Usage%	50	80	30	FALSE
BwEngineMemUsedHigh BW Engine memory usage (% of total) exceeded limit. Memory usage is the percentage of total JVM memory currently consumed by this engine. Index Type: PerEngine Metric: PercentUsed	50	80	30	FALSE
BwEngineStopped BW Engine has stopped running. Index Type: PerEngine Metric: Stopped	NaN	NaN	30	FALSE
BwEngineUnreachable BW engine stopped abnormally. Index Type: PerEngine Metric: State	NaN	NaN	30	FALSE
BwProcessAbortRateHigh BW Process aborted rate exceeded limit. The rate is calculated by taking the delta of total aborts in this update period and dividing by the length of the period. Index Type: PerProcess Metric: RateAborted	50	80	30	FALSE
BwProcessAvgElapsedTimeHigh BW Process Average Elapsed Time exceeded limit. Value is calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. Index Type: PerProcess Metric: Process Avg Elapsed Time	100	200	30	FALSE
BwProcessAvgExecutionTimeHigh BW Process average execution time exceeded limit. Index Type: PerProcess Metric: AverageExecution	0	0	0	FALSE
BwProcessCreatedRateHigh BW Process creation rate exceeded limit. The rate is calculated by taking the number of process instances created in the interval and dividing by the length of the interval in seconds. Index Type: PerProcess Metric: Processes Created/sec	100	200	30	FALSE

BwProcessCreatedRateLow BW Process creation rate per second went below limit. Index Type: PerProcess Metric: App Created Rate	0	0	0	FALSE
BwProcessElapsedTimeHigh BW Process elapsed time rate of increase exceeded limit. The rate is calculated by taking the delta of total elapsed time in this update period and dividing by the length of the period. Index Type: PerProcess Metric: RateTotalElapsed	50	80	30	FALSE
BwProcessExecutionTimeHigh BW Process execution time rate of increase exceeded limit. The rate is calculated by taking the delta of total execution time in this update period and dividing by the length of the period. Index Type: PerProcess Metric: RateTotalExecution	50	80	30	FALSE
BwProcessSuspendRateHigh BW Process suspended rate exceeded limit. The rate is calculated by taking the delta of total suspends in this update period and dividing by the length of the period. Index Type: PerProcess Metric: RateSuspended	50	80	30	FALSE
BwProcessTotalCpuPercentHigh BW Process CPU percent utilization exceeded limit. This is the percent CPU used by all process instances executing over the interval. Index Type: PerProcess Metric: Process Total CPU Percent	50	75	30	FALSE
BwServerCpuUsedHigh BW Server CPU usage (% of total) exceeded limit. CPU Usage is the CPU time in use by all processes expressed as a percentage of the total CPU time available. Index Type: PerServer Metric: CPU Usage%	60	85	30	FALSE
BwServerFreeMemLow BW Server free memory available (in megabytes) is below limit. Free memory means available physical (RAM) memory. Index Type: PerServer Metric: Memory Free Mbytes	15	5	30	FALSE
BwServerInactive BW Server has become inactive. The period of time specified by the substitution variable $bwserverExpirationTime has passed since data was last received from the server. Index Type: PerServer Metric: Expired	NaN	NaN	30	FALSE

BwServerMemUsedHigh BW Server memory usage (% of total) exceeded limit. Memory usage is the virtual memory in use expressed as a percentage of the available virtual memory. The meaning of available virtual memory is system-dependent: on Windows it refers to pagefile space; on Unix systems it refers to swap space. Index Type: PerServer Metric: Virtual Memory Used%	50	80	30	FALSE
HawkAlert Display Hawk alerts throughout the Monitor. To enable Hawk Alerts to be included in alert counts and displayed throughout the Monitor, scroll down to **HawkAlert** in the **Active Alert Table** and select the **Alert Enabled** checkbox. It is possible to filter unwanted alerts from the cache data so that those alerts are not included throughout the Monitor. To filter unwanted alerts out of the Hawk cache data, enter the following into the **sample.properties** file (located in the project directory you created). NOTE: Unwanted alerts are filtered out according to the AlertText. **sl.rtview.sub=$hawkAlertTextFilterOut:AlertText** For example, to filter out all Hawk Alerts in which the AlertText contains **Source** you would enter the following: **sl.rtview.sub=$hawkAlertTextFilterOut:Source** The default time to remove cleared Hawk Alerts from the table is **3600** seconds. To adjust this setting, edit the following in **sample.properties**: **sl.rtview.sub=$hawkAlertTextFilterOut:3600** Index Type: PerServer Metric: Hawk	NaN	NaN	-1	TRUE
JvmCpuPercentHigh The percentage of CPU that has been reached by the JVM is above the limit. Index Type: PerJVM Metric: CpuPercent	50	75	30	FALSE
JvmGcDutyCycleHigh The duty cycle is out the upper limit. Index Type: PerGC Metric: DutyCycle	50	75	30	FALSE
JvmMemoryUsedHigh The memory used out the upper limit Index Type: PerJVM Metric: MemoryUsedPercent	50	75	30	FALSE
JvmNotConnected The JVM in not connected. Index Type: PerJVM Metric: Connected	NaN	NaN	30	FALSE
JvmStaleData Cut in reception from that JVM. Index Type: PerJVM Metric: Expired	NaN	NaN	30	FALSE

TIBCO ActiveSpaces

The following alerts are available for TIBCO ActiveSpaces. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
TasMemberCpuHigh The CPU usage is above the defined thresholds. **Index Type(s)**: PerMember	80	95	30	FALSE
TasMemberEntriesHigh The number of objects inserted into the space is above the defined thresholds. **Index Type(s)**: PerMember	8000	10000	30	FALSE
TasMemberEvictsRateHigh The rate at which 'evicts' are occurring is above the defined thresholds. **Index Type(s)**: PerMember	80	100	30	FALSE
TasMemberExpireRateHigh The rate at which 'expires' are occurring is above the defined thresholds. **Index Type(s)**: PerMember	80	100	30	FALSE
TasMemberGetRateHigh The rate at which 'gets' are occurring is above the defined thresholds. **Index Type(s)**: PerMember	80	100	30	FALSE
TasMemberJvmMemoryUsedHigh The percent JVM memory used is above the defined thresholds. **Index Type(s)**: PerMember	80	95	30	FALSE
TasMemberMemoryUsedHigh The percent memory used is above the defined thresholds. **Index Type(s)**: PerMember	80	95	30	FALSE
TasMemberPutRateHigh The rate at which 'puts' are occurring is above the defined thresholds. **Index Type(s)**: PerMember	80	100	30	FALSE
TasMemberSeederCapacity The percentage utilization (number of entries/ capacity)*100 of the seeder is high for the given space. "Capacity per seeder" must be set in the space definition for this alarm to be effective. **Index Type(s)**: PerMemberandSpace	80	90	30	FALSE

TasMemberTakeRateHigh The rate at which 'takes' are occurring is above the defined thresholds. **Index Type(s)**: PerMember	80	100	30	FALSE
TasMetaspaceEntriesHigh The number of objects inserted into the metaspace is above the defined thresholds. **Index Type(s)**: PerMetaspace	8000	100000	30	FALSE
TasMetaspaceEvictsRateHigh The rate at which 'evicts' are occurring is above the defined thresholds. **Index Type(s)**: PerMetaspace	80	100	30	FALSE
TasMetaspaceExpireRateHigh The rate at which 'expires' are occurring is above the defined thresholds. **Index Type(s)**: PerMetaspace	80	100	30	FALSE
TasMetaspaceGetRateHigh The rate at which 'gets' are occurring is above the defined thresholds. **Index Type(s)**: PerMetaspace	80	100	30	FALSE
TasMetaspacePutRateHigh The rate at which 'puts' are occurring is above the defined thresholds. **Index Type(s)**: PerMetaspace	80	100	30	FALSE
TasMetaspaceTakeRateHigh The rate at which 'takes' are occurring is above the defined thresholds. **Index Type(s)**: PerMetaspace	80	100	30	FALSE
TasQueryDurationHigh The query duration (in seconds) is above the defined threshold (in seconds). **Index Type(s)**: PerSpace	4	5	30	FALSE
TasSpaceEntriesHigh The number of objects inserted into the space is above the defined thresholds. **Index Type(s)**: PerSpace	8000	100000	30	FALSE
TasSpaceEvictsRateHigh The rate at which 'evicts' are occurring is above the defined thresholds. **Index Type(s)**: PerSpace	80	100	30	FALSE
TasSpaceExpireRateHigh The rate at which 'expires' are occurring is above the defined thresholds. **Index Type(s)**: PerSpace	80	100	30	FALSE
TasSpaceGetRateHigh The rate at which 'gets' are occurring is above the defined thresholds. **Index Type(s)**: PerSpace	80	100	30	FALSE

TasSpacePutRateHigh The rate at which 'puts' are occurring is above the defined thresholds. **Index Type(s)**: PerSpace	80	100	30	FALSE
TasSpaceSeederCountLow Not enough seeders are available. **Index Type(s)**: PerSpace	NaN	NaN	30	FALSE
TasSpaceState The state of the space is "not ready". **Index Type(s)**: PerSpace	NaN	NaN	30	FALSE
TasSpaceTakeRateHigh The rate at which 'takes' are occurring is above the defined thresholds. **Index Type(s)**: PerSpace	80	100	30	FALSE

TIBCO Adapters

The following alerts are available for TIBCO Adapters. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
TadAdapterDeltaErrorsHigh The number of errors incurred by the adapter in last measurement interval is above the defined threshold. **Index Type(s)**: PerAdapter	1600	2000	30	FALSE
TadAdapterExpired The data from this adapter has not been updated since the last measurement interval. The data shown from this adapter is currently stale. **Index Type(s)**: PerAdapter	NaN	NaN	0	FALSE
TadAdapterMsgsRcvdRateHigh The number of messages received by this adapter since the last measurement interval is above the defined threshold. **Index Type(s)**: PerAdapter	1600	2000	60	FALSE
TadAdapterMsgsSentRateHigh The number of messages sent by the adapter in the last measurement interval is above the defined threshold. **Index Type(s)**: PerAdapter	1	2	60	FALSE

TIBCO BusinessEvents

The following alerts are available with both the solution package and standalone versions for TIBCO® BusinessEvents®.

TbeBackingStoreEraseRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which entries are erased from the backing store exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeBackingStoreLoadRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which entries are loaded from the backing store exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeBackingStoreStoreRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which entries are written to the backing store exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeClusterMalformed	This alert executes for any cluster where the member count is not equal to the expected cluster size. The expected cluster size is a count of the number of nodes that have the same cluster name, as discovered by reading the cluster MBean for each node in the connection property file. The MemberCount attribute is also read from the same cluster MBean, and is the number of nodes in the (sub)cluster which the current node has joined. The condition where these counts differ can occur if there are missing connections in the property file (for example, some nodes are unmonitored). It can also occur if, due to network or other anomalies, some nodes do not join the "main" cluster, but instead form a "sub-cluster" of one or more nodes. This condition is commonly referred to as "split-brain".
TbeDestinationStatusRecvdEventsRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which events are received from the channel exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeNodeConceptsGetRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which concepts are received from the cache exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeNodeConceptsPutRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which concepts are written to the cache exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeNodeConceptsRemoveRateHigh	This alert executes a single warning alert and a single alarm alert if the rate which concepts are removed from the cache exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeNodeConnectionLoss	This discrete alert executes when the JMX Connection to the TIBCO BusinessEvents agent is lost (the TCP connection flag for an engine is **false**).
TbeNodeEventsGetRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which events are received from the cache exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.

TbeNodeEventsPutRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which events are written to the cache exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeNodeEventsRemoveRateHigh	This alert executes a single warning alert and a single alarm alert if the rate which events are removed from the cache exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.
TbeObjectTableExtIdSize	This alert executes a single warning alert and a single alarm alert if the number of external object IDs exceeds the specified threshold. The warning default threshold is **9000** and the alarm default threshold is **10000**.
TbeObjectTableSize	This alert executes a single warning alert and a single alarm alert if the number of objects maintained by the cache exceeds the specified threshold. The warning default threshold is **9000** and the alarm default threshold is **10000**.
TbeRuleFiringRateHigh	This alert executes a single warning alert and a single alarm alert if the rate at which rules are executing exceeds the specified threshold. The warning default threshold is **80** and the alarm default threshold is **95**.

TIBCO Enterprise Message Service

The following alerts are available with both the solution package and standalone versions for TIBCO® Enterprise Message Service™. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
EmsConsumerStalled Indicates consumers are stalled or are no longer consuming messages (have not received a message within a defined threshold). The server must be running for a minimum time (5 minutes by default) before this alert is triggered. Thresholds are in seconds. **Note:** This alert does not allow overrides. **Index Type(s)**: PerConsumer:ID/ PerServerConsumer:URL;ID **Metric**: elapsedSinceLasAckInSec	85	95	30	FALSE

EmsConsumerStuck Indicates a consumer is stuck because there are existing messages that can be consumed (currentMsSentCount > 0), but none of the messages have been consumed within the defined warning and alert thresholds (elapsedSinceLasAckInSec > threshold). Alert and warning thresholds are in seconds. **Index Type(s)**: PerConsumer:ID/ PerServerConsumer:URL;ID **Metric**: currentMsgSentCount, elapsedSinceLasAckInSec	85	95	30	FALSE
EmsQueueConsumerIdleTimeHigh The idle time of the queue consumer has reached its maximum. This alert is triggered when there is no change in the number of incoming messages for a queue within a specified period of time (in seconds). **Index Type(s)**: PerQueue;PerServerQueue **Metric**: ConsumerIdleTime	60	80	30	FALSE
EmsQueueInboundDeltaHigh The number of new incoming messages for the EMS Queue has reached its maximum. **Index Type(s)**: PerQueue;PerServerQueue **Metric**: DeltainboundTotalMessages	60	80	30	FALSE
EmsQueueMsgLatencyHigh The time, in seconds, needed to process all pending messages based on the current outbound message rate exceeded its threshold. This alert does not take into account queues with outbound message rate equals to zero. **Index Type(s)**: PerServerQueue:URL;name **Metric**: messageLatency	60	80	30	FALSE
EmsQueueProviderIdleTimeHigh The queue idle time exceeded the specified threshold. A queue is idle when the number of inbound messages remains unchanged. **Index Type(s)**: PerServerQueue:URL;name **Metric**: ProviderIdleTime	60	80	30	FALSE
EmsQueuesConsumerCountHigh The number of consumers of a queue exceeded the specified high threshold. **Index Type(s)**: PerServerQueue:URL;name/ PerQueue:name **Metric**: consumerCount	60	80	30	FALSE
EmsQueuesConsumerCountLow The number of consumers of a queue is below the specified threshold. **Index Type(s)**: PerServerQueue:URL;name/ PerQueue:name **Metric**: consumerCount	15	5	30	FALSE

EmsQueuesInMsgRateHigh The rate of inbound messages on the queue exceeded the specified threshold. **Index Type(s)**: PerServerQueue:URL:name/ PerQueue:name **Metric**: inboundMessageRate	60	80	30	FALSE
EmsQueuesOutMsgRateHigh The number of outbound messages on the queue exceeded the specified threshold. **Index Type(s)**: PerServerQueue:URL;name **Metric**: outboundMessageRate	60	80	30	FALSE
EmsQueuesPendingMsgsHigh The number of pending messages on the queue exceeded the specified threshold. **Index Type(s)**: PerServerQueue:name;PerServerQueue:URL;name **Metric**: pendingMessageCount	60	80	30	FALSE
EmsQueuesProducerCountHigh The number of producers to a queue exceeded the specified high threshold. **Index Type(s)**: PerQueue:name/ PerServerQueue:URL;name **Metric**: producerCount	60	80	30	TRUE
EmsQueuesProducerCountLow The number of producers to a queue is below the specified threshold. **Index Type(s)**: PerQueue:name/ PerServerQueue:URL;name **Metric**: producerCount	15	5	30	TRUE
EmsServerAsyncDBSizeHigh The size of the Async database, in bytes, for the EMS Server reached its maximum. **Index Type(s)**: PerServer:URL **Metric**: asyncDBSize	50	100	30	FALSE
EmsServerInboundDeltaHigh The number of new incoming messages for the EMS Server has reached its maximum **Index Type(s)**: PerServer **Metric**: DeltainboundMessageCount	60	80	30	FALSE
EmsServerSyncDBSizeHigh The size of the Sync database, in bytes, for the EMS Server reached its maximum. **Index Type(s)**: PerServer:URL **Metric**: syncDBSize	50	100	30	FALSE
EmsServerConnectionCountHigh Alert is triggered when the number of connections to the server reaches the specified threshold. **Index Type(s)**: PerServer:URL **Metric**: connectionCount	60	80	30	FALSE

EmsServerInMsgRateHigh The number of inbound messages on the server exceeded the specified threshold. **Index Type(s)**: PerServer:URL **Metric**: inboundMessageRate	2	80	30	FALSE
EmsServerMemUsedHigh The percent memory used on the server exceeded the specified threshold. **Index Type(s)**: PerServer:URL **Metric**: messageMemoryPct	60	80	30	FALSE
EmsServerNotStarted The server state is empty. The server is not started. **Index Type(s)**: PerServer:URL **Metric**: NotStarted	NaN	NaN	30	FALSE
EmsServerOutMsgRateHigh The number of outbound messages on the server exceeded the specified threshold. **Index Type(s)**: PerServer:URL **Metric**: outboundMessageRate	60	80	30	FALSE
EmsServerPendingMsgsHigh The number of pending messages in the server queue exceeded the specified threshold. **Index Type(s)**: PerServer:URL **Metric**: pendingMessageCount	60	80	30	FALSE
EmsServerPendingMsgSizeHigh The size, in KB, of the pending messages stored on this EMS Server reached its maximum. **Index Type(s)**: PerServer:URL **Metric**: pendingMessageCount	60	80	30	FALSE
EmsServerRouteState One or more routes on the server are not active. **Index Type(s)**: PerServer:URL **Metric**: Alert State	NaN	NaN	30	FALSE
EmsServerStaleData The server stopped receiving data. **Index Type(s)**: PerServer:URL **Metric**: Expired	NaN	NaN	30	FALSE
EmsTopicConsumerIdleTimeHigh The idle time of the topic consumer has reached its maximum. This alert is triggered when there is no change in the number of incoming messages for a topic within a specified period of time (in seconds). **Index Type(s)**: PerTopic;PerServerTopic **Metric**: ConsumerIdleTime	60	80	30	FALSE

EmsTopicInboundDeltaHigh The number of new incoming messages for the EMS Topic has reached its maximum. **Index Type(s)**: PerTopic;PerServerTopic **Metric**: DeltainboundTotalMessages	60	80	30	FALSE
EmsTopicMsgLatencyHigh The time, in seconds, needed to process all pending messages based on the current outbound message rate exceeded its threshold. This alert does not take into account topics with outbound messages rates equal to zero. **Index Type(s)**: PerServerTopic **Metric**: messageLatency	60	80	30	FALSE
EmsTopicProviderIdleTimeHigh The topic idle time exceeded the specified threshold. A topic is idle when the number of inbound messages remains unchanged. **Index Type(s)**: PerServerTopic:URL;name **Metric**: ProviderIdleTime	60	80	30	FALSE
EmsTopicsConsumerCountHigh The number of consumers for the topic exceeded the specified threshold. **Index Type(s)**: PerServerTopic:URL;name **Metric**: consumerCount	60	80	30	FALSE
EmsTopicsConsumerCountLow The number of consumers for the topic is below the specified threshold. **Index Type(s)**: PerServerTopic **Metric**: consumerCount	60	80	30	FALSE
EmsTopicsInMsgRateHigh The number of inbound messages for the topic exceeded the specified threshold. **Index Type(s)**: PerServerTopic **Metric**: inboundMessageRate	60	80	30	FALSE
EmsTopicsOutMsgRateHigh The rate of outbound messages for the topic exceeded the specified threshold. **Index Type(s)**: PerServerTopic **Metric**: outboundMessageRate	60	80	30	TRUE
EmsTopicsPendingMsgsHigh The number of pending messages on the queue for the topic exceeded the specified threshold. **Index Type(s)**: PerTopic **Metric**: pendingMessageCount	50	75	30	FALSE
EmsTopicsProducerCountHigh The number of active producers for this topic exceeded the specified high threshold. **Index Type(s)**: PerTopic/PerServerTopic **Metric**: producerCount	60	80	30	TRUE

EmsTopicsProducerCountLow The number of producers for the topic is below the specified threshold. **Index Type(s)**: PerTopic/PerServerTopic **Metric**: producerCount	60	80	30	TRUE
EmsTopicsSubscriberCountHigh The number of subscribers for the topic exceeded the specified threshold. **Index Type(s)**: PerServerTopic **Metric**: subscriberCount	50	75	30	FALSE
JvmCpuPercentHigh The percent JVM CPU usage exceeded the specified threshold. **Index Type(s)**: PerJVM **Metric**: CpuPercent	30	40	30	FALSE
JvmGcDutyCycleHigh The JVM Garbage Collection contains an item that exceeded the specified duty cycle threshold (the percent of time spent in Garbage Collection). **Index Type(s)**: PerGC **Metric**: TimeUsedPercent	50	75	30	FALSE
JvmMemoryUsedHigh The percent JVM memory used exceeded the specified threshold. **Index Type(s)**: PerJVM **Metric**: MemoryUsedPercent	50	75	30	FALSE
JvmNotConnected The JVM is not connected. **Index Type(s)**: PerJVM **Metric**: Connected	NaN	NaN	30	FALSE
JvmStaleData The JVM stopped receiving data. **Index Type(s)**: PerJVM **Metric**: Expired	NaN	NaN	30	FALSE

TIBCO FTL

The following alerts are available for TIBCO FTL. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert	Warning Level	Alarm Level	Duration	Enabled
TftlClientCpuTime Executes a single warning and a single alarm if the CPU response time to the client exceeds the specified threshold. Index Type: PerClient Metric: Delta_CPU_TIME	160000	200000	30	FALSE
TftlClientCpuUsage Executes a single warning and a single alarm if the CPU usage by the client exceeds the specified threshold. Index Type: PerClient Metric:	160000	200000	30	FALSE
TftlClientExpired Executes a single alert if the response time to the client exceeds the specified threshold. Index Type: PerClient Metric:	NaN	NaN	30	FALSE
TftlClientMemory Executes a single warning and a single alarm if the memory usage by the client exceeds the specified threshold. Index Type: PerClient Metric: PROCESS_RSS_KB	160000	200000	30	FALSE
TftlClientMsgsRcvdRate Executes a single warning and a single alarm if the number of messages received by the client per second exceeds the specified threshold. Index Type: PerClient Metric: RateMESSAGES_RECEIVED	160000	200000	30	FALSE
TftlClientMsgsSentRate Executes a single warning and a single alarm if the number of messages sent by the client per second exceeds the specified threshold. Index Type: PerClient Metric: RateMESSAGES_SENT	160000	200000	30	FALSE
TftlClientNotRunning Executes a single if the client status is not "RUNNING". Index Type: PerClient Metric: Delayed Writes	NaN	NaN	30	FALSE
TftlClientVirtualMemory Executes a single warning and a single alarm if the virtual memory usage by the client exceeds the specified threshold. Index Type: PerClient Metric:	160000	200000	30	FALSE

TftlServerClientCount Executes a single warning and a single alarm if the number of clients on the FTL server exceeds the specified threshold. Index Type: PerServer Metric:	160	200	30	FALSE
TftlServerCpuTime Executes a single warning and a single alarm if the FTL server CPU response time exceeds the specified threshold. Index Type: PerServer Metric:	160	200	30	FALSE
TftlServerCpuUsage Executes a single warning and a single alarm if the FTL server CPU usage exceeds the specified threshold. Index Type: PerServer Metric:	60	80	30	FALSE
TftlServerExpired Executes a single warning and a single alarm if the FTL server response time exceeds the specified threshold. Index Type: PerServer Metric:	NaN	NaN	30	FALSE
TftlServerInboxSendFaults Executes a single warning and a single alarm if the number of times the FTL server fails to queue messages to the appropriate inbox exceeds the specified threshold. Index Type: PerServer Metric: SEND_TO_INBOX_FAILURES	160	200	30	FALSE
TftlServerMemory Executes a single warning and a single alarm if the FTL server memory usage exceeds the specified threshold. Index Type: PerServer Metric: PROCESS_RSS_KB	160	200	30	FALSE
TftlServerOnBackup Executes a single alert if the primary FTL server is down and now running on the backup FTL server. Index Type: PerServer Metric:	NaN	NaN	30	FALSE

TftlServerSatelliteCount Executes a single alert if the number of satellite servers is lower than expected. Note: Set threshold to one less than number of deployed satellites. Index Type: Response Time Metric: Table_locks_waited	NaN	5	30	FALSE
TftlServerVirtualMemory Executes a single warning and a single alarm if the FTL server virtual memory usage exceeds the specified threshold. Index Type: Response Time Metric: Table_locks_waited	160	200	30	FALSE

UX

The following are the Monitor alerts you can enable to be aware of any web application that is unresponsive, performing slowly, generating errors or returning invalid information. By default, Monitor alerts are disabled.

Monitor alerts execute when the UX Robot performs its routine runs on URLs. The **uxmon.properties** file defines which URLs the UX Robot checks and reports on. There are two types of Monitor alerts, UX-ROBOT alerts and UX-URL alerts.

- UX-ROBOT alerts apply to multiple URLs.
- UX-URL alerts apply to a single URL.

UXRobotError	During a UX Robot run, this UX-ROBOT alert executes a single warning alert and a single alarm alert if the number of URL errors exceed the specified threshold. The warning default threshold is **1** and the alarm default threshold is **10**. For example, the URL error message "no such URL" indicates an issue at the Web Server that serves the URL. Using the default settings, a warning alert executes if the UX Robot encounters 1 or more URL errors and an alarm alert executes if the UX Robot encounters 10 or more URL errors.
UXRobotResponseSlow	During a UX Robot run, this UX-ROBOT alert executes a single warning alert and a single alarm alert if the total response time for all specified URLs exceeds the specified threshold**.** The warning default threshold is **1000** milliseconds and the alarm default threshold is **2000** milliseconds.
UXRobotSearchSentinel	During a UX Robot run, this UX-ROBOT alert executes a single warning alert and a single alarm alert if the number of false URL responses (responses without the specified **searchString** in the URL line) exceeds the specified threshold. The warning default threshold is **1** and the alarm default threshold is **10**. For example, using the default settings, a warning alert executes if the UX Robot encounters 1 or more false responses from URLs and an alarm alert executes if the UX Robot encounters 10 or more false responses from URLs.
UXRobotTimeout	During a UX Robot run, this UX-ROBOT alert executes a single warning alert and a single alarm alert if the number of URL timeouts exceeds the specified maxTimeoutMS threshold. The warning default threshold is **1** and the alarm default threshold is **15**. For example, the URL error message "no such URL" indicates an issue at the Web Server that serves the URL. Using the default settings, a warning alert executes if the UX Robot encounters 1 or more URL errors and an alarm alert executes if the UX Robot encounters 15 or more URL errors.

UXURLError	During a UX Robot run, this UX-URL alert executes a single alert if the UX Robot receives an error message from a URL. The default setting is **TRUE**. For example, the URL error message "no such URL" indicates an issue at the Web Server that serves the URL.
UXURLResponseSlow	During a UX Robot run, this UX-URL alert executes a single warning alert and a single alarm alert if the response time for a URL exceeds the specified threshold. The warning default threshold is **1000** milliseconds and the alarm default threshold is **2000** milliseconds.
UXURLSearchSentinel	During a UX Robot run, this UX-URL alert executes an alert if the UX Robot receives a false URL response (a response without the specified **searchString** in the URL line). The default setting is **FALSE**.
UXURLTimeout	During a UX Robot run, this UX-URL alert executes an alert if the URL response time exceeds the specified maxTimeoutMS threshold. UX Robot receives a false URL response (a response without the specified **searchString**). The default setting is **TRUE**.

VMware vCenter

The following alerts are available for VMware vCenter. Default settings for warning and alarm thresholds, duration and whether the alert is enabled (true/false) are shown.

Alert Name	WARN. LEVEL	ALARM LEVEL	DURATION	ENABLED
VmwHostCpuUtilizationHigh The Host's CPU utilization is above the defined threshold. **Index Type(s)**: PerVmHost	50	75	2	TRUE
VmHostDiskBytesReadHigh The disk read rate (kBytes/seccond) is above the defined thresholds. **Index Type(s)**: PerVmHost	1024	2048	2	TRUE
VmHostDiskBytesWrittenHigh The disk write rate (kBytes/second) is above the defined thresholds. **Index Type(s)**: PerVmHost	1024	2048	2	TRUE
VmwHostInBytesHigh The inbound byte rate (KB/second) is above the defined thresholds. **Index Type(s)**: PerVmHost	1024	2048	2	TRUE
VmwHostInPktDropLossHigh The percentage of inbound packets dropped is above the defined threshold. **Index Type(s)**: PerVmHost	1	3	2	TRUE

VmwHostInPktErrorLossHigh The percentage of inbound packets discarded for any error is above the defined threshold. **Index Type(s)**: PerVmHost	1	3	2	TRUE
VmwHostMemoryUsageHigh The percentage memory utilzation (used/ configured) is above the defined threshold. **Index Type(s)**: PerVmHost	70	80	2	TRUE
VmwHostOutBytesHigh The outbound byte rate (KB/second) is above the defined threshold. **Index Type(s)**: PerVmHost	1024	2048	2	TRUE
VmwHostOutPktDropLossHigh The percentage of outbound packets dropped is above the defined thresholds. **Index Type(s)**: PerVmHost	1	3	2	TRUE
VmwHostOutPktErrorLossHigh The percentage of inbound packets discarded for any error is above the defined threshold. **Index Type(s)**: PerVmHost	1	3	2	TRUE
VmwHostStatusBad The overall status is not "green." **Index Type(s)**: PerVmHost	NaN	NaN	2	TRUE
VmwHostSwapUsedHigh The amount of swap space used by a host is above the defined thresholds. **Index Type(s)**: PerVmHost	10240	40960	2	TRUE
VmwVmCpuUtilizationHigh The virtual machine CPU utilization is above the defined thresholds. **Index Type(s)**: PerVm	50	75	2	TRUE
VmwVmDiskBytesReadHigh The disk read rate (KB/second) is above the defined thresholds. **Index Type(s)**: PerVm	1024	2048	2	TRUE
VmwVmDiskBytesWrittenHigh The disk write rate (KB/second) is above the defined thresholds. **Index Type(s)**: PerVm	1024	2048	2	TRUE
VmwVmDiskUsageHigh The amount of disk space used by the virtual machine is above the defined threshold. **Index Type(s)**: PerVm	85	95	30	TRUE
VmwVmInBytesHigh The inbound byte rate (KB/second) is above the defined threshold. **Index Type(s)**: PerVm	1024	2048	2	TRUE

VmwVmInPktDropLossHigh The percentage of inbound packet loss due to dropped packets is above the defined threshold. **Index Type(s)**: PerVm	1	3	30	TRUE
VmwVmMemoryUsageHigh The percentage of memory utilization (active/ configured) is above the defined thresholds. **Index Type(s)**: PerVm	70	80	2	TRUE
VmwVmOutBytesHigh The outbound byte rate is above the defined threshold. **Index Type(s)**: PerVm	1024	2048	2	TRUE
VmwVmOutPktDropLossHigh The percentage of outbound packet loss due to dropped packets on the virtual machine is above the defined threshold. **Index Type(s)**: PerVm	1	3	2	TRUE
VmwVmStatusBad The overall status for this virtual machine is not "green." **Index Type(s)**: PerVm	NaN	NaN	2	TRUE
VmwVmSwapUsedHigh The amount of host memory swapped out for the virtual machine by the host's virtual machine kernal is above the defined threshold. This metric is not related to any swapping the may occur in the guest operating system. **Index Type(s)**: PerVm	3072	4096	2	TRUE

APPENDIX E Oracle Coherence JMX Connection Options

The RTView Monitor application collects capacity and performance metrics from an operational Coherence Cluster using standard JMX protocols. These metrics are made available to developers and support personnel for analysis and alerting using RTView desktop applications, Web browser clients, or passively via event-triggered alerts.

There are several modes by which the Monitor may connect to a Coherence cluster using JMX. With RTView, users have a choice as to which mode to use, either of which may be relevant or appropriate depending on the monitoring requirement. This is especially important in a situation where users are called on to monitor and manage multiple disparate clusters. This section includes:

Connection to Cluster Using JMX Remote Port or RMI URL

In this mode, the Monitor makes a connection to a remote JMX port or RMI URL exposed by a node in the cluster that has been configured as a Coherence "management" node on startup. This node must also have defined its JMX remote port or RMI URL using standard JMX configuration properties and may include a requirement for secure user authentication.

Once connected, the Monitor begins querying all (or a subset) of the MBeans from the Coherence management node at a regular interval.

NOTE: The management node may exist on the same machine as the Monitor; the "remote" designation simply means that the JMX connection is made to MBeans instanced in a separate process from the Monitor.

The information required for the Monitor to connect in this manner is minimal, only the host and port, or RMI URL. Typically, this makes it quick and easy to begin monitoring a cluster, a particular advantage in development environments where clusters come and go on a regular basis. There is no need to configure, then start and stop an agent in order to monitor the cluster.

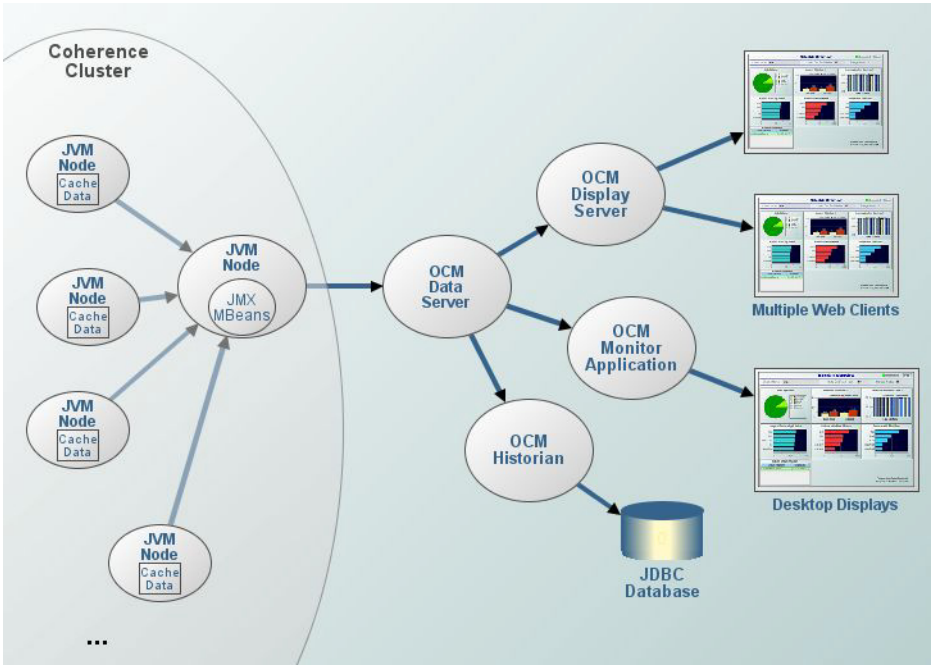
Another advantage of remote JMX collection is that you do not have to install anything in the cluster or in a production environment – often the cluster itself is running behind a firewall and the monitor does not have easy access to the data. As long as a management node in the cluster exposes JMX MBeans, the connection process can be completely hands off.

A third advantage to this mode is that the Monitor makes no Coherence API calls, meaning that there is a next-to-zero chance of corrupting or crashing the cluster through improper configuration. The rate at which the JMX data are queried can be easily tuned so as to put a minimal monitoring load on the management node in the cluster and on the cluster itself.

Additionally, by having a Coherence management node in the cluster, it can act as backup in case the monitoring system itself goes down.

One disadvantage of the remote JMX connection is that its performance can degrade as the number of monitoring MBeans grows with the complexity of the cluster. A simple measure of cluster complexity is the product of number of nodes (N) times the number of caches supported by the cluster (C). Practical experience has shown that a cluster consisting of 150 nodes and 10 caches (**N * C = 1500**) can be adequately monitored using the remote JMX connection. Clusters larger than this can benefit from the direct connection mode described in the next section.

Clusters larger than this can benefit from the "Optimizing Data Retrieval Using JMX Tables" mode, or the "Direct Connection to Cluster as a Coherence Management Node" node. The JMX Tables approach has higher performance than the raw JMX approach, but requires custom MBeans to be deployed in the Coherence cluster. The Direct Connection approach has higher performance than JXM Tables but has tradeoffs in the form of access to all of the important cluster configuration parameters, and having the Monitor join the cluster as a management node.



Optimizing Data Retrieval Using JMX Tables

An option is available to speed up retrieval of Coherence MBean information (over JMX) by providing the aggregated MBean data in tabular form by using custom MBeans. By using custom MBeans the data is aggregated within the cluster and transmitted in the form of tabular data, rather than as individual attributes. This reduces the time taken to query the data.

This option is useful when monitoring large clusters (clusters with a large number of nodes, caches and/or services) using JMX, where the volume of data retrieved can affect the time taken to retrieve all the data, and thus limit the sampling rate for monitoring data.

Enabling this requires (unlike default JMX monitoring) that the custom MBeans (contained in a jar) are deployed and registered on all nodes in the cluster, and the monitoring is configured to query the custom MBeans.

The Oracle Coherence Documentation describes registering custom MBeans in a declarative manner in detail: https://docs.oracle.com/cd/E18686_01/coh.37/e18682/custom_mbeans.htm#COHMG4712.

To use this option:

- Configure the monitored Coherence cluster to use JMX Tables custom MBeans. Add the **ocjmxtables.jar** to the classpath of the cluster members. And set **-Dtangosol.coherence.mbeans=/sl-custom-mbeans.xml** for the cluster members JVM's.
- Configure your Monitoring system to use JMX Tables. Configure your monitoring system to use JMX as normal. And edit the **rtview.properties** file to use the **maincollector.sl.rtview.cmd_line=-ocjmxtables** property for the monitoring system.

Requirements:

- The Custom MBeans must be found at run time. You must place the library that contains the MBeans in the classpath of the Coherence nodes/members, including the JMX management-enabled member.
- The custom MBeans (contained in a jar) must be deployed and registered on all nodes in the cluster, and the monitoring configured to query the custom MBeans.
- The Custom MBeans must be specified using a MBean Configuration Override File.
- The Custom MBeans (CacheTable, ServiceTable, StorageManagerTable) are contained in the jar **ocjmxtables.jar**, located in the **rtvapm/ocmon/lib** directory of the Monitor installation. This jar file must added to the classpath of the Coherence members to be monitored. This may require that the jar be copied to a location that is visible to all the Coherence members. This may vary based on your deployment. It may prove convenient to copy it to where the Coherence jars are deployed, so they can use the same classpath root.
- The **tangosol.coherence.mbeans** system property specifies an MBean configuration override file to be used instead of the default **custom-mbeans.xml** override file. The MBean configuration file to use is **sl-custom-mbeans.xml**, contained at the root of the **ocjmxtables.jar**. Thus when the **ocjmxtables.jar** is added to the Coherence members classpath, it can be specified by setting the **tangosol.coherence.mbeans** system property for the Coherence cluster members to reference it thus: **-Dtangosol.coherence.mbeans=/sl-custom-mbeans.xml**.

  The above should be applied to all Coherence cluster members so that the **tangosol.coherence.mbeans** system property is set to **/sl-custom-mbeans.xml**.

If you have configured your Coherence cluster correctly, you should be able to connect to the cluster using JConsole, and see in addition to the previous Cache, Service, and StorageManager MBeans the new custom CacheTable, ServiceTable, and StorageManagerTable MBeans.

After you configure your Monitor system to use the Custom MBeans and configure your monitoring system to use JMX as normal, uncomment the following line in the **rtview.properties** file:

JMX TABLES

#

Uncomment the line below to use the JMX tables custom mbeans

#maincollector.sl.rtview.cmd_line=-ocjmxtables

This sets the **-ocjmxtables** command line argument to be passed to the maincollector program (typically this is the Data Server), and the log file will then contain the following text at startup:

... using OC JMX Tabular Data

And at runtime, the previous JMX queries (as seen in the **JMX Metrics Administration** display in the **MBean Query Key** column of the **RTView JMX Query Statistics** table):

* Coherence:type=Cache,* 0 * -1 *-
* Coherence:type=Cluster 0 * -1 *-
* Coherence:type=Service,* 0 * -1 *-

become the following:

* Coherence:type=CacheTable,* 0 CacheTable -1 *-
* Coherence:type=ServiceTable,* 0 ServiceTable -1 *-
* Coherence:type=StorageManagerTable,* 0 StorageManagerTable -1 *-

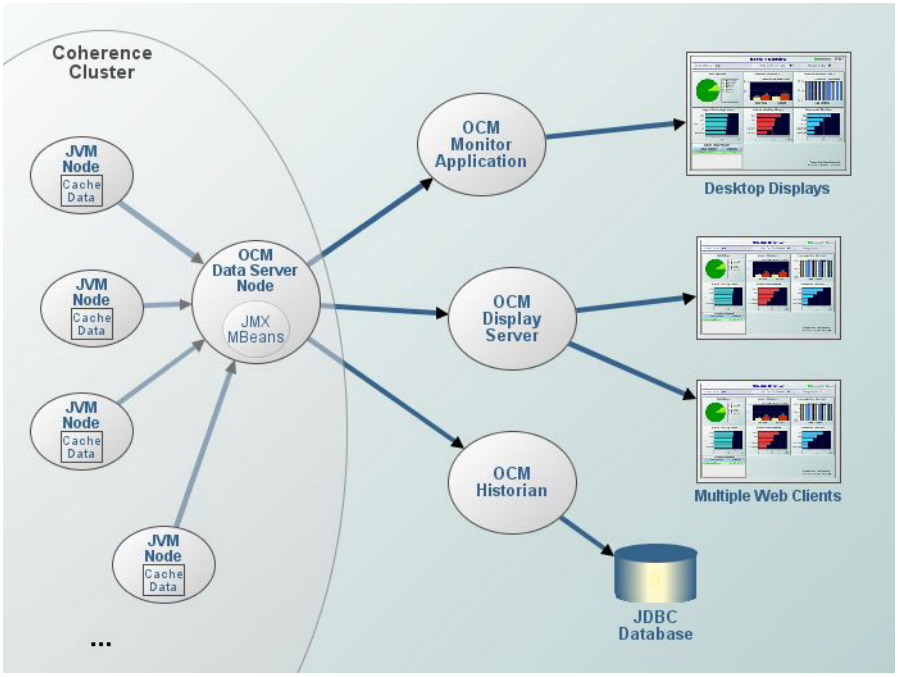
The JMX queries should also have a reduced execution time leading to a reduced total (JMX Query) Execution time.

Direct Connection to Cluster as a Coherence Management Node

In this mode, the Monitor itself joins the cluster and establishes itself as a management node. As a management node, it is configured with local data storage disabled so that it does not store any cache data and serves only as a monitoring node. In this role, it creates the JMX MBean server in-process and collects JMX monitoring data from other Coherence node using fast internal Coherence protocols.

The primary advantage for this mode is speed. In practice, this performance improvement can range from 2 to 10 times faster, depending a number of factors, in particular the network configuration environment.

However, there are tradeoffs. In order to use the direct connection mode, one must have access to all of the important cluster configuration parameters that are used by other nodes in the cluster. These include the Coherence override file, or specific settings like cluster name, well-known address, multicast ports, and Coherence mode. Having limited access to this information can make the configuration process time-consuming.


Coherence Cluster
JVM Node
Cache Data
JVM Node
Cache Data
JVM Node
Cache Data
JVM Node
Cache Data
...
OCM Data Server Node
JMX MBeans
OCM Monitor Application
OCM Display Server
OCM Historian
Desktop Displays
Multiple Web Clients
JDBC Database

APPENDIX F Limitations

This section includes:

iPad Safari Limitations

- In the iPad settings for Safari, **JavaScript** must be **ON** and **Block Pop-ups** must be **OFF**. As of this writing, the Thin Client has been tested only on iOS 4.3.5 in Safari.
- The iPad does not support Adobe Flash, so the Fx graph objects (obj_fxtrend, obj_fxpie, obj_fxbar) are unavailable. The Thin Client automatically replaces the Fx graph objects with the equivalent non-Fx object (obj_trendgraph02, obj_pie, obj_bargraph). Note that the replacement objects behave the same as the Fx objects in most cases but not in all. In particular, obj_trendgraph02 does not support the sliding cursor object nor the **legendPosition** property. Custom Fx objects are not supported on the iPad.
- The Thin Client implements scrollbars for table objects and graph objects. However, unlike the scrollbars used on desktop browsers, the scrollbars used on the iPad do not have arrow buttons at each end. This can make it difficult to scroll precisely (for example, row by row) on objects with a large scrolling range.
- At full size, users may find it difficult to touch the intended display object without accidentally touching nearby objects and performing an unwanted drill-down, sort, scroll, and so forth. This is particularly true of table objects that support drill-down and also scrolling, and also in panel layouts that contain the tree navigation control. In those cases, the user may want to zoom the iPad screen before interacting with the Thin Client.
- If the iPad sleeps or auto-locks while a Thin Client display is open in Safari, or if the Safari application is minimized by clicking on the iPad's home button, the display is not updated until the iPad is awakened and Safari is reopened. In some cases it may be necessary to refresh the page from Safari's navigation bar.

Because the iPad uses a touch interface there are differences in the Thin Client appearance and behavior in iOS Safari as compared to the conventional desktop browsers that use a cursor (mouse) interface, such as Firefox and Internet Explorer. These are described below.

- Popup browser windows: An RTView object's drill-down target can be configured to open a display in a new window. In a desktop browser, when the RTView object is clicked the drill-down display is opened in a popup browser window. But in iOS Safari 4.3.5, only one page is visible at a time, so when the RTView object is touched a new page containing the drill-down display opens and fills the screen. The Safari navigation bar can be used to toggle between the currently open pages or close them.
- Mouseover text: When mouseover text and drill-down are both enabled on an RTView object (for example, a bar graph), in iOS Safari the first touch on an element in the object (for example, a bar) displays the mouseover text for that element and the second touch on the same element performs the drill-down.
- Resize Mode and Layout: By default, the Display Server runs with **resizeMode** set to **crop**. In **crop** mode, if a display is larger than the panel that contains it only a portion of the display is visible. In a desktop browser, scrollbars become available to allow the user to scroll to view the entire display. In iOS Safari, scrollbars do not appear but the display can be scrolled by dragging two fingers inside the display. (Dragging one finger scrolls the entire page, not the display).

  If the Display Server is run with **resizeMode** set to **scale** or **layout**, the display is resized to fit into the panel that contains it. If a desktop browser is resized after a display is opened, the display is resized accordingly. On the iPad, the Safari browser can only be resized by reorienting the iPad itself, between portrait mode and landscape mode.

  The panel layout feature is supported in the Thin Client. However, unlike a desktop browser which resizes to match the layout size, the size of Safari is fixed. So if the Display Server is run with **resizeMode** set to **crop** or **scale** mode, there may be unused space at the edges of the display(s) or, in **crop** mode, the panels and displays may be cropped.

  This means that **layout** mode should be used for best results on the iPad. For layout mode to be most effective, displays should use the **anchor** and **dock** object properties. Please see RTView documentation for more information.
- Scrolling: The Thin Client implements scrollbars for table objects and graph objects. The scrollbars are activated by dragging with one finger.

  If an RTView display is viewed in **crop** mode and is too large to be displayed entirely in Safari, scrollbars do not appear (as they would in a desktop browser) but the display can be scrolled by dragging with two fingers inside the display.

  Scrollbars do not ever appear in a text area control. If the text area contains more text than is visible, use the two finger drag in the text area to scroll the text.

Regardless of the size of a listbox control, it can only display a single item (typically, the selected item). When the listbox is touched, the list of items appear in a popup list. In other words, on iOS Safari the listbox control and the combobox control behave identically.

- Context menu: The Thin Client context menu is opened by a right mouse button click in a desktop browser. It is opened in iOS Safari by touching any location on a display and holding that touch for 2 seconds. The menu appears in the top left corner of the display, regardless of where the display is touched. The items **Export Table to Excel**, **Drill Down**, and **Execute Command** are not included on the context menu in Safari. All other items are available. The **Export Table to HTML** item is enabled if a table object is touched (unless the table object's drillDownTarget is configured to open another display). After an **Export to PDF/HTML** is performed, the exported content opens on another page in Safari. From there, the content can either be opened by another application (for example, the iBooks application opens PDF) and emailed, or it can be copied ands pasted into an email.

TIBCO ActiveMatrix BusinessWorks

Servers

AIX

- Status will be **LIMITED**.
- CPU Usage, Free Memory and Virtual Memory Usage will not be available.

Business Works 5.7.1 Engine Status

The BW Engine microagent has a method **GetExecInfo** that includes a field called **Status**, which may have the following values:

- ACTIVE
- SUSPENDED
- STANDBY
- STOPPING
- STOPPED

In Business Works 5.7.1 (but not earlier or later versions) this method fails to return any data and, in some cases when the Monitor starts, it may not know an engine’s exact status. For example, if an engine is deployed but not active it could be SUSPENDED or STOPPED, or else it could be ACTIVE or STOPPING. In these cases the Monitor sets the status to UNKNOWN. An UNKNOWN status will be resolved once the engine is stopped and restarted; henceforth the status will display as STOPPED or ACTIVE.

BWSE Components

- JVM memory metrics are available for BWSE components running in AMX 3.x environments only.

- The BW Version column in the All Engines Table display is blank for BWSE components.
- The Deployment column in the All Engines Table display is UNKNOWN for BWSE components. This is because the AMX environment controls in which node or nodes a BWSE component is running, therefore the concept of "deployment" in traditional BusinessWorks does not apply.
- BWSE components only appear in the All Engines Table display when they are running in a node.

APPENDIX G Third Party Notice Requirements

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c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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