Solution Package for TIBCO ActiveMatrix BusinessWorks™ v3.3 User's Guide

Version 3.3*

*This document is equivalent to RTView® TIBCO® BusinessWorks™ Monitor Version 6.4

Solution Package for TIBCO ActiveMatrix BusinessWorks™

RTView®

SL Corporation
240 Tamal Vista Blvd.
Corte Madera, CA 94925 USA

Phone: 415.927.8400
Fax: 415.927.8401
Web: http://www.sl.com

Preface

Welcome to the *Solution Package for TIBCO ActiveMatrix BusinessWorks™ v3.3 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 *Solution Package for TIBCO ActiveMatrix BusinessWorks™ v3.3 User's Guide* describes how to install, configure and use the Monitor.

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/.

Documentation and Support Knowledge Base

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

This section contains the following:

Overview

The Monitor takes the time and guesswork out of monitoring and troubleshooting TIBCO® ActiveMatrix BusinessWorks System™ deployments, providing a centralized view of both real-time and historical performance metrics across numerous ActiveMatrix BusinessWorks™ Servers.

The Monitor enables TIBCO users to continually assess and analyze the health and performance of their 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 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.

The Monitor can be deployed as a stand-alone desktop client or as a Web application run in a browser.

Monitor Stand-alone and Solution Package

The Monitor can be installed as a stand-alone monitoring system for technical support teams to monitor the health and performance of their ActiveMatrix BusinessWorks infrastructure. It can also be installed as a Solution Package within the RTView Enterprise Monitor®product. RTView Enterprise Monitor is an end-to-end monitoring platform that allows application support teams to understand how infrastructure, middleware and application performance data affect the availability and health of the entire application. When the Monitor is used as a Solution Package, the ActiveMatrix BusinessWorks System™ metrics and health state are but one source of information which determines the entire health state of the application.

For more information about RTView Enterprise Monitor®, see the *RTView Enterprise Monitor® User's Guide*, available on the SL Product Documentation website.

System Requirements

Please refer to the **README_sysreq.txt** from your product installation. A copy of this file is also available on the product download page.

Installation

This section describes how to install the Monitor. The Monitor can be installed as a stand-alone monitoring system for technical support teams. The Monitor can also be installed as a Solution Package within the RTView Enterprise Monitor® product.

If you are installing the Monitor as a stand-alone monitoring system, follow the "Standalone Monitor" instructions. If you are licensed for RTView Enterprise Monitor and are installing the Monitor as a Solution Package, follow the "Solution Package" installation instructions.

For more information about RTView Enterprise Monitor see the *>RTView EM User's Guide*, available on the SL Product Documentation website.

Standalone Monitor

Download the **BWMonitor_<version>.zip** file and unzip the **BWMonitor_<version>.zip** file into a directory of your choosing.

Solution Package

To install the Monitor as a component to an existing RTView Enterprise Monitor installation, download the (smaller) **rtvapm_bwmon_<version>.zip** file. Unzip the **rtvapm_bwmon_<version>.zip** file on top of your existing RTView EM installation (for example, **rtvapm_std_<version>.zip** file).

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.

Setup

This section describes how to setup your system for the Monitor. This section includes:

- "Create a Project Directory" on page 5: This is required.
- "Set TIBCO Environment Variables" on page 6: This is required.

- “Enable Monitoring Via TIBCO Hawk” on page 6: For BW6 engines only.
- “Enable Monitoring Via JMX” on page 8: For BW5 and BWSE engines.

Create a Project Directory

Create a project directory by copying the default settings files into your own project settings directory. Creating this project directory ensures that your projects are not overwritten when the Monitor software is upgraded. Instructions in this documentation also assume you created this project directory. All examples (of configurations, property settings, command execution and so forth) refer to the project directory.

Note: Copy these default settings files only once and do so ***before*** you begin configuring the Monitor.

The manner in which you set up your project directory is determined by whether you want to monitor TIBCO® ActiveMatrix BusinessWorks System™ version 6 or version 5:

- “To Monitor Version 6 and Version 5”
- “To Monitor Version 5 Only”

To Monitor Version 6 and Version 5

This section describes how to create your project directory for monitoring both ActiveMatrix BusinessWorks™ version 6 and version 5:

- **Standalone Version**

Create a project settings directory in the **bw6mon/projects** directory and name it **mysample**. For example:

bw6mon/projects/mysample

Copy all files from the **bw6mon/projects/sample** directory into the **mysample** project directory you just created.

- **Solution Package Version**

The project directory for the Monitor Solution Package version is **rtvapm_projects/emsample/servers/bw6mon**. This is the project directory you created as described for the RTView Enterprise Monitor.

To Monitor Version 5 Only

This section describes how to create your project directory for monitoring ActiveMatrix BusinessWorks™ version 5 only:

- **Standalone Version**

Create a project settings directory in the **bwmon/projects** directory and name it **mysample**. For example:

bwmon/projects/mysample

Copy all files from the **bwmon/projects/sample** directory into the **mysample** project directory you just created.

- **Solution Package Version**

The project directory for the Monitor Solution Package version is **rtvapm_projects/emsample/servers/bwmon**. This is the project directory you created as described for the RTView Enterprise Monitor.

Set TIBCO Environment Variables

Set the following:

Name	Description	Example
RV_ROOT	TIBCO Rendezvous installation directory. If you installed Enterprise RTView using the Windows installer, this variable will already be set globally on your system.	**C:\TIBCO\tibrv\8.3**
HAWK_ROOT	TIBCO Hawk installation directory. If you installed Enterprise RTView using the Windows installer, this variable will already be set globally on your system.	**C:\TIBCO\hawk\4.9**
TIBJMS_ROOT	TIBCO EMS installation directory. This is only required if you are using an EMS transport for your TIBCO Hawk agents. If you installed Enterprise RTView using the Windows installer, this variable may already be set globally on your system.	**C:\TIBCO\ems\6.3**

Enable Monitoring Via TIBCO Hawk

See the appropriate instructions:

- "ActiveMatrix BusinessWorks Version 6," next
- "ActiveMatrix BusinessWorks Version 5" on page 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

Perform these instructions if all you are monitoring ActiveMatrix BusinessWorks version 5:

1. In the TIBCO Administrator, go to the **Configuration** page of your application.
2. In the **Configuration Builder** panel, select the name of the application.
3. Go to the **Edit Application Configuration** page.
4. Select the **Advanced** tab.
5. Find the global variable **HawkEnabled** and set its value to **true**.

6. Save the configuration.

Install the RTViewBWAgent plug-in microagent

ActiveMatrix BusinessWorks Version 5 users, continue.

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

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 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 to the **sample.properties** file in your project settings directory, and making the Connection name the Engine name. Following the above example:

```
#
# Make JMX connections to BW Engines
#
sl.rtview.jmx.jmxconn=domainslapm.BWApp-1.Procs 192.168.1.102 9000 URL:- - - false
```

Note: For the standalone version of the Monitor, this property should be added to the **sample.properties** file in the project directory in which you installed the Monitor. Once the BWMON data server is (re-)started, the JMX metrics will automatically be retrieved from the engine. See “Create a Project Directory” for more information on the standalone project directory.

For the solution package version of the Monitor, this property should be added to the **sample.properties** file in the **rtvmgr** project directory (which should have been created when RTView Enterprise Monitor was installed, and is parallel to the **bwmon** directory). Once the RTVMGR data server is (re-)started, the JMX metrics will automatically be retrieved. See the *RTView Enterprise Monitor® User's Guide*, which is available on the SL Product Documentation website, for more information on installing RTView Enterprise Monitor.

Proceed to “Configuration” on page 9.

CHAPTER 2 Configuration

This section describes how to configure the Monitor components. This section includes:

Overview

You can configure the Monitor as a standalone application or as a Solution Package in the RTView Enterprise Monitor. This section describes how to configure both versions.

Basic Steps

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

Monitor Standalone and Solution Package Versions:

- Step 1 (**required**): "Configure the Data Servers" on page 10. Define the TIBCO Servers and destinations to be monitored. TIBCO ActiveMatrix (AMX) users also configure the Monitor to accept AMX data for BWSE Engines. This step must be performed before running any deployment of the Monitor.

  RTView EM users, after completing Step 1 please refer to the RTView EM User's Guide.

Monitor Standalone Version Only:

- Step 2 (**required**): "Configure RTView Servers" on page 16. Configure the RTView Servers.
- Step 3 (optional): "Configure the Database" on page 19. Configure a production database.
- Step 4 (optional): "Configure Alert Notification" on page 23. Configure alerts to execute an automated action (for example, to send an email alert).
- Step 5 (optional): "Configure High Availability" on page 28. Configure high availability components.

- Step 6 (optional): “Modify Displays, Data Collection and Filtering” on page 29. Modify the Monitor user interface.

Assumptions

This document assumes that:

- you installed the Monitor per instructions in “Installation” on page 4.
- you use the configuration files provided and retain their file names. If you change a **.properties** file name, you must specify the name on the command line.

Initializing a Command Prompt or Terminal Window

To start any RTView process (Data Server, Historian, Viewer and so forth), you must first initialize a command line window on the host. Unix scripts are Bourne shell compatible.

To initialize a command line window, execute the **rtvapm_init** script. For example:

Windows

Go to your Monitor installation directory and type:

rtvapm_init

UNIX

The script used to initialize a terminal window depends on whether you are in csh or rsh (e.g. Linux, Mac OS X). With a Bourne shell, open a terminal window, go to your Monitor installation directory and type:

. ./rtvapm_init.sh

Configure the Data Servers

This section describes how to configure the Monitor Data Servers. You configure the Data Servers by defining data source connections for each TIBCO BusinessWorks component that you want to monitor.

You can define the agents by editing the **sample.properties** file or using the Configuration Utility. This part of the Monitor configuration is required. If you have a TIBCO ActiveMatrix (AMX) environment you must also configure the Monitor to accept AMX data for BWSE Engines (described in these instructions).

For most installations, the default Monitor property settings are sufficient. Consult Technical Support before modifying other property files to avoid upgrade issues.

NOTE: LINUX users might see inconsistently aligned labels in displays. To resolve, set the client browser to download the fonts used by the server. Open the **rtvapm/common/conf/rtvapm.properties** file on the Display Server host machine and uncomment the following two lines:

#sl.rtview.cp=%RTV_HOME%/lib/rtvfonts.jar

#sl.rtview.global=rtv_fonts.rtv

At this point you have:

- Verified “System Requirements” on page 4.
- Performed Monitor “Installation” on page 4

- Performed "Setup" on page 4 instructions

This section includes:

- "Editing the sample.properties File" on page 11: Follow these instructions to configure the Data Servers (or use the Configuration Utility).
- "Using the Configuration Utility" on page 11: Follow these instructions to configure the Data Servers (or by editing the **sample.properties** file).
- "Configure for BWSE Engines" on page 15: For TIBCO ActiveMatrix (AMX) environments only. You must also configure the Monitor to accept AMX data for BWSE Engines (after you configure the Data Servers). Instructions are included here.

Editing the sample.properties File

This section describes how to configure the Monitor Data Servers by editing your **sample.properties** file.

To configure the Data Servers by editing your sample.properties file

1. Create your project directory. For details, see "Create a Project Directory" on page 5.
2. Open the **sample.properties** file, located in your project directory, in a text editor.
3. Edit as needed. For example, if we have agents **unixagent1** and **unixagent2**, where the domain is domaineast, and both are using the RVD transport, we add the following:

   sl.rtview.hawk.hawkconsole domaineast rvd domaineast 7474 ; tcp:7474

   sl.rtview.hawk.agentGroup UNIX_AGENTS unixagent1(domaineast) unixagent2(domaineast)

   And for agent winagent using the EMS transport via TCP port 7011, we add the following:

   sl.rtview.hawk.hawkconsole domainwest ems domainwest tcp://emshost:7222 emsusername emspassword
   sl.rtview.hawk.agentGroup WIN_AGENTS winagent1(domainwest)
4. Save the file.
5. For TIBCO ActiveMatrix (AMX) environments, proceed to "Configure for BWSE Engines" on page 15.

Using the Configuration Utility

This section describes how to configure the Monitor Data Servers using the RTView Configuration Utility. When you configure Data Servers using the Configuration Utility, an initialization file is created.

To configure the Data Servers using the RTView Configuration Utility

1. In an initialized command window, go to the Monitor directory. For details about initializing a command window, see "Initializing a Command Prompt or Terminal Window" on page 10.
2. Execute the following script:

   Windows

   Type: **run_configutil.bat**

Unix

Type: **run_configutil -bg**

The **Applications Options** dialog opens.

3. To specify the Hawk Domains to be monitored, select TIBCO Hawk from the left column and click the Configure Hawk Communication tab.

4. Enter a unique Connection Name and Hawk Domain and select a Hawk Transport for that domain.

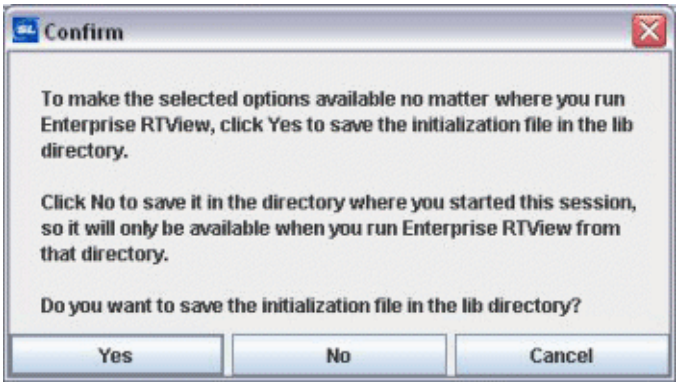
5. Enter **RVD**, **RVA** or **EMS** options as appropriate for the selected transport.

6. Click **Add**.

7. Repeat Steps for all Hawk Domains to be monitored.

8. Save the configuration.

9. In the **Confirm** dialog click **No**.



10. To specify the platforms agents run on (Windows or UNIX) so that Hawk Agents are automatically discovered from your configured domains, click the **TIBCO Hawk Agents Groups** tab.

Note: If Hawk agents are running on virtual machines, select the platform type of the virtual machine.

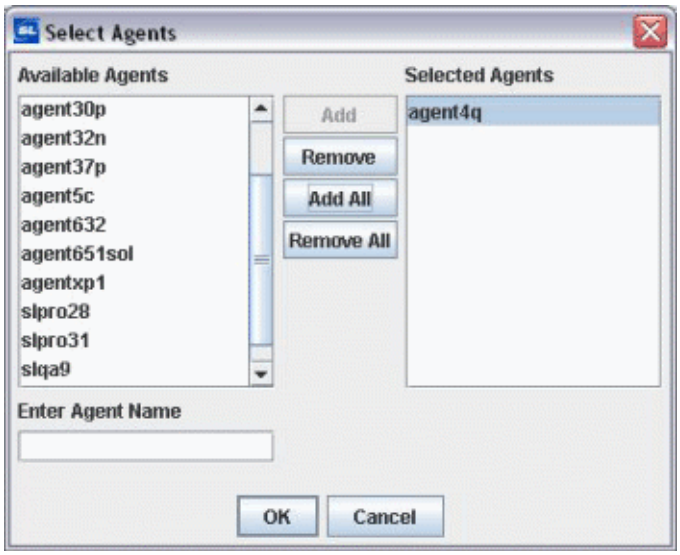
---

11. Double-click the **WIN_AGENTS** group. Active agents on all configured domains will be available in the **Available Agents** list.

Note: It can take 20-30 seconds for Hawk to discover all available agents.

---

12. In the **Select Agents** dialog, choose all Windows agents running your BusinessWorks engines from the **Available Agents** list and click **Add**.



Note: If an agent is currently disabled, and therefore not listed as available, you can enter it by name in the **Enter Agent Name** text field and click **Add**.

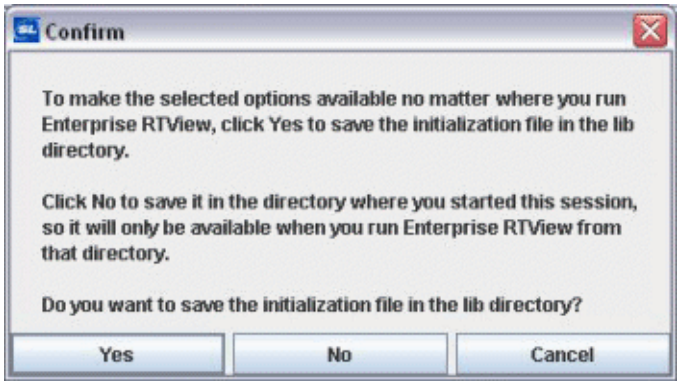
---

13. Click **OK** to return to the **TIBCO Hawk Agent Groups** tab.

14. Double-click the **UNIX_AGENTS** group.

15. Repeat steps for all UNIX agents.

16. Click **Save** and **No** in the **Confirm** dialog.



Note: After you complete these configuration steps and start the RTView Data Server, you can verify this 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] ---------------------------
```

17. For TIBCO ActiveMatrix (AMX) environments, proceed to "Configure for BWSE Engines" on page 15.

Configure for BWSE Engines

This section is for TIBCO ActiveMatrix (AMX) users. This section 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, In the EMS administration tool (tibemsadmin), execute the following commands:

create topic rtv.amx.governance.stats

create bridge source=queue:amx.governance.stats target=topic:rtv.amx.governance.stats

2. To configure BW Monitor, open the **sample.properties** file, located in your project directory, and find the following section:

```
############################
# SUPPORT FOR BWSE ENGINES
#collector.sl.rtview.cache.config=bw_engine_microagents.rtv
#collector.sl.rtview.cache.config=bw_amx_node_cache.rtv
#collector.sl.rtview.sub=$AMX3.x_STATS_TOPIC:rtv.amx.governance.stats
# Repeat these lines for each AMX host
#collector.sl.rtview.jms.jmsconn=local com.tibco.tibjms.TibjmsTopicConnectionFactory tcp://localhost:7222 admin - - - - -
#collector.sl.rtview.jms.jmstopic=local $AMX3.x_STATS_TOPIC
#collector.sl.rtview.cache.config=bw_amx_node_cache_source.rtv $jms_conn:local
```

3. Uncomment the first three lines:

collector.sl.rtview.cache.config=bw_engine_microagents.rtv
collector.sl.rtview.cache.config=bw_amx_node_cache.rtv
collector.sl.rtview.sub=$AMX3.x_STATS_TOPIC:rtv.amx.governance.stats

4. Uncomment the last three lines:

collector.sl.rtview.jms.jmsconn=local com.tibco.tibjms.TibjmsTopicConnectionFactory tcp://localhost:7222 admin - - - - -
collector.sl.rtview.jms.jmstopic=local $AMX3.x_STATS_TOPIC
collector.sl.rtview.cache.config=bw_amx_node_cache_source.rtv $jms_conn:local

5. Edit the three lines you just uncommented as follows:

- In the first line, specify the connection information for your EMS server. For example, for **tcp://localhost:7222** we would set as follows:

collector.sl.rtview.jms.jmsconn=local
com.tibco.tibjms.TibjmsTopicConnectionFactory tcp://localhost:7222 admin - - - - -

- In all three lines, specify your JMS connection name. For example, for **local** we would set as follows:

collector.sl.rtview.jms.jmsconn=local
com.tibco.tibjms.TibjmsTopicConnectionFactory tcp://localhost:7222 admin - - - - -
collector.sl.rtview.jms.jmstopic=local $AMX3.x_STATS_TOPIC
collector.sl.rtview.cache.config=bw_amx_node_cache_source.rtv $jms_conn:local

6. If you have additional AMX Hosts, make a copy of the above three lines and provide the EMS server connection information and a (different) connection name for each Host.

7. Configure your Hawk Data Source properties to include the systems where your BWSE components are deployed. See “Editing the sample.properties File” on page 11.

8. In AMX Administrator, in the properties for each BWSE engine, set HawkEnabled to **true**.

See BWSE “Limitations” on page 219.

Configure RTView Servers

This section describes how to configure the RTView Servers. This step is required if you need to modify port settings or deploy Java processes on different hosts. Otherwise, this step is optional.

The manner in which you configure the RTView Servers depends on whether you deploy the Monitor as a Desktop Application or a Web Application.

NOTE: Browser deployments also require an application server such as Tomcat, which is not included. See the Deployment section for details.

Java Processes

There are four Java processes included with the Monitor that are used in the Desktop and Browser deployment options. By default, it is assumed that these Java processes run on one host and that no configuration changes are needed. However, if these processes are distributed across several hosts, or if the default port definitions for these processes need to be modified, then configuration file settings must also be modified to allow all Monitor components to communicate with each other.

Java Process	Description	Default Port(s)	Deployment	
			Desktop	Browser
RTView Viewer	Java desktop version of the Monitor.	N/A	×	
RTView Data Server	Gathers performance metrics.	Default Port=**3178** Default JMX Port = **3168**	×	×
RTView Historian	Retrieves data from the RTView Data Server and archives metric history to a database.	Default JMX Port=**3167**	×	×
RTView Display Server	Collects the data and generates the displays that the Application Server uses to produce the web pages.	Default Port=**3179** Default JMX Port = **3169**		×

See the following instructions to modify port settings or deploy Java processes on different hosts:

- “Desktop Deployment” on page 17 - Stand-alone desktop client
- “Browser Deployment” on page 18 - Web application

Desktop Deployment

Perform the following steps only if you are not using the default port settings or you are deploying Java processes on different hosts (rather than on a single host).

To modify desktop deployment settings:

1. Open the **sample.properties** file, located in your project directory, and add the following properties:

   dataserver.sl.rtview.dataserver.port – To designate the port on the Data Server. The default is **dataserver.sl.rtview.dataserver.port=3178**.

   dataclient.sl.rtview.dataserver – To indicate the host and port, or the HTTP connection describing how clients (Viewer and Historian) connect to the Data Server. The default is **dataclient.sl.rtview.dataserver=//localhost:3178**.

2. Copy and paste the following properties into the **sample.properties** file and edit as needed to define the JMX ports for monitoring the Data Server and Historian:

```
dataserver.sl.rtview.jvm=-Dcom.sun.management.jmxremote.port=3168
historian.sl.rtview.jvm=-Dcom.sun.management.jmxremote.port=3167
```

You have finished configuring the RTView Servers. Proceed to Configure the Database.

Browser Deployment

Perform the following steps only if you are not using the default port settings or you are deploying Java processes on different hosts (rather than on a single host).

To modify browser deployment settings:

1. Open the **sample.properties** file, located in your project directory, and add the following properties:

   dataserver.sl.rtview.dataserver.port – To designate the port on the Data Server. The default is **dataserver.sl.rtview.dataserver.port=3178**.

   dataclient.sl.rtview.dataserver – To indicate the host and port, or the HTTP connection describing how clients (the Historian) connect to the Data Server. The default is **dataclient.sl.rtview.dataserver=//localhost:3178**.

2. Copy and paste the following properties into the **sample.properties** file and edit as needed to define the JMX ports for monitoring the Data Server and Historian:

   ```
   dataserver.sl.rtview.jvm=-Dcom.sun.management.jmxremote.port=3168
   historian.sl.rtview.jvm=-Dcom.sun.management.jmxremote.port=3167
   ```

3. Change the Display Server port by opening the **sample.properties** file and adding the following property:

   displayserver.sl.rtview.port – To indicate the port used for the Display Server. The default is **displayserver.sl.rtview.displayserver.port=3179**.

4. Open the **rtvdisplay.properties** file and edit the following:

   DisplayServerHost – To indicate to the servlet where the Display Server is located. The default is **DisplayServerHost=localhost**.

   DisplayServerPort – To indicate to the servlet the port used by the Display Server. This must match the number specified in the previous property (**displayserver.sl.rtview.displayserver.port**). The default is **DisplayServerPort=3179**.

5. Open the **servlet.properties** file and edit the following:

   ServiceHost - To indicate to the servlet where the Data Server is located when HTTP connections are used. The default is **ServiceHost=localhost**.

   ServicePort – To indicate to the servlet the port used by the Data Server. This must match the number specified in **dataserver.sl.rtview.dataserver.port**. The default is **ServicePort=3178**.

6. Copy and paste the following property into the **sample.properties** file and edit as needed to define the JMX port for the Display Server:

   ```
   displayserver.sl.rtview.jvm=-Dcom.sun.management.jmxremote.port=3169
   ```

7. Rebuild the war files for your application server by executing the following scripts:

   Windows:

   update_wars.bat

   UNIX:

   ./update_wars.sh

You have finished configuring the RTView Servers. Proceed to Configure the Database.

Configure the Database

The Monitor is delivered with a default memory resident HSQLDB database, which is suitable for evaluation purposes. However in production deployments, we recommend that you deploy one of our supported databases. For details, see the *RTView Core® User's Guide*.

This section describes how to setup an alternate (and supported) database.

Database Requirements

The Monitor requires two database connections that provide access to the following information:

- **Alert Settings**

  The ALERTDEFS database contains alert administration and alert auditing information. The values in the database are used by the alert engine at runtime. If this database is not available, the Self-Service Alerts Framework under which alerts are executed will not work correctly.

- **Historical Data**

  The RTVHISTORY database contains the historical monitoring data to track system behavior for future analysis, and to show historical data in displays.

To Configure the Monitor Database:

You configure the database by editing properties in the **sample.properties** file, located in your project directory. You will also copy portions of the **database.properties** template file (located in the **common\dbconfig** directory) into your **sample.properties** file and then modify your **sample.properties** file.

1. Install a database engine of your choice. Supported database engines are Oracle, Sybase, Microsoft SQL Server, MySQL and DB2.

   NOTE: The default page size of DB2 is 4k. It is required that you create a DB2 database with a page size of 8k. Otherwise, table indexes will not work.

2. Open the **sample.properties** file, which is located in your project directory, and make the following edits:

   a. Designate the location of the jar where the JDBC driver resides in your environment as follows:

   collector.sl.rtview.cp=JDBCDriverClassPath

   where **JDBCDriverClassPath** is the location of the JDBC driver file to use when connecting to your database. For example:

   collector.sl.rtview.cp=/opt/oracle/ora92/jdbc/lib/ojdbc14.jar

   b. Open the database.properties template file, which is located in the **common\dbconfig** directory, and copy from the "Define the ALERTDEFS DB" section the line that corresponds to your supported database into your **sampler.properties** file. For example, if your database is MySQL you copy the following:

#sl.rtview.sql.sqldb=ALERTDEFS myusername mypassword jdbc:mysql://myhost:3306/myinstance com.mysql.jdbc.Driver - false true

c. Uncomment the line you just copied (delete **#**). For example:

sl.rtview.sql.sqldb=ALERTDEFS myusername mypassword jdbc:mysql://myhost:3306/myinstance com.mysql.jdbc.Driver - false true

d. Edit the properties you just copied by replacing the following as appropriate:

myusername - User name to enter into this database when making a connection.

URL - Full database URL to use when connecting to this database using the specified JDBC driver.

JDBCDriverClass - Fully qualified name of the JDBC driver class to use when connecting to this database.

mypassword - Password to enter into this database when making a connection. If there is no password, use "**-**".

Encrypt Password

If you need to provide an encrypted password (rather than expose server password names in a clear text file), use the **encode_string** command window option in an initialized command window with the following syntax:

encode_string sql mypassword

where **mypassword** is your plain text password.

For example:

encode_string sql mypassword

You then receive an encrypted password that you enter as your password. For example:

013430135501346013310134901353013450134801334

e. In the **sample.properties** file, copy from the "Define the RTVHISTORY DB" section the lines that corresponds to your supported database. For example, if your database is MySQL you copy the following:

sl.rtview.sql.sqldb=RTVHISTORY myusername mypassword jdbc:mysql://myhost:3306/myinstance com.mysql.jdbc.Driver - false true

#

historian.sl.rtview.historian.driver=com.mysql.jdbc.Driver

historian.sl.rtview.historian.url=jdbc:mysql://myhost:3306/myinstance

historian.sl.rtview.historian.username=myusername

historian.sl.rtview.historian.password=mypassword

f. Edit the properties you just copied by replacing the following (as previously) for driver, url, username, and password. For example:

historian.sl.rtview.historian.driver=**myDriver**
historian.sl.rtview.historian.url=**myurl**
historian.sl.rtview.historian.username=**myusername**
historian.sl.rtview.historian.password=**mypassword**

3. Save the **sample.properties** file.

4. Manually create database tables. If your configured database user has table creation permissions, then you only need to create the Alerts tables. If your configured database user does not have table creation permission, then you must create both the Alert tables and the History tables.

   To create tables for your database, use the **.sql** template files provided for each supported database platform, which is located in the **dbconfig** directory of the **common**, **<*>mon** (where ***** = the Monitor initials, for example, **tbemon**, **bw6mon**, **bwmon** or **emsmon)**, and **rtvmgr** directories:

- **Alerts**
  rtvapm/common/dbconfig/create_common_alertdefs_tables_<db>.sql
- **History**
  rtvapm/<*>mon/dbconfig/create_<*>mon_history_tables_<db>.sql
  where **<*>** = the Monitor initials (for example, **tbemon**, **bw6mon**, **bwmon** or **emsmon**)
  rtvapm/rtvmgr/dbconfig/create_rtvmgr_history_tables_<db>.sql
  where **<db>** ={**db2**, **mysql**, **oracle**, **sqlserver**, **sybase**}
  where **<*>** = the Monitor initials (for example, **tbemon**, **bw6mon**, **bwmon** or **emsmon**)

NOTE: The standard SQL syntax is provided for each database, but requirements can vary depending on database configuration. If you require assistance, consult with your database administrator.

The most effective method to load the **.sql** files to create the database tables depends on your database and how the database is configured. Some possible mechanisms are:

- **Interactive SQL Tool**
  Some database applications provide an interface where you can directly type SQL commands. Copy/paste the contents of the appropriate **.sql** file into this tool.
- **Import Interface**
  Some database applications allow you to specify a **.sql** file containing SQL commands. You can use the **.sql** file for this purpose.

Before loading the **.sql** file, you should create the database and declare the database name in the command line of your SQL client. For example, on MySQL 5.5 Command Line Client, to create the tables for the Alert Settings you should first create the database:

```
create database myDBName;
```

before loading the **.sql** file:

```
mysql -u myusername -mypassword myDBName <
create_common_alertdefs_tables_mysql.sql;
```

If you need to manually create the Historical Data tables, repeat the same process. In some cases it might also be necessary to split each of the table creation statements in the **.sql** file into individual files.

Third Party Application
If your database does not have either of the two above capabilities, a third party tool can be used to enter SQL commands or import **.sql** files. Third party tools are available for connecting to a variety of databases (RazorSQL, SQLMaestro, Toad, for example).

You have finished configuring the databases. Proceed to Configure Alert Notification.

Enable Collection of Historical Data

By default, the Monitor does not save historical BW process or activities data to the database. To enable the collection of this historical data, perform the following steps:

To Collect Historical Process Data:

1. Navigate to **rtvapm/bwmon/conf/** and open the **rtvapm.bwmon.properties** file.
2. Under the **HISTORIAN PROPERTIES** section in the file, select (for pasting) the following two lines:

```
#sl.rtview.sub=$BW_PROCESSES_TABLE:BW_PROCESSES
#sl.rtview.sub=$BW_ACTIVITY_TOTALS_TABLE:BW_ACTIVITY_TOTALS
```

3. Paste the lines into your **sample.properties** file and uncomment the lines (delete the **#** in front of each line) so that it looks like this:

```
sl.rtview.sub=$BW_PROCESSES_TABLE:BW_PROCESSES
sl.rtview.sub=$BW_ACTIVITY_TOTALS_TABLE:BW_ACTIVITY_TOTALS
```

4. Save your **sample.properties** file.

To Collect Historical Activities Data:

1. Navigate to **rtvapm/bwmon/conf/** and open the **rtvapm.bwmon.properties** file.
2. Under the **HISTORIAN PROPERTIES** section in the file, select (for pasting) the following line:

```
#sl.rtview.sub=$BW_ACTIVITIES_TABLE:''
```

3. Paste the line into your **sample.properties** file and uncomment the line (delete the **#** in front of each line) so that it looks like this:

```
sl.rtview.sub=$BW_ACTIVITIES_TABLE:BW_ACTIVITIES
```

4. Save your **sample.properties** file.

Enable Collection of Tomcat Historical Data

By default, collection of Tomcat historical data is disabled. To enable collection of Tomcat history, add the following properties to your **sample.properties** file, located in your project directory:

```
collector.sl.rtview.sub=$TOMCAT_GLOBALREQUESTSTATS_TABLE:TOMCAT_GLOBALREQUESTSTA
TS
collector.sl.rtview.sub=$TOMCAT_WEBMODULESTATS_TABLE:TOMCAT_WEBMODULESTATS
collector.sl.rtview.sub=$TOMCAT_WEBMODULETOTALS_TABLE:TOMCAT_WEBMODULETOTALS
```

Configure Alert Notification

The Monitor provides alerts concerning conditions in your system through RTView alerts. This section describes how to configure the alerts to execute an automated action.

By default, alerts execute a **.bat** script. 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).

There are two options for configuring Monitor alert notification:

- "Using a Batch File or Shell Script" on page 23

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" on page 26

The Java source for the Monitor Java command handler is provided to facilitate customization.

When you uncomment the line in the script that prints alert data to standard output, both the scripts and the Java command handler output alert information to standard output. The alert output appears in the Data Server log file, or in the command window or shell in which the Data Server was started. 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 #####
```

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 **common/bin** directory, are provided as templates that you can modify as needed. Use the appropriate file for the platform that hosts Monitor processes. 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 in:

- "Windows Batch File," next
- "UNIX/Linux Shell Script" on page 24

Windows Batch File

1. Copy the **my_alert_actions.bat** file, located in the **common/bin** directory, into your project directory.

2. Open the **rtvapm.properties** file, located in the **rtvapm\common\conf** directory, in a text editor.

3. Verify the following properties are set as follows:

   # command to execute for new alerts

   sl.rtview.alert.notifiercommandnew=system cmd '$alertActionScript.$scriptEnding $domainName +$alertName+ "+$alertIndex+" +$alertID+ +$alertSeverity+ +$alertText'

```
# command to execute on the first severity change

sl.rtview.alert.notifiercommandfirstsevchange=system cmd
'$alertActionScript.$scriptEnding $domainName +$alertName+ "+$alertIndex+"
+$alertID+ +$alertSeverity+ +$alertText'
```

4. Open the **my_alert_actions.bat** file, located in your project 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).

5. Restart the Data Server.

UNIX/Linux Shell Script

1. Copy the **my_alert_actions.sh** file, located in the **common/bin** directory, into your project directory.

2. Open the **rtvapm.properties** file, located in the **rtvapm/common/conf/** directory, in a text editor.

3. Verify the following properties are set as follows:

```
# command to execute for new alerts

sl.rtview.alert.notifiercommandnew=system cmd '$alertActionScript.$scriptEnding
$domainName +$alertName+ "+$alertIndex+" +$alertID+ +$alertSeverity+
+$alertText'

# command to execute on the first severity change

sl.rtview.alert.notifiercommandfirstsevchange=system cmd
'$alertActionScript.$scriptEnding $domainName +$alertName+ "+$alertIndex+"
+$alertID+ +$alertSeverity+ +$alertText'
```

4. Open the **sample.properties** file, located in your project directory, and copy/paste the following into it:

```
sl.rtview.cmd_line=-sub:$scriptEnding:bat

sl.rtview.cmd_line=-sub:$alertActionScript:my_alert_actions
```

5. Change the **bat** suffix to **sh** and **my_alert_actions** to **./my_alert_actions**.

6. Save the **sample.properties** file.

7. Open the **my_alert_actions.sh** file, located in your project directory, and uncomment the echo line (near the end of the file) to print alert information to standard out. Or, you can modify the script to execute an automated action (such as sending an email alert).

8. Restart the Data Server.

Batch File or Shell Script Substitutions

The default **my_alert_actions** scripts use the substitutions described in the table below. When you customize the script, you can use a use substitution to get any of the columns in the alert table. To do this, modify the **sl.rtview.alert.notifiercommandnew** and **sl.rtview.alert.notifiercommandfirstsevchange** properties from Step 3 (above) to replace the default substitutions with the substitutions you want to use. You must make corresponding modifications to your script to use modified substitution values.

The substitution names map to the names of the columns in the alert table. Convert the column name to camel case and if it does not start with Alert, prepend alert to it. For example, to use the value of the **Alert Name** column, use **$alertName**. To use the value of the **ID** column, use **$alertID**. To use the value of the **Row Update Time** column, use **$alertRowUpdateTime**. The following table contains the substitutions used by the default **my_alert_actions** scripts:

Argument	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
$alertTime	This value is the time the alert was initially generated.	Text

Using the Java Command Handler

1. Open the **custom_handlers.properties** file, located in the **rtvapm\common\conf** directory, in a text editor.

2. Locate the following text in the **custom_handlers.properties** file and select it for copying:

#sl.rtview.alert.notifiercommandnew=system cust 'my_alert_notification.$domainName.$alertNotifyType.$alertNotifyCol' $alertNotifyTable

#sl.rtview.alert.notifiercommandfirstsevchange=system cust 'my_alert_notification.$domainName.$alertNotifyType.$alertNotifyCol' $alertNotifyTable

3. Open the **sample.properties** file, located in your project directory, and paste the selected text into it.

4. In the **sample.properties** file, uncomment the lines you just pasted to enable the Java command handler.

5. Verify that the **rtvapm_custom.jar** file is built per the Customizing the Java Command Handler instructions.

6. Open the **custom_handler.properties** file and verify that the following line is the correct path to the **rtvapm_custom.jar**. If it is not the correct path, copy the line into the **sample.properties** file in your project directory and edit the path as needed.

sl.rtview.cp=./custom/lib/rtvapm_custom.jar

7. Save the **sample.properties** file.

8. Restart the Data Server using the following command line argument:

   Windows

   -properties:%RTVAPM_HOME%/common/conf/custom_handlers

   UNIX

   -properties:$RTVAPM_HOME/common/conf/custom_handlers

Customizing the Java Command Handler

The source for the Monitor Java handler is provided in the **RtvApmCommandHandler.java** file, located in the **\projects\sample\custom\src\com\sl\rtvapm\custom** directory of your Monitor installation 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 the **\projects\sample\custom\src** directory.

5. Restart the Data Server using the following command line argument:

   Windows

   -properties:%RTVAPM_HOME%/common/conf/custom_handlers

   UNIX

   -properties:$RTVAPM_HOME/common/conf/custom_handlers

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.

Additional Optional Properties

- **sl.rtview.alert.notifiercommandcleared** - Set this to the command to execute when an alert is cleared. By default, no command is configured. To execute a script, copy the **notifiercommandnew** line and replace **$alertActionScript** with the name of the script you want to execute. To execute a custom Java command, see the example in **common\conf\custom_handlers.properties**.
- **sl.rtview.alert.notifiercommandchanged** - Set this to the command to execute when a column in the alert table changes. To execute a script, copy the **notifiercommandnew** line and replace **$alertActionScript** with the name of the script you want to execute. To execute a custom Java command, see the example in **common\conf\custom_handlers.properties**. This must be used in conjunction with the **sl.rtview.alert.notifiercolumns** property
- **sl.rtview.notifiercolumns** - Set this to the name of one or more columns to execute the **sl.rtview.alert.notifiercommandchanged** notification when they change. For multiple columns, use a semi-colon delimited list. Note that this should be limited to the minimum number of necessary columns, preferably less than **5**, as a large number of columns increases the persistence load on the central alert server.

Notification Persistence

To prevent duplication and missed notifications after restart or failover, you must configure the Data Server for alert persistence.

Configure High Availability

High Availability (HA) mitigates single point of failure within the Monitor 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.

The Monitor comeswith an optional High Availability (HA) Data Server configuration. The **project/sample** directory provides an example of HA Data Server with the Monitor. The example assumes the availability of two machines, PRIMARYHOST and BACKUPHOST, which are defined by environment variables of the same name.

The Monitor is configured by using the primary and backup configurations in **rtvservers.dat**, with **start_rtv** in place of the default configuration.

The primary Data Server is run on PRIMARYHOST; the backup Data Server is run on BACKUPHOST; the other Monitor applications failover between the Data Servers as appropriate. Assuming the environment variables PRIMARYHOST and BACKUPHOST are set correctly, Monitor components on the primary machine are started as normal using the primary configuration (instead of the default configuration) with the **start_rtv** command. The backup Monitor Data Server on the backup machine is started using the backup configuration with the **start_rtv** command.

To configure HA

To start the HA configuration, first start the primary Monitor components on the primary machine using the primary configuration with the start_rtv command. For example:

Windows

start_rtv primary

UNIX

start_rtv.sh primary

Then start the backup Monitor Data Server on the backup machine using the backup configuration with the start_rtv command. For example:

Windows

start_rtv backup

UNIX

start_rtv.sh backup

The appropriate property files and propfilters for the primary and backup Data Servers are defined in the rtvservers.dat file under the primary and backup configurations. The property values controlling HA, used by the Monitor Data Servers, are defined in the **ha.properties** file.

Modify Displays, Data Collection and Filtering

This section describes how to modify data collection and Monitor displays. This part of the Monitor configuration is optional. This section includes:

Create Customized Filters

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.

For details about the project directory, see "Create a Project Directory" on page 5.

Enable BW Servers Displays

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. For details about the project directory, see "Create a Project Directory" on page 5.

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.

Enable Data Archiving for BW Process Table

This section applies to BusinessWorks **version 5**, and describes how to enable data archiving to the History Database for the **BW Processes -** "All Processes Table" display. By default, process data is not archived to the History Database.

Important: Use caution. When this feature is enabled, and there are more than 5000 processes, resource consumption is high.

To enable data archiving:

1. Open the **rtvapm.bwmon.properties** file, located in the **RTVAPM_HOME/bwmon/conf** directory.

2. Locate the HISTORIAN PROPERTIES section and proceed as described.

```
##########################
# HISTORIAN PROPERTIES
#
# By default we disable collection of historical data for Processes.
#
sl.rtview.sub=$BW_PROCESSES_TABLE:''
sl.rtview.sub=$BW_ACTIVITY_TOTALS_TABLE:''
#
# To enable this, copy the following two lines into your local properties (the
sample.properties file) and uncomment them:
#
#sl.rtview.sub=$BW_PROCESSES_TABLE:BW_PROCESSES
#sl.rtview.sub=$BW_ACTIVITY_TOTALS_TABLE:BW_ACTIVITY_TOTALS
```

3. Save the **sample.properties** file.

4. Restart the Monitor.

Note: To disable this feature, comment out the two lines in the **sample.properties** file.

Enable Data Archiving for BW Activity Table

This section applies to BusinessWorks **version 5 and 6**, and describes how to enable collection of historical data for activities. By default, collection of historical data for activities is disabled.

To enable data archiving for Activity table:

1. Open the **rtvapm.bw6mon.properties** file, located in the **RTVAPM_HOME/bw6mon/conf** directory. Or, if you are monitoring BW5 only, open the **rtvapm.bwmon.properties** file, located in the **RTVAPM_HOME/bwmon/conf** directory.

2. Locate the HISTORIAN PROPERTIES section and proceed as described.

```
##########################
# HISTORIAN PROPERTIES
#
# By default we disable collection of historical data for Activities.
#
collector.sl.rtview.sub=$BW_ACTIVITIES_TABLE:''
#
# To enable this, copy the following line into your local properties (the sample.properties file) and uncomment it:
#
#collector.sl.rtview.sub=$BW_ACTIVITIES_TABLE:BW_ACTIVITIES
```

3. Save the **sample.properties** file.

4. Restart the Monitor.

Note: To disable this feature, comment out the two lines in the **sample.properties** file.

Reduce Collection of BW5 Process Data

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, edit one or both of the following properties in the **sample.properties** file:

- collector.sl.rtview.sub=$bwprocessFilterPattern:''
- collector.sl.rtview.sub=$bwprocessFilterPattern2:''

Each property specifies a regular expression which is applied to a process name. If the name matches the pattern 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:

collector.sl.rtview.sub=$bwprocessFilterPattern:'0[3-5]'

data for process03 to process05 are stored and displayed:

process03.process

process04.process

process05.process

If you set the second property as follows:

collector.sl.rtview.sub=$bwprocessFilterPattern:'0[^4]'

data from process04 is excluded and you continue getting data from:

process03.process

process05.process

The Data Server must be restarted for changes to take effect.

Enable Collection of Tomcat History

By default, collection of Tomcat historical data is disabled. To enable collection of Tomcat history, add the following properties to your **sample.properties** file:

collector.sl.rtview.sub=$TOMCAT_GLOBALREQUESTSTATS_TABLE:TOMCAT_GLOBALREQUESTSTATS

collector.sl.rtview.sub=$TOMCAT_WEBMODULESTATS_TABLE:TOMCAT_WEBMODULESTATS

collector.sl.rtview.sub=$TOMCAT_WEBMODULETOTALS_TABLE:TOMCAT_WEBMODULETOTALS

Optional Configurations

This section includes:

Enable BW5 Engines Via JMX

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 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 to the **sample.properties** file in your project settings directory, and making the Connection name the Engine name. Following the above example:

```
#
# Make JMX connections to BW Engines
#
sl.rtview.jmx.jmxconn=domainslapm.BWApp-1.Procs 192.168.1.102 9000 URL:- - - false
```

Note: For the standalone version of the Monitor, this property should be added to the **sample.properties** file in the project directory in which you installed the Monitor. After the BWMON data server is (re-)started, the JMX metrics will automatically be retrieved from the engine.

CHAPTER 3 Deployment

This section describes how to deploy the Monitor components. This section includes:

Overview

The Monitor can be deployed as a stand-alone desktop client or as a web application that runs in a browser. Evaluation environments can use the provided HSQLDB database. Production environments require a supported JDBC- or ODBC-enabled relational database to store historical information. Supported databases are MySql, SyBase, Oracle, SqlServer and DB2.

The RTView Historian and RTView Data Server are typically deployed on the same host. However, these processes can optionally be configured on separate hosts. Doing so can increase performance in deployments that need to support many end users or systems with large TIBCO servers.

- "Desktop Application Deployment" on page 35

  If you choose the desktop option, the Monitor desktop application needs to be installed at each client.

- "Web Application Deployment" on page 37

  If you choose the browser option, clients need only a browser and Adobe Flash installed. The RTView Display Server, RTView Data Server, RTView Historian and Application Server are typically installed on the same host.

Desktop Application Deployment

This section describes how to deploy the Monitor as a desktop application. You deploy the Monitor using the **start_rtv** script (and stop the Monitor using the **stop_rtv** script). In a desktop deployment the stand-alone desktop client connects directly to an RTView Data Server which gathers performance metrics. For desktop deployments the following processes are started: the RTView Data Server, Historian and Viewer desktop application, as well as the database.

NOTE: The RTView Data Server, Historian and Display Server can be run as Windows Services. For details, see "RTView Server Components as Windows Services" on page 39.

To deploy the Monitor as a desktop application:

Windows

1. Initialize a command window. Go to your Monitor installation directory and type:

   rtvapm_init

2. Change directory (**cd**) to the **<*mon>\projects\mysample** directory where **<*mon>** is the Monitor you are deploying (for example, **bw6mon**, **bwmon**, **tbemon** and **emsmon**).

3. In the **projects\mysample** directory, start the Monitor applications by typing:

   start_rtv default all –properties:sample

   where **–properties:sample** is the properties file in which you configured your system.

NOTE: The **start_rtv default all –properties:sample** command starts all the Monitor applications at once. You can start each Monitor application individually: **start_rtv default database** starts the default HSQLDB database (suitable for testing purposes), **start_rtv default dataserver –properties:sample** starts the Data Server, and **start_rtv default historian –properties:sample** starts the Historian. Use the **stop_rtv all** script to stop Monitor applications.

4. Start the Viewer by typing:

   runv -ds –properties:sample

   if you have properties configured for the Viewer. Otherwise, start the Viewer by typing:

   runv –ds

5. Login. The default user name and password are:

   User Name: **demo**

   Password: **demo**

   The Monitor main display opens.

UNIX/Linux

1. Initialize a terminal window. The script used to initialize a terminal window depends on whether you are in csh or rsh (e.g. Linux, Mac OS X). With a Bourne shell, open a terminal window, go to your Monitor installation directory and type:

   ./rtvapm_init.sh

2. Change directory (**cd**) to the **<*mon>/projects/mysample** directory where **<*mon>** is the Monitor you are deploying (for example, **bw6mon**, **bwmon**, **tbemon** and **emsmon**).

3. In the **projects/mysample** directory, start the Monitor applications by typing:

start_rtv.sh default –properties:sample

where **–properties:sample** is the properties file in which you configured your system.

NOTE: The **start_rtv.sh** default command starts all the Monitor applications at once. You can start each Monitor application individually: **start_rtv.sh default database** starts the default HSQLDB database (suitable for testing purposes), **start_rtv.sh default dataserver –properties:sample** starts the Data Server, and **start_rtv.sh default historian –properties:sample** starts the Historian. Use the **stop_rtv.sh all** script to stop Monitor applications.

4. Start the Viewer by typing:

   runv.sh -ds –properties:sample

   if you have properties configured for the Viewer. Otherwise, start the Viewer by typing:

   runv –ds

5. Login. The default user name and password are:

   User Name: **demo**

   Password: **demo**

   The Monitor main display opens.

Web Application Deployment

This section describes how to deploy the Monitor as a web application. You deploy the Monitor using the **start_rtv** script (and stop the Monitor using the **stop_rtv** script). For web application deployments the following processes are started: the RTView Data Server, Historian and Display Server, as well as the database and an application server.

NOTE: The RTView Data Server, Historian and Display Server can be run as Windows Services. For details, see “RTView Server Components as Windows Services” on page 39.

To deploy the Monitor as a web application:

- “Windows” on page 37
- “UNIX/Linux” on page 38

To view a list of iPad Safari limitations:

- “RTView Server Components as Windows Services” on page 39

Windows

1. Copy the **.war** files, located in the **rtvapm\<*mon>\webapps** directory, where **<*mon>** is the Monitor you are deploying (for example, **bw6mon**, **bwmon**, **tbemon** and **emsmon**), and deploy them to your Application Server.

2. Start your Application Server.

3. Initialize a command window. Go to your Monitor installation directory and type:

   rtvapm_init

4. Change directory (**cd**) to the **<*mon>\projects\mysample** directory.

5. In the **projects\mysample** directory, start the Monitor applications by typing:

   start_rtv default all –properties:sample

   where **–properties:sample** is the properties file in which you have configured your system.

NOTE: The **start_rtv default** command starts all the Monitor applications at once. You can start each Monitor application individually: **start_rtv default database** starts the default HSQLDB database (suitable for testing purposes), **start_rtv default dataserver –properties:sample** starts the Data Server, **start_rtv default historian –properties:sample** starts the Historian and **start_rtv default displayserver –properties:sample** starts the Display Server. Use the **stop_rtv** script to stop Monitor applications.

6. Open a Web browser and browse to the following URL to open the Monitor:

   http://host:port/<*mon>

   Where **host** is the IP or host name where your Application Server is running, **port** is the port used by your Application Server and **<*mon>** is the Monitor you are deploying. The login display opens in the Web browser.

   Login. The default user name and password are:

   User Name: **demo**

   Password: **demo**

   The main Monitor display opens.

UNIX/Linux

1. Copy the **.war** files, located in the **rtvapm/<*mon>/webapps** directory, where **<*mon>** is the Monitor you are deploying (for example, **bw6mon**, **bwmon**, **tbemon** and **emsmon**), and deploy them to your Application Server.

2. Start your Application Server.

3. Initialize a terminal window. The script used to initialize a terminal window depends on whether you are in csh or rsh (e.g. Linux, Mac OS X). With a Bourne shell, open a terminal window, go to your Monitor installation directory and type:

   ./rtvapm_init.sh

4. Change directory (**cd**) to the **<*mon>/projects/mysample** directory.

5. In the **projects/mysample** directory, start the Monitor applications by typing:

   start_rtv.sh default all –properties:sample

   where **–properties:sample** is the properties file in which you have configured your system.

NOTE: The **start_rtv.sh** default command starts all the Monitor applications at once. You can start each Monitor application individually: **start_rtv.sh default database** starts the default HSQLDB database (suitable for testing purposes), **start_rtv.sh default dataserver –properties:sample** starts the Data Server, **start_rtv.sh default historian –properties:sample** starts the Historian and **start_rtv.sh default displayserver –properties:sample** starts the Display Server. Use the **stop_rtv.sh** script to stop Monitor applications.

6. Open a Web browser and browse to the following URL to open the Monitor:

   http://host:port/<*mon>

   Where **host** is the IP or host name where your Application Server is running, **port** is the port used by your Application Server and **<*mon>** is the Monitor you are deploying. The login display opens in the Web browser.

   Login. The default user name and password are:

   User Name: **demo**

   Password: **demo**

   The main Monitor display opens.

RTView Server Components as Windows Services

This section describes how to configure an RTView process (Data Server, Historian, Display Server) to run as a Windows service. To illustrate, we use the EMS Monitor in our examples.

To Configure the Data Server, Historian or Display Server to run as a Windows Service

1. Add the following lines to the **sample.properties** file.

```
##########################
# WINDOWS SERVICES
# Install EMS Monitor servers as Windows services
#
installservice.sl.rtview.cmd_line=-install_service
installservice.sl.rtview.cmd_line=-dir:%RTVAPM_STARTUP%
uninstallservice.sl.rtview.cmd_line=-uninstall_service
#
```

NOTE: The environment variable %RTVAPM_STARTUP% is set by run script to the directory where the script was started.

2. Change **EMS Monitor** to the name of your Monitor (for example, **BW Monitor**).

3. For each Windows service you want to create, add the following line and replace **name** with a name you choose for the service:

   name.sl.rtview.cmd_line=service:name

Note: Each service must have a unique name and the beginning of the property entered must match the name of the service.

For example (and continuing to use EMS Monitor to illustrate), we choose **EMSMonData** as the name for starting a Data Server as a Windows service and **EMSMonDisp** to indicate a name for starting a Display Server as a Windows service.

```
##########################
# WINDOWS SERVICES
# Install EMS Monitor servers as Windows services
#
installservice.sl.rtview.cmd_line=-install_service
installservice.sl.rtview.cmd_line=-dir:%RTVAPM_STARTUP%
uninstallservice.sl.rtview.cmd_line=-uninstall_service
EMSMonData.sl.rtview.cmd_line=-service:EMSMonData
EMSMonDisp.sl.rtview.cmd_line=-service:EMSMonDisp
#
```

To install and run

Execute the following scripts to start the service:

NOTE: These scripts must be run in an initialized command window.

rundata -propfilter:installservice -propfilter:EMSMonData

rundisp -propfilter:installservice -propfilter:EMSMonDisp

To uninstall

Execute the following scripts to uninstall the services:

NOTE: These scripts must be run in an initialized command window.

rundisp -propfilter:uninstallservice -propfilter:EMSMonDisp

rundata -propfilter:uninstallservice -propfilter:EMSMonData

Troubleshooting

Log Files

When the Monitor encounters an error, Monitor components output an error message to the console and/or to the corresponding log files. Log files are located in the project directory**\logs** directory. Look at the following log files on the machine where the components are running:

- **dataserver.log**
- **displayserver.log**
- **historian.log**

To enable logging, make sure the directory logs exists in your project directory.

Verifying Data Received from Data Server

Open the **Cache Viewer Display** to verify data is arriving correctly from the Data Server. To access the **Cache Viewer Display**, choose **Administration** in the navigation tree, then choose **RTView Cache Tables** display or the **RTView Cache Overview** display. You should see all caches being populated with monitoring data (number of rows > 0). Otherwise, there are problems with the connection to the Data Server.

Restarting the Data Server

If the Viewer, the Display Server or the Historian fails to connect to the Data Server or receives no data, verify the ports are assigned correctly in your properties files and then restart the Data Server.

Multiple Distributed Data Servers

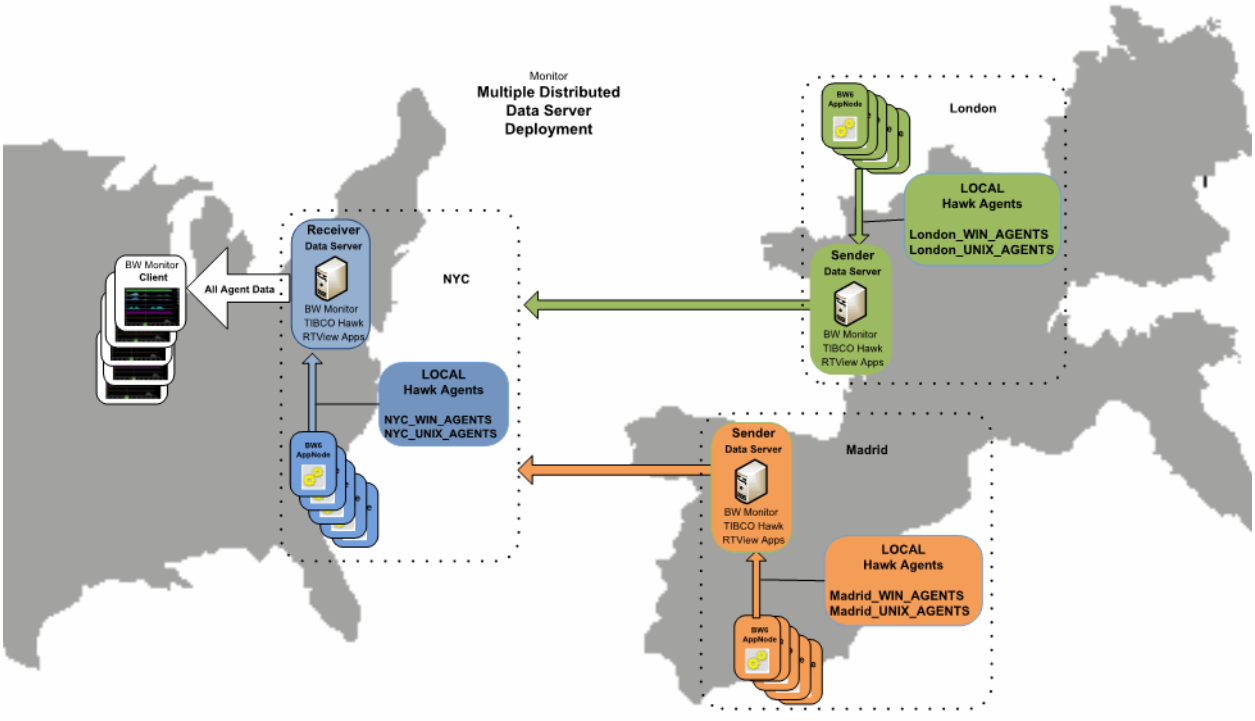
If you have systems running outside your LAN subnet, this deployment option enables you to centralize the Monitor deployment while locating each Data Server near the servers they monitor, thereby optimizing Monitor performance.

Note: If the Monitor runs on a single server and monitors servers within a single, local subnet, you do not need to consider this type of deployment.

To set up this type of deployment, determine which Data Server is to be the central Data Server and configure it to be the receiver. Then, configure all the other Data Servers to be the senders. You also need to configure each Data Server (receiver and senders) to automatically detect and gather data strictly from their local Hawk Agents. The sender Data Servers then send their local Hawk Agent data to the receiver Data Server. The receiver Data Server aggregates all data received and makes it available to Monitor displays.

For example, the following illustrates a Monitor deployment for a company headquartered in New York City. The company has systems running locally, as well as outside the LAN in London and Madrid. The NYC Data Server is designated as the receiver, and the London and Madrid Data Servers are designated as senders.

Note: Each Data Server gathers data only for its LAN.



NYC Data Server (Receiver)	London Data Server (Sender)	Madrid Data Server (Sender)
• Automatically detects and gathers data for its local Agents (**NYC_WIN_AGENTS** and **NYC_UNIX_AGENTS**). • Receives data from London and Madrid senders. • Aggregates data. • Provides data to the Monitor displays. Can see all Agents local to London and Madrid Data Servers, but is configured only to obtain data from its local systems.	• Automatically detects and gathers data for its local Agents (**London_WIN_AGENTS** and **London_UNIX_AGENTS**). • Sends data from its local Agents to NYC Data Server.	• Automatically detects and gathers data for its local Agents (**Madrid_WIN_AGENTS** and **Madrid_UNIX_AGENTS**). • Sends data from its local Agents to NYC Data Server.

Configuration

This section describes how to configure the sender(s).

1. Open the **sample.properties** file, located in your project directory, and locate the following lines:

   sender.sl.rtview.sub=$rtvAgentTarget:'localhost:3372'

sender.sl.rtview.sub=$rtvAgentName:MyMachineName

2. Change **localhost** to the actual hostname or IP of the receiver's system.
3. Change **MyMachineName** to a descriptive name of the sender.
4. Verify all Data Servers are correctly configured to collect from only their local Hawk connections (see “Configure the Data Servers” on page 10).

Note: In the case of the receiver there may be no local connections.

---

5. To run the sender, add to the dataserver run command the argument **-propfilter:sender**.
6. To run the receiver, add to the dataserver run command the argument **-propfilter:receiver**.

Note: Usually the sender and receiver data servers are run on different systems and therefore each can use the default port assignments. If this is not the case, then the port assignment of one must be changed in **sample.properties**.

CHAPTER 4 Using the Monitor

This section describes Monitor features, graphs and functionality as well as Monitor displays. This section includes:

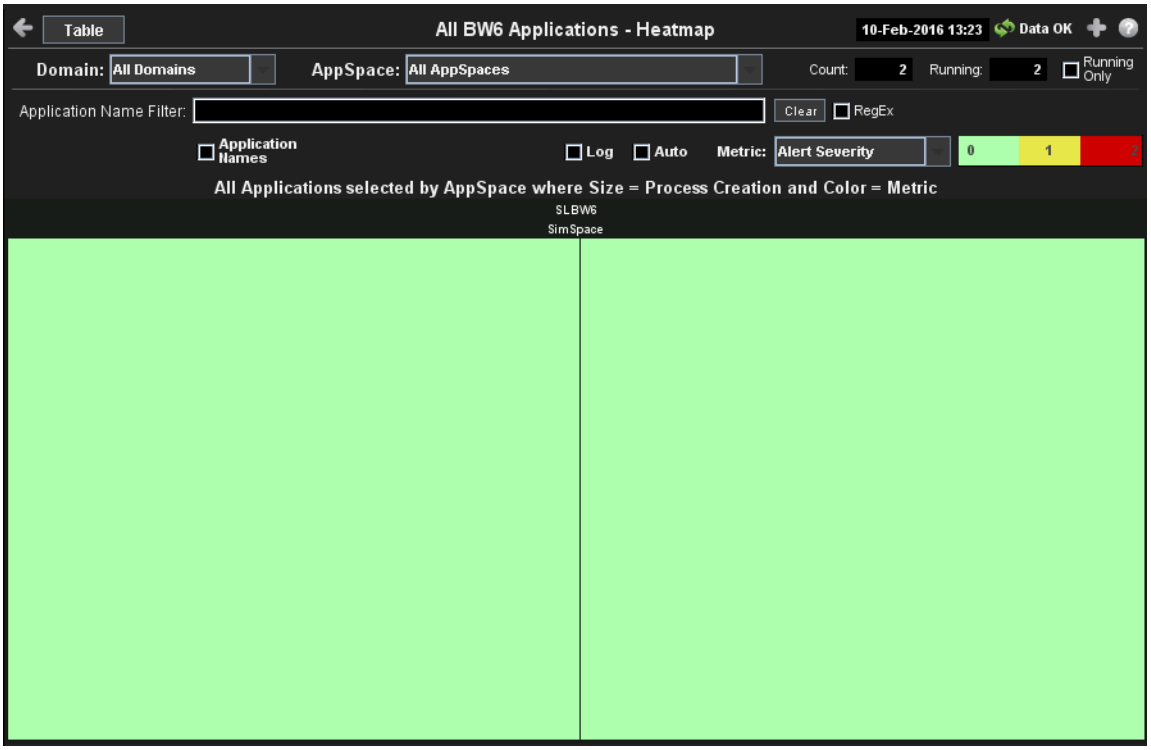
Overview

This section describes the main Monitor features, how to read Monitor objects, GUI functionality and navigation. This section includes:

- “Heatmaps” on page 47: Describes how to read heatmaps and heatmap functionality.
- “Tables” on page 48: Describes how to read tables and table functionality.
- “Trend Graphs” on page 49: Describes how to read trend graphs and trend graph functionality.
- “Title Bar” on page 50: Describes the top layer of the title bar shared by Monitor displays.
- “Context Menu” on page 51: Describes right-click popup menu in the Monitor.
- “Multiple Windows” on page 51: Describes opening multiple windows in the Monitor.
- “Export Report” on page 51: Describes how to export reports from the Monitor.

Monitor Main Display

The **All Applications Heatmap** is the default display of the BW Monitor (if you are running TIBCO ActiveMatrix BusinessWorks™ v.6. Otherwise, the default display is the “All Engines Heatmap”). This color-coded heatmap provides a good starting point for immediately getting the status of all your BW applications. To open TIBCO BusinessWorks Monitor in the RTView Enterprise Monitor®, choose **TIBCO BW6 Applications** in the navigation tree. The following figure illustrates the Monitor.



NOTE: It takes about 60 seconds after either a BusinessWorks engine or the Monitor Data Server is started for data to initially appear in Monitor displays. By default, data is collected and displays are refreshed every 30 seconds.

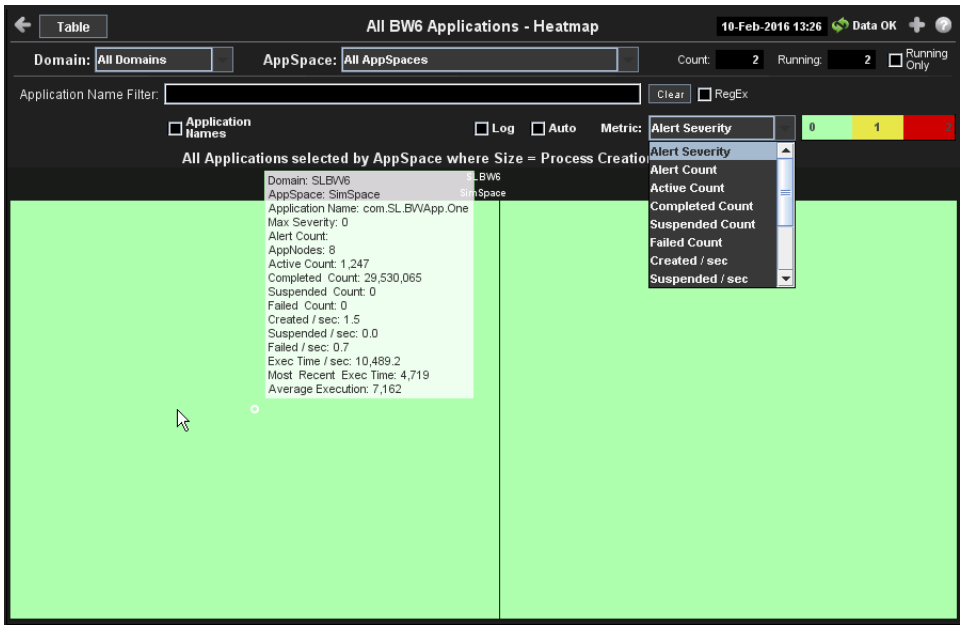
Navigation Tree

The BW Monitor navigation tree (in the left panel) is organized by *Views*. Each View features performance data for a type of system resource. Typically, the performance data is shown in a tabular, heatmap and summary display for each View.

Heatmaps

Heatmaps organize your BW resources (servers, processes, and so forth) into rectangles and use color to highlight the most critical values in each. Heatmaps enable you to view various 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 resources in the rectangle; a larger size is a larger value. Heatmaps include drop-down menus to filter data by. The filtering options vary among heatmaps.

For example, each rectangle in the **All Applications Heatmap** represents an application, where color is representative of the selected **Metric**.



The **Metric** drop-down menu in this heatmap contains options to show **Alert Severity**, **Alert Count**, as well as other metrics. Menu options vary according to the data populating the heatmap. **Alert Severity** is selected and its corresponding color gradient bar is shown. **Alert Severity** is 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 resources associated with that application currently has an alert in an alarm state.

Yellow indicates that one or more resources associated with that application currently have an alert in a warning state.

Green indicates that no resources associated with that application have alerts in a warning or alarm state.

In most heatmaps, you can also drill-down to a *Summary* display containing detailed data for the resource (in this case, you drill-down to detailed data for the selected application in the **Single Application Summary** display). You can also open a new window and then drill-down. The drill-down opens a display that contains relevant and more detailed data.

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.

Log Scale

Typically, heat maps provide the Log Scale option, which enables visualization on a logarithmic scale. This option 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.

Tables

Monitor tables contain the same data that is shown in the heatmap in the same View. Tables provide you a text and numeric view of the data shown in that heatmap, and additional data not included the heatmap. For example, the **All Applications Table** display (shown below) shows the same data as the **All Applications Heatmap** display (shown previously).

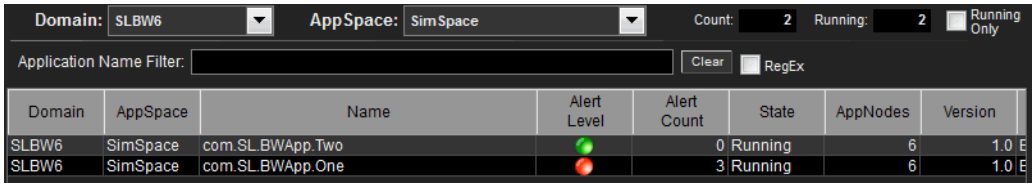


Table rows also sometimes use color to indicate the current most critical alert state for all resources associated with a given row. For example, the color coding is typically as follows:

Red indicates that one or more resources associated with that application currently has an alert in an alarm state.

Yellow indicates that one or more resources associated with that application currently have an alert in a warning state.

Green indicates that no resources associated with that application currently have an alert in a warning or alarm state.

Sorting

The Monitor allows you to sort the rows of a table. To do so, you click on the column title. A symbol appears when sorting in ascending order, and the inverted symbol when sorting in descending order.

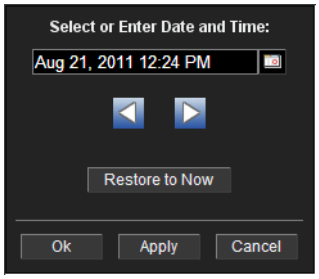
Trend Graphs

Monitor trend graphs enable you to view and compare performance metrics over time. You can use trend graphs to assess utilization and performance trends.

For example, the following figure illustrates a typical Monitor trend graph.

Time Range

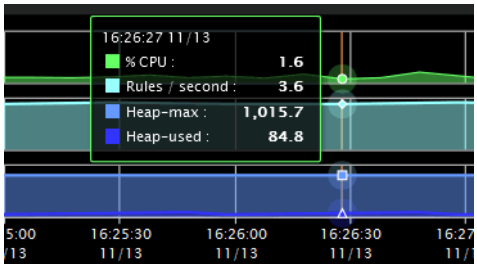
Select a time range from the drop down menu varying from **2 Minutes** to **Last 7 Days**, or display **All Data**. By default, the time range end point is the current time.



To change the time range 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, Aug 21, 2011 12:24 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 following figure illustrates mouse-over functionality. In this example, when you mouse-over a single dot, or data point, a pop-up window shows data for that data point.



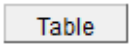
Log Scale

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.

Title Bar

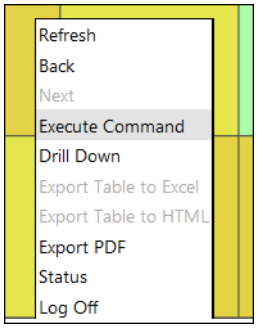
Displays share the same top layer in the title bar, as shown below.

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

	Opens the previous 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.
	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.
	Opens the online help page for the current display.

Context Menu

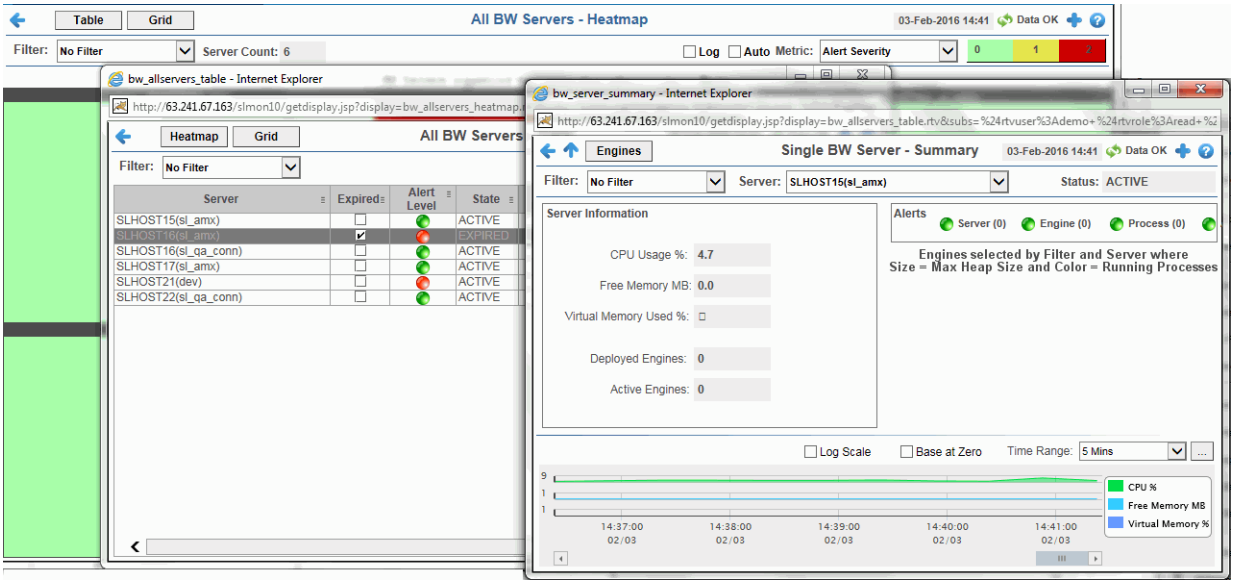
Typically, you can right-click on displays to open a popup menu. By default, options include **Refresh**, **Back**, **Next**, **Execute Command**, **Drill Down**, **Export Table to Excel**, **Export Table to HTML**, **Export PDF**, **Status** and **Log Off**. The following figure illustrates the popup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



For details about exporting a PDF report, see "Export Report" on page 51.

Multiple Windows

The following illustrates the use of Open New Window .

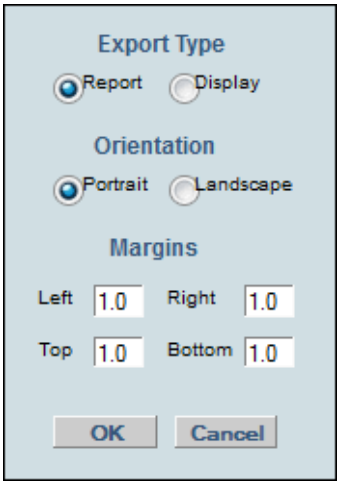


Export Report

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.

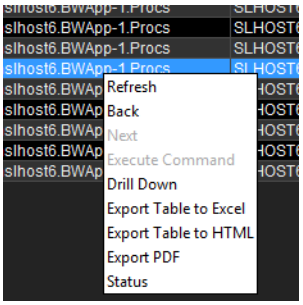


Set the margins and choose the **Export Type**:

- **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**.



BW6 Applications

These displays present process performance data for your BusinessWorks 6 applications and AppSpaces across BusinessWorks 6 Domains. Process metrics are totaled by application. Use these displays to monitor critical alerts for all your BusinessWorks 6 applications, and investigate those alerts in lower-level displays. Displays in this View are:

- "BW6 All Applications Heatmap" on page 53: A color-coded heatmap view of selected application performance metrics.
- "BW6 All Applications Table" on page 56: A tabular view of all available application performance data in this BusinessWorks 6 View.
- "BW6 Single Application Summary" on page 58: Current and historical metrics for a single application.

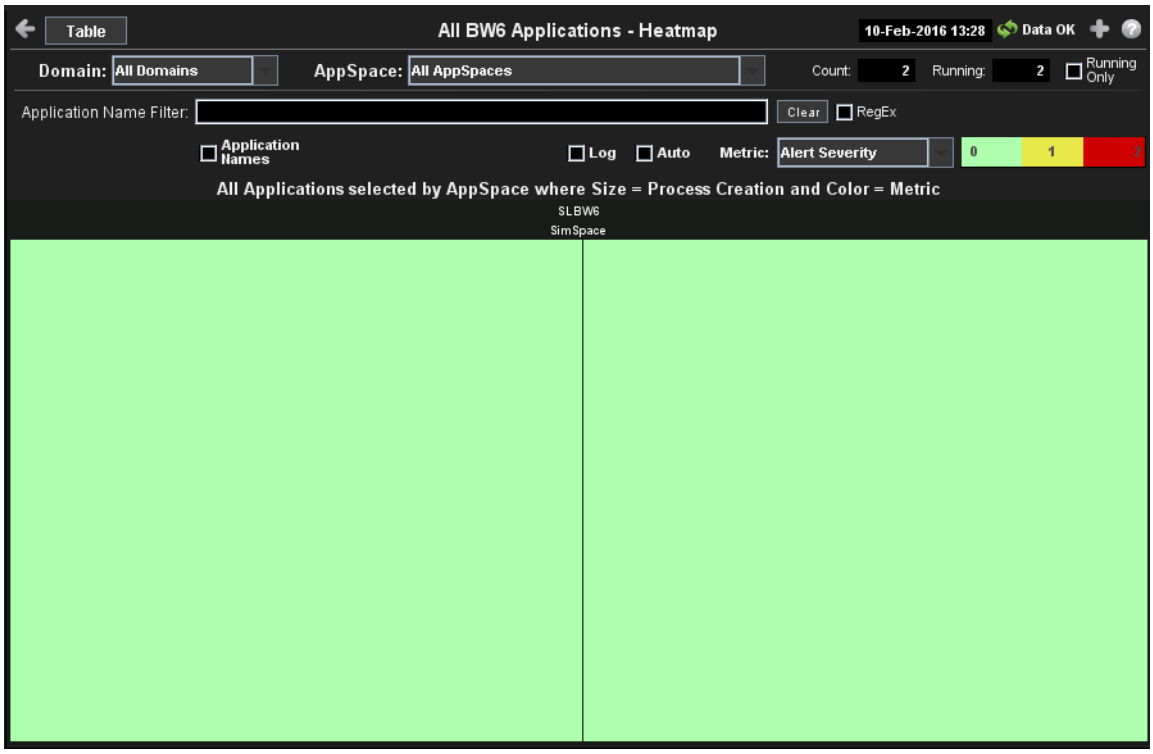
BW6 All Applications Heatmap

View the most critical BusinessWorks 6 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 "BW6 Single Application Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

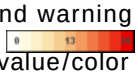
Data OK The data connection state. Red indicates the data source is disconnected (for example, the Data Server is not receiving data, or the Display Server is not receiving data from the Data Server). Green indicates the data source is connected.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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 to show data for 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.
Application Names	Check to include labels in the heatmap.

Fields and Data:

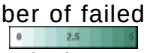
Count:	The total number of AppSpaces currently shown in the display.
Running	The total number of AppSpaces currently running in the display.
Running Only	Select to show only running applications in the display.
Log	Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for 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.

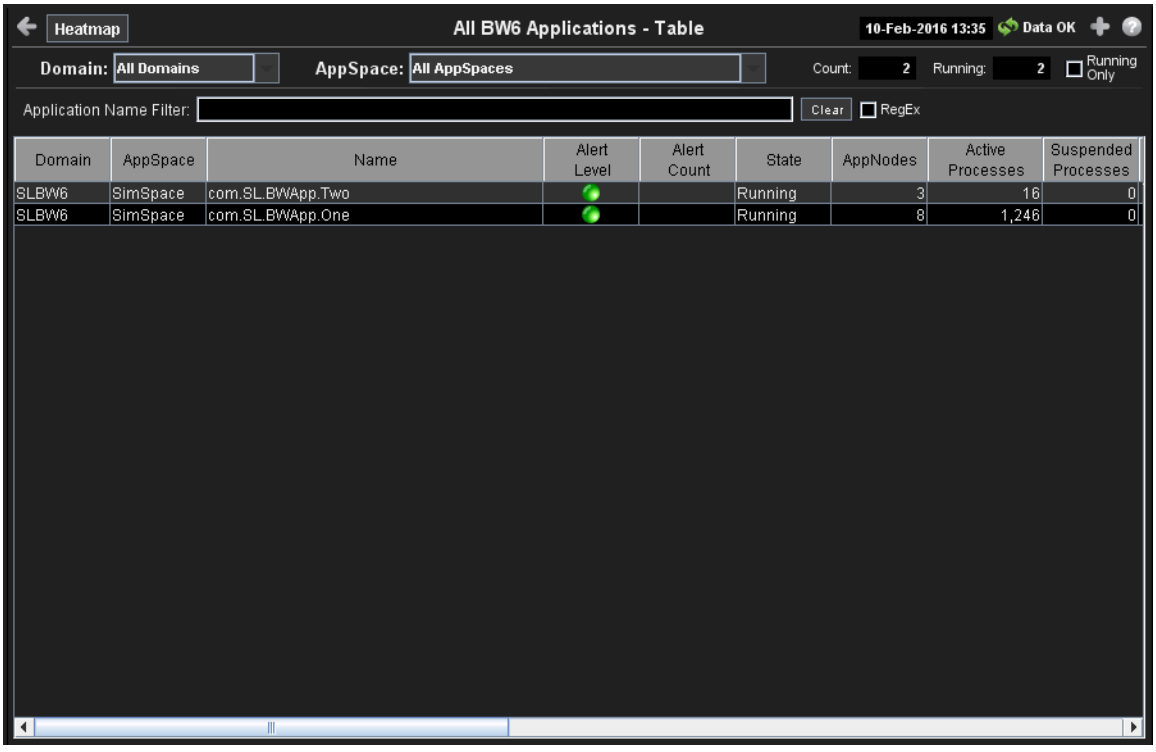
Average Elapsed Time The average elapsed time for all processes in the heatmap rectangle, calculated by dividing the delta elapsed time for the interval by the delta completed, or the number of process instances that completed in the interval. The color gradient bar, populated by the current heatmap, 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.

BW6 All Applications Table

View BusinessWorks 6 data shown in the "BW6 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 "BW6 Single Application Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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 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 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. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.

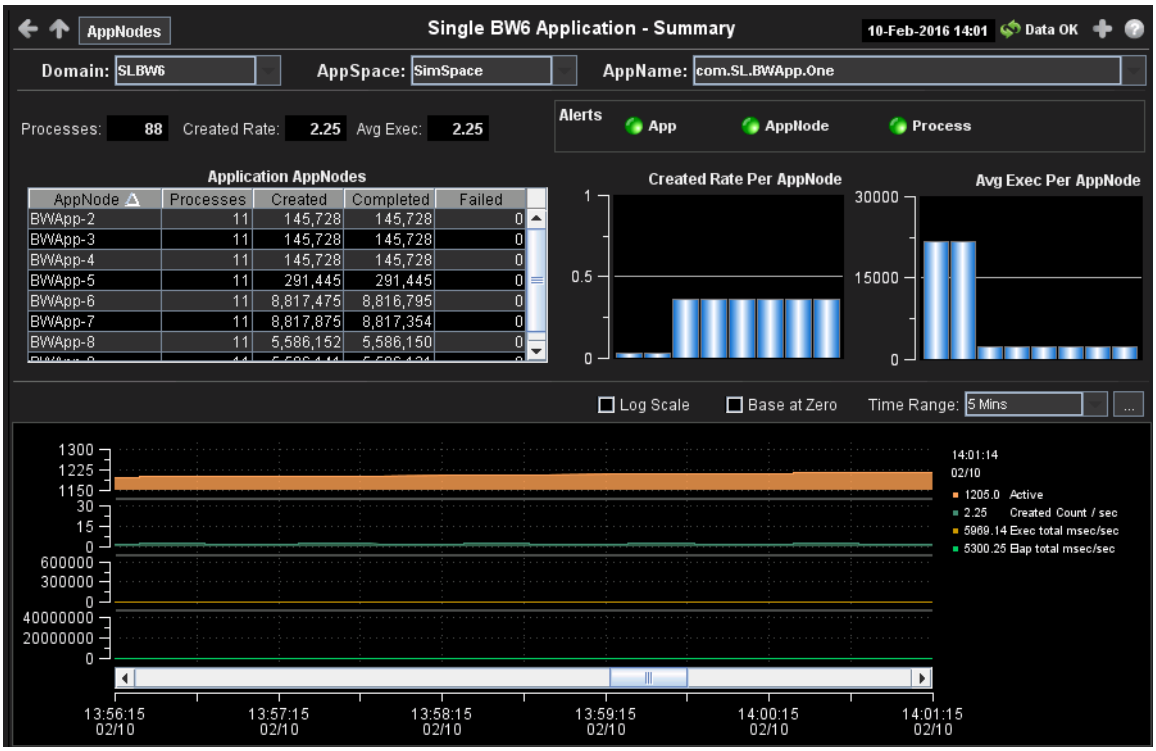
BW6 Single Application Summary

View current and historical metrics for a single BusinessWorks 6 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 "BW6 Single AppNode Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

AppName: Choose an AppName to show data for 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**, **AppNode** and **Process** alerts for the selected application. Click on the alert indicator to drill down to the "BW6 All Applications Table" display, "BW6 All AppNodes Table" display and "BW6 All Processes Table" display, respectively, to view current 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.

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 "BW6 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 "BW6 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 "BW6 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.

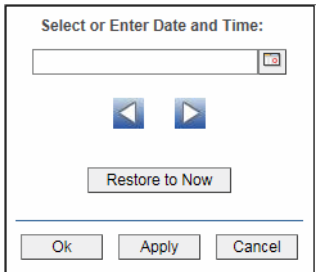
Exec total msec/sec Traces the rate at which the application is accumulating process execution time, in milliseconds per second.

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.

BW6 AppNodes

These displays present internal JVM memory and host CPU utilization for BusinessWorks 6 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:

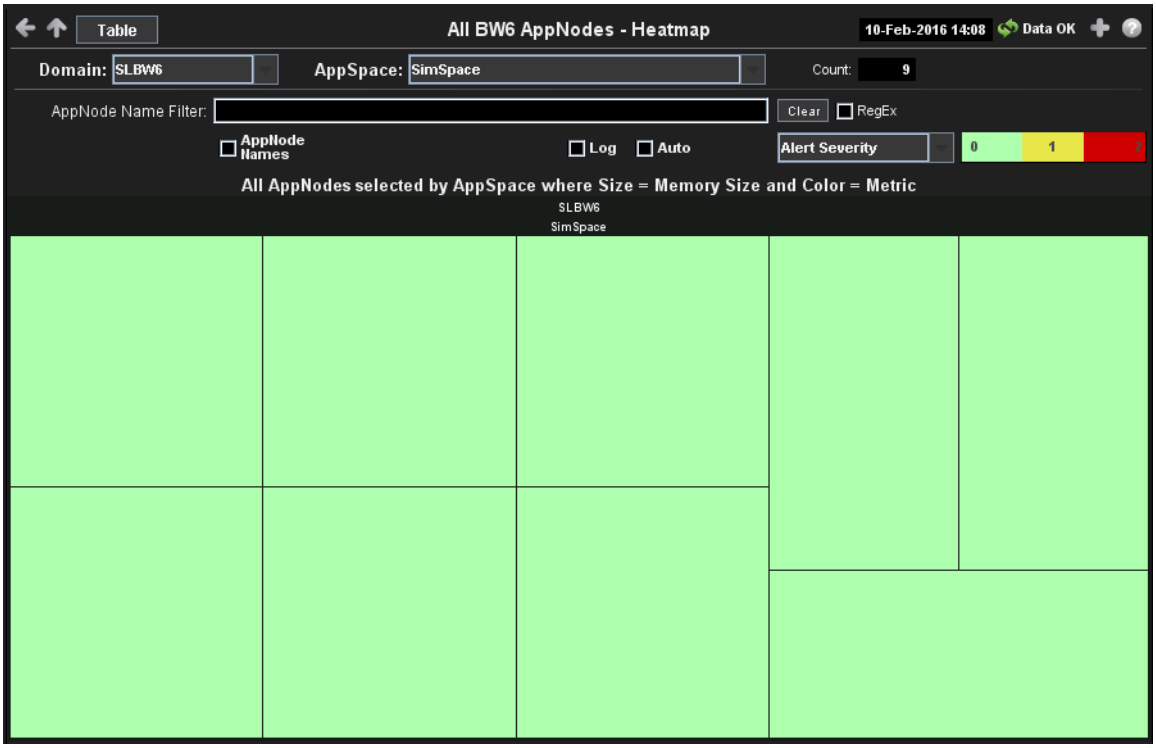
- "BW6 All AppNodes Heatmap" on page 61: A color-coded heatmap view of utilization metrics.
- "BW6 All AppNodes Table" on page 64: A tabular view of all available utilization data in this BusinessWorks 6 View.
- "BW6 Single AppNode Summary" on page 66: Current and historical metrics for a single AppNode.

BW6 All AppNodes Heatmap

View the most critical JVM memory and host resource utilization for BusinessWorks 6 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 "BW6 Single AppNode Summary" display.



Title Bar: Indicators and functionality might include the following:

- Open the previous and upper display.
- Table — Navigate to displays commonly accessed from this display.
- 19-Feb-2014 16:50 — The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
- Data OK — The data connection state. Red indicates the data source is disconnected (for example, 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.
- Open the **Alert Views - RTView Alerts Table** display.
- Open an instance of this display in a new window.
- Open the online help page for this 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.

Fields and Data:

AppNode Name Filter Enter a string to limit data shown in the display.

Clear Clears the **Application Name Filter** entries from the display.

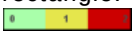
RegEx Toggles the **Search Text** field to accept Regular Expressions for filtering.

AppNode Names Check to include labels in the heatmap.

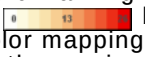
Log Select to enable a logarithmic scale. Use **Log Scale** to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log 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.

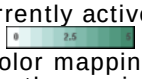
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

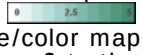
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

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.

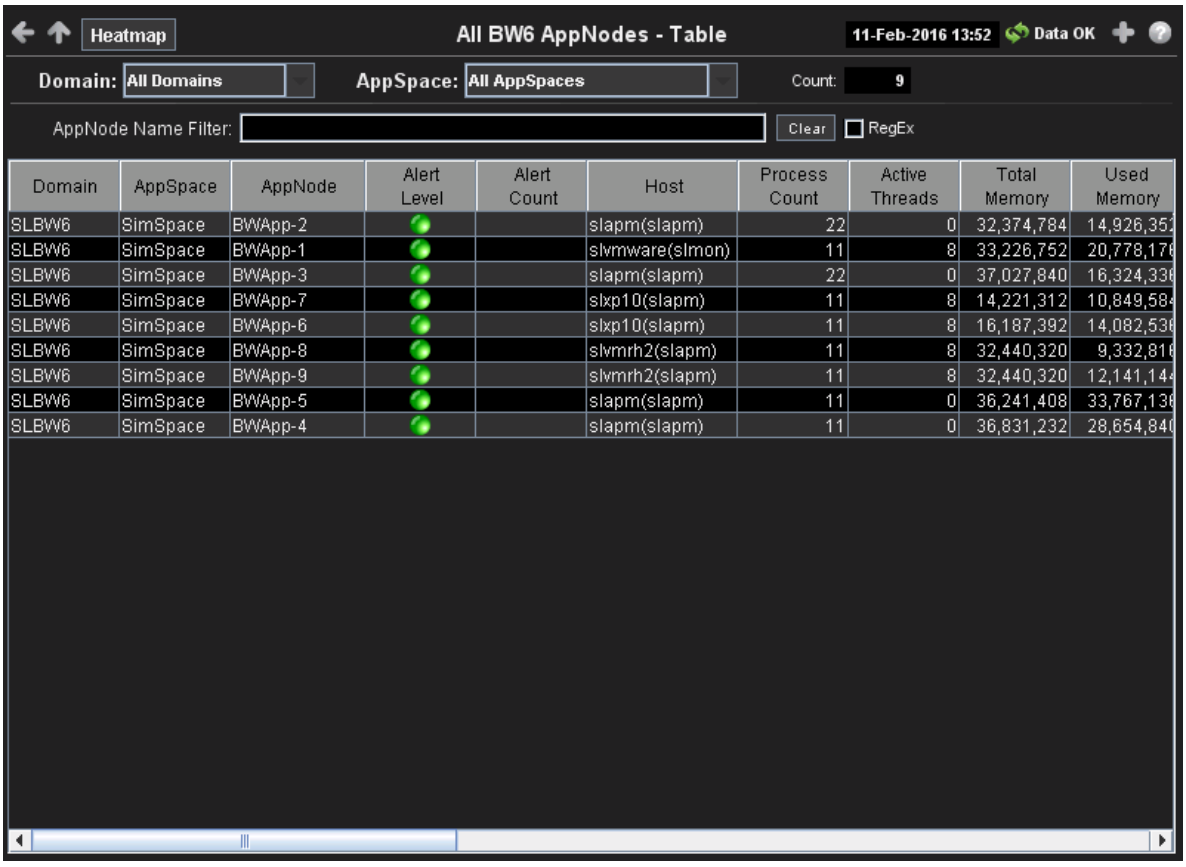
Error Count The total number of process errors in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar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

BW6 All AppNodes Table

View BusinessWorks 6 data shown in the "BW6 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 "BW6 Single AppNode Summary" display.



Domain	AppSpace	AppNode	Alert Level	Alert Count	Host	Process Count	Active Threads	Total Memory	Used Memory
SLBW6	SimSpace	BWApp-2			slapm(slapm)	22	0	32,374,784	14,926,35
SLBW6	SimSpace	BWApp-1			slvmware(slmon)	11	8	33,226,752	20,778,17
SLBW6	SimSpace	BWApp-3			slapm(slapm)	22	0	37,027,840	16,324,33
SLBW6	SimSpace	BWApp-7			slxp10(slapm)	11	8	14,221,312	10,849,58
SLBW6	SimSpace	BWApp-6			slxp10(slapm)	11	8	16,187,392	14,082,53
SLBW6	SimSpace	BWApp-8			slvmrh2(slapm)	11	8	32,440,320	9,332,81
SLBW6	SimSpace	BWApp-9			slvmrh2(slapm)	11	8	32,440,320	12,141,14
SLBW6	SimSpace	BWApp-5			slapm(slapm)	11	0	36,241,408	33,767,13
SLBW6	SimSpace	BWApp-4			slapm(slapm)	11	0	36,831,232	28,654,84

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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.

Fields and Data:

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.

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.

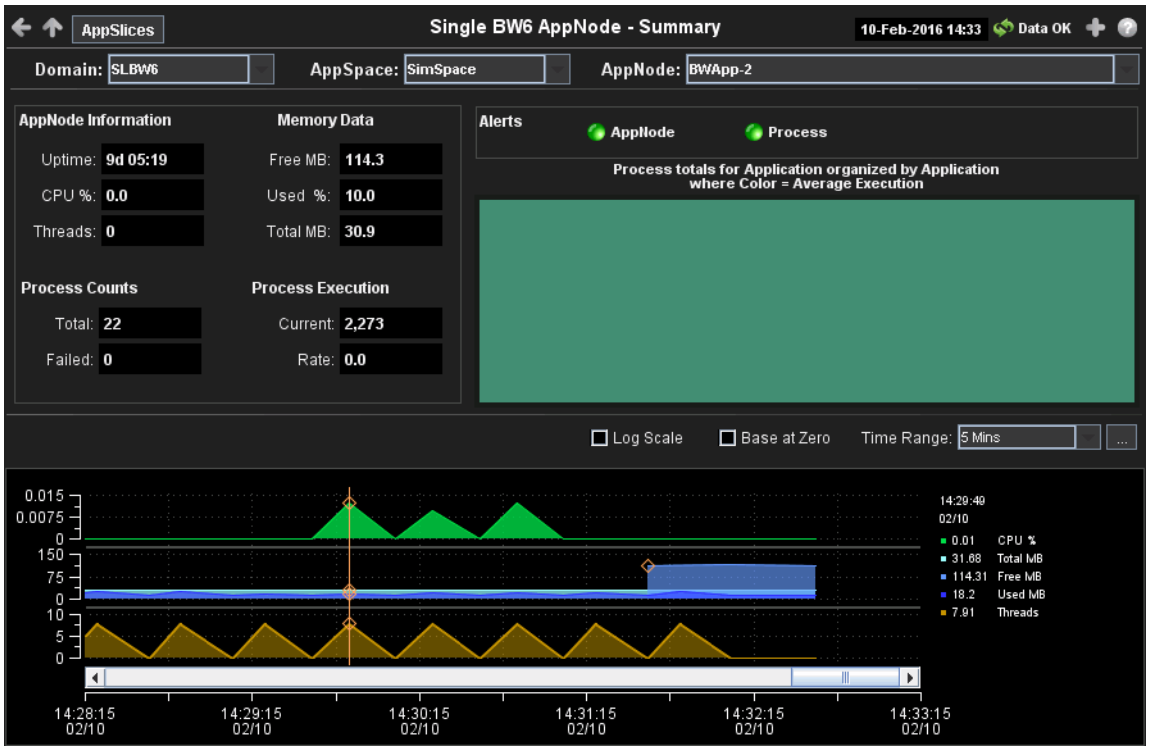
Used Memory%	The percent (%) used memory.
Used CPU%	The percent (%) used CPU.
System Process ID	A unique string identifier for the process.
Up Since	The date and time the AppNode was last started.
Active Processes	The number of currently active processes.
Suspended Processes	The number of suspended application 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).

BW6 Single AppNode Summary

View current and historical utilization and performance metrics for a single BusinessWorks 6 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 "BW6 Single AppNode Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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. Click on the alert indicator to drill down to the "BW6 All AppNodes Table" display and "BW6 All Processes Table" display, respectively, to view current 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.	

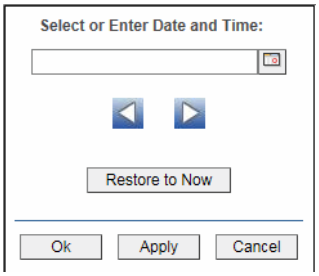
Heatmap
Each rectangle in the heatmap represents an AppSlice. The rectangle color indicates the most critical **Average Exec Time** alert state associated with the AppSlice. The rectangle size represents the maximum number of processes executed in the rectangle; a larger size is a larger value. Click a rectangle to drill-down and investigate in the "BW6 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.

BW6 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:

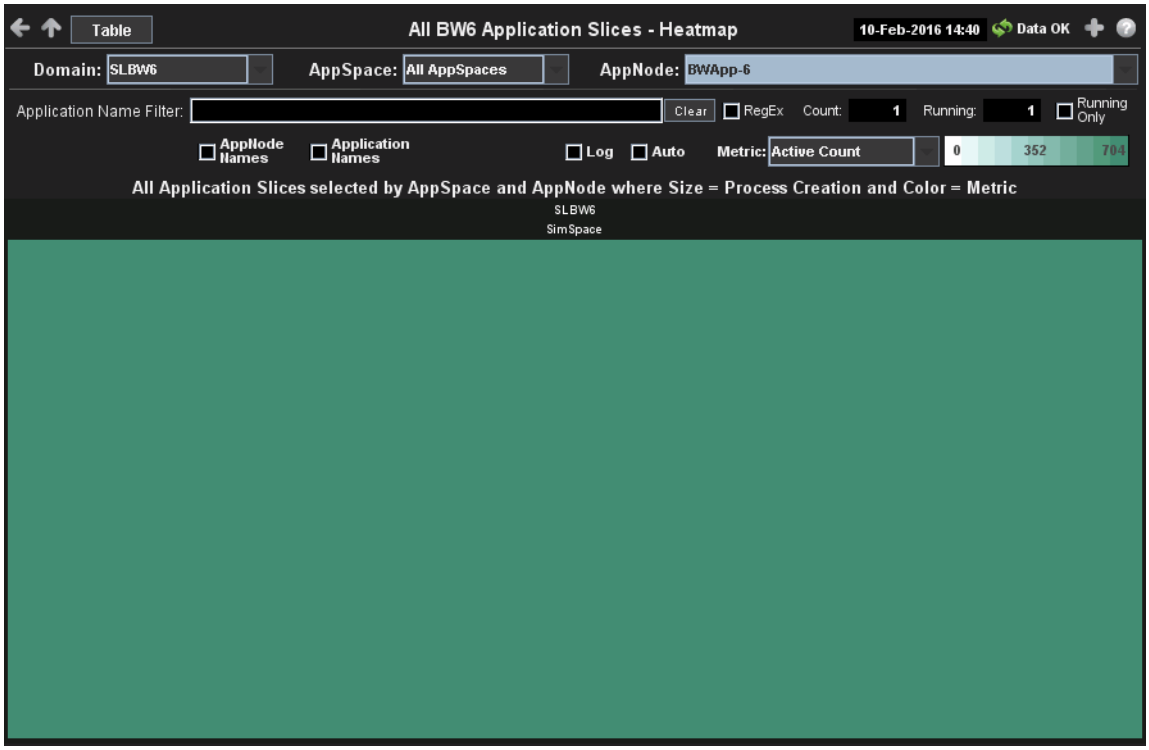
- "BW6 All AppSlices Heatmap" on page 69: A color-coded heatmap view of process creation and execution metrics.
- "BW6 All AppSlices Table" on page 72: A tabular view of all available data in this BusinessWorks 6 View.
- "BW6 Single AppSlice Summary" on page 74: Current and historical metrics for a single AppSlice.

BW6 All AppSlices Heatmap

View the most critical performance metrics for BusinessWorks 6 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 "BW6 Single AppSlice Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

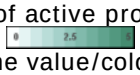
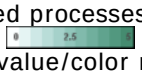
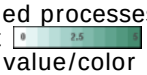
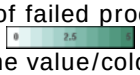
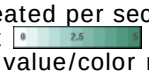
AppNode Names Check to include labels in the heatmap.

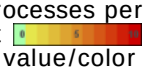
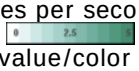
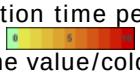
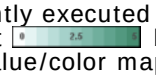
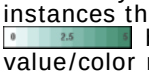
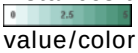
Application Names Check to include labels in the heatmap.

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.

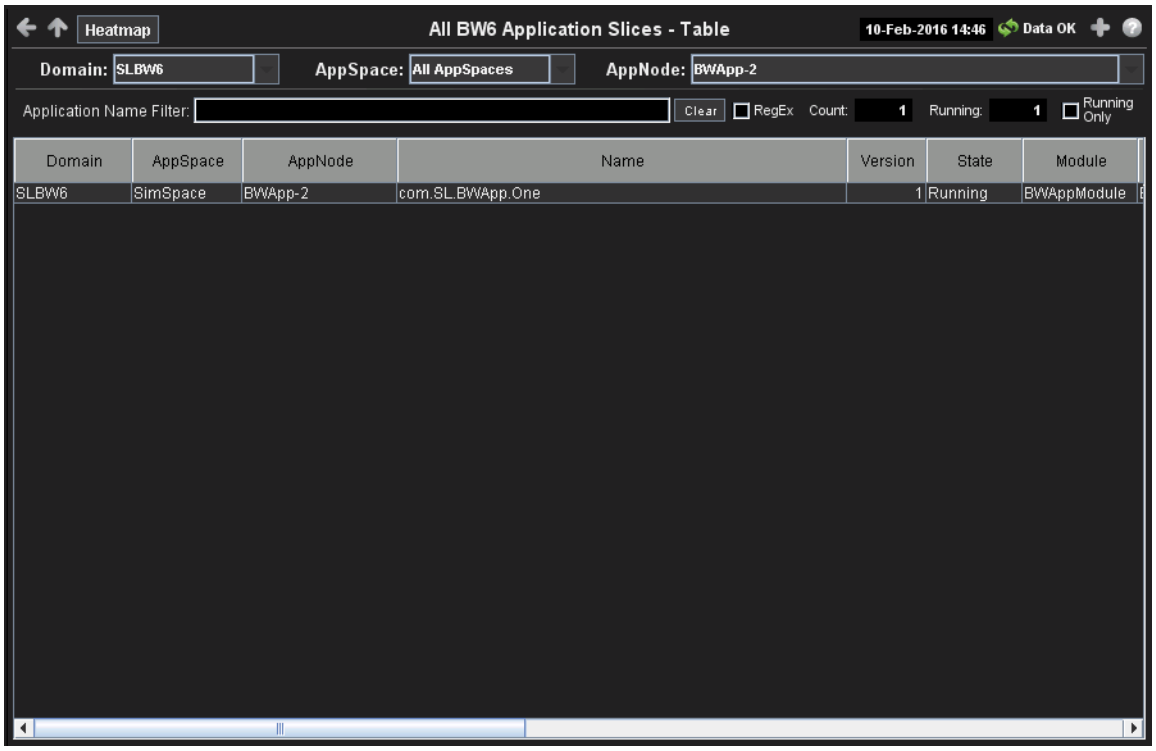
Suspended / sec	The number of suspended processes per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in 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.

BW6 All AppSlices Table

View BusinessWorks 6 data shown in the "BW6 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 "BW6 Single AppSlice Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

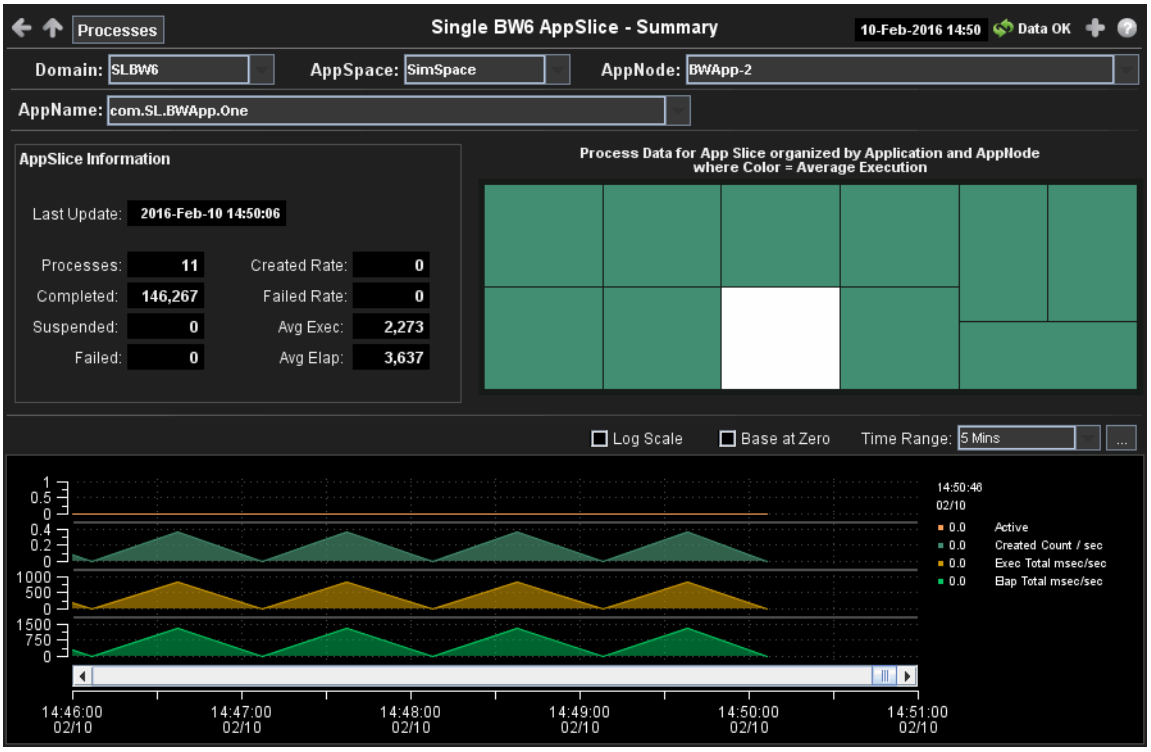
Domain	The domain in which the AppSpace resides.
AppSpace	The AppSpace the AppNode is associated with.
AppNode	The name of the selected AppNode.
Name	The name of the application.
Version	The application version.
State	The current status of the application. Valid values are **Running** and **Stopped**.
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).

BW6 Single AppSlice Summary

View current and historical utilization and performance metrics for a single BusinessWorks 6 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 "BW6 Single Process Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

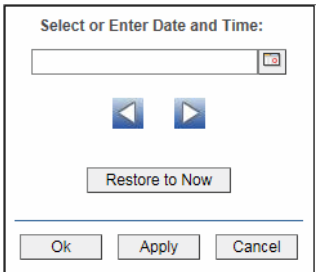
Heatmap
Each rectangle in the heatmap represents one process in an AppSlice. The rectangle color indicates the most critical **Average Exec Time** alert state associated with the AppSlice. The rectangle size represents the processes execution time in the rectangle; a larger size is a larger value. Click a rectangle to drill-down and investigate in the "BW6 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.

BW6 Processes

These displays present performance data for BusinessWorks 6 processes. Use these displays to verify that individual BusinessWorks 6 processes are executing and using resources as expected. Displays in this View are:

- "BW6 All Processes Heatmap" on page 77: A color-coded heatmap view of selected process performance metrics.
- "BW6 All Processes Table" on page 80: A tabular view of all available process performance data in this BusinessWorks 6 View.
- "BW6 Single Process Summary" on page 83: Current and historical metrics for a single process.

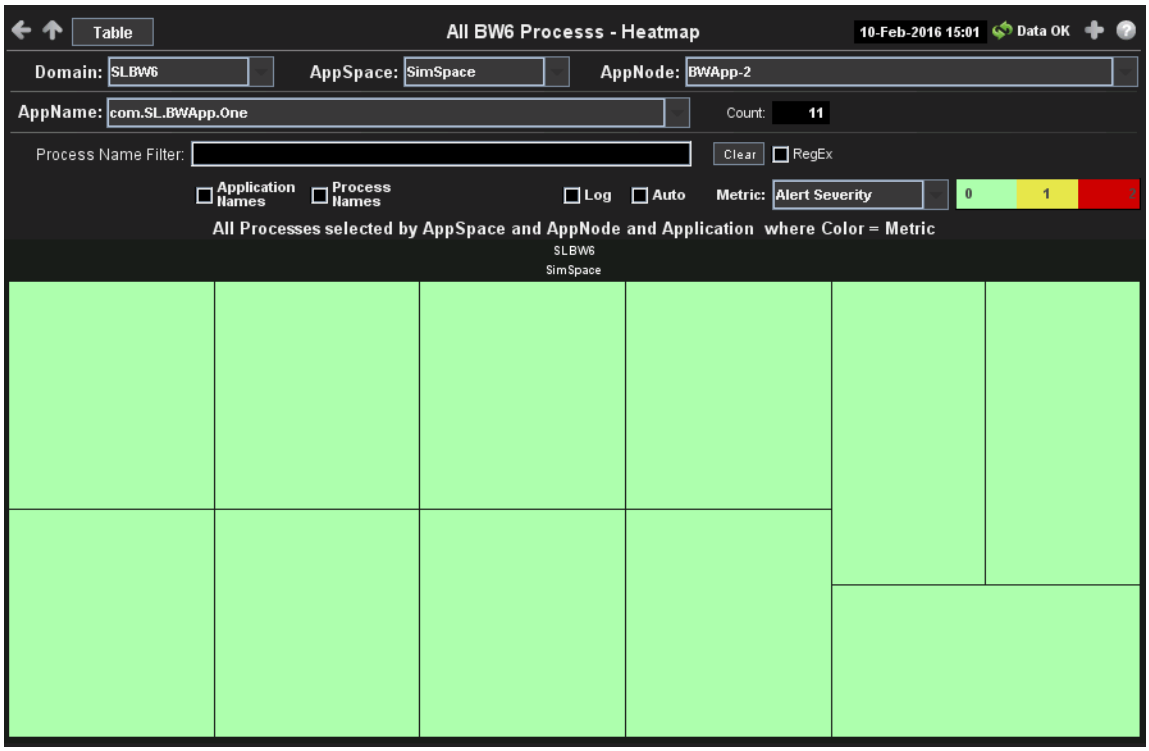
BW6 All Processes Heatmap

View the most critical BusinessWorks 6 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 "BW6 Single Process Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

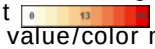
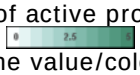
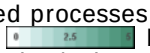
Application Names Check to include labels in the heatmap.

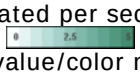
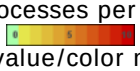
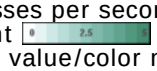
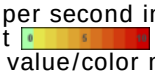
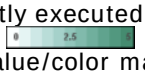
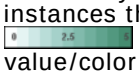
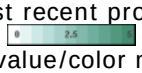
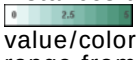
Process Names Check to include labels in the heatmap.

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.

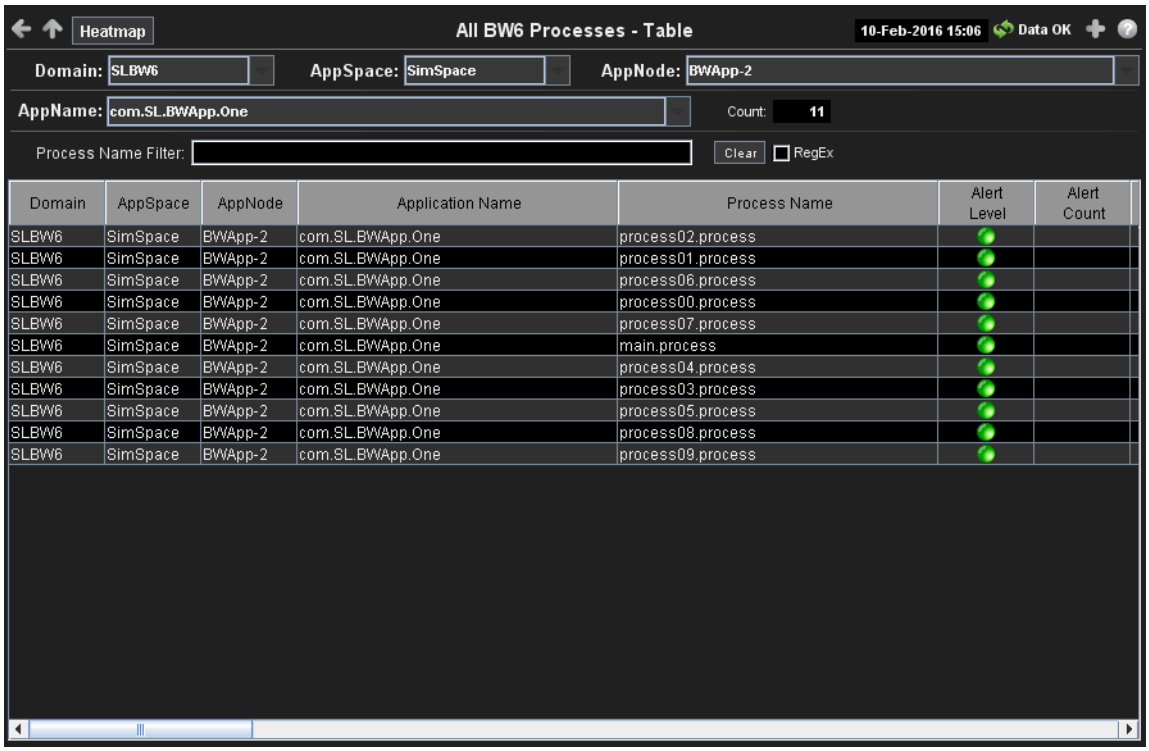
Created / sec	The number of processes created per second in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the 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.

BW6 All Processes Table

View BusinessWorks 6 data shown in the "BW6 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 "BW6 Single Process Summary" display



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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	The total amount of time for executed processes.
Delta Exec Time	The amount of execution time since the last data update, in seconds.
Exec Time / sec	The amount of execution time, in seconds.
Recent Exec Time	The amount of execution time for the most recent data update, in seconds.
Total Elapsed Time	The total amount of time for elapsed processes.
Delta Elapsed Time	The amount of elapsed time since the last update, in seconds.
Elapsed Time / sec	The amount of elapsed time per second.
Recent Elapsed Time	The amount of elapsed time for the most recent data update, in seconds.
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	The least amount of execution time, in seconds.
Max Exec Time	The greatest amount of execution time, in seconds.
Average Exec Time	The average amount of time for executed processes.
Min Elapsed Time	The least amount of elapsed time, in seconds.
Max Elapsed Time	The greatest amount of elapsed time, in seconds.
Average Elapsed Time	The average amount of time for elapsed processes.
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).

BW6 Single Process Summary

View current and historical execution metrics for a single BusinessWorks 6 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.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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 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.

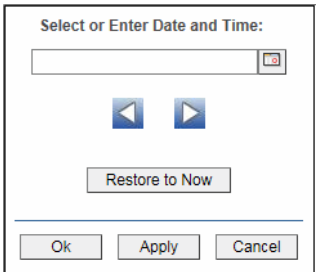
Trend Graphs
Traces application process and activity metrics for the selected process.

- **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.

BW6 Hosts

These displays the health and history of the host systems supporting BusinessWorks 6 applications and AppNodes. Use these displays to monitor critical alerts for host servers and investigate those alerts in lower-level displays. Displays in this View are:

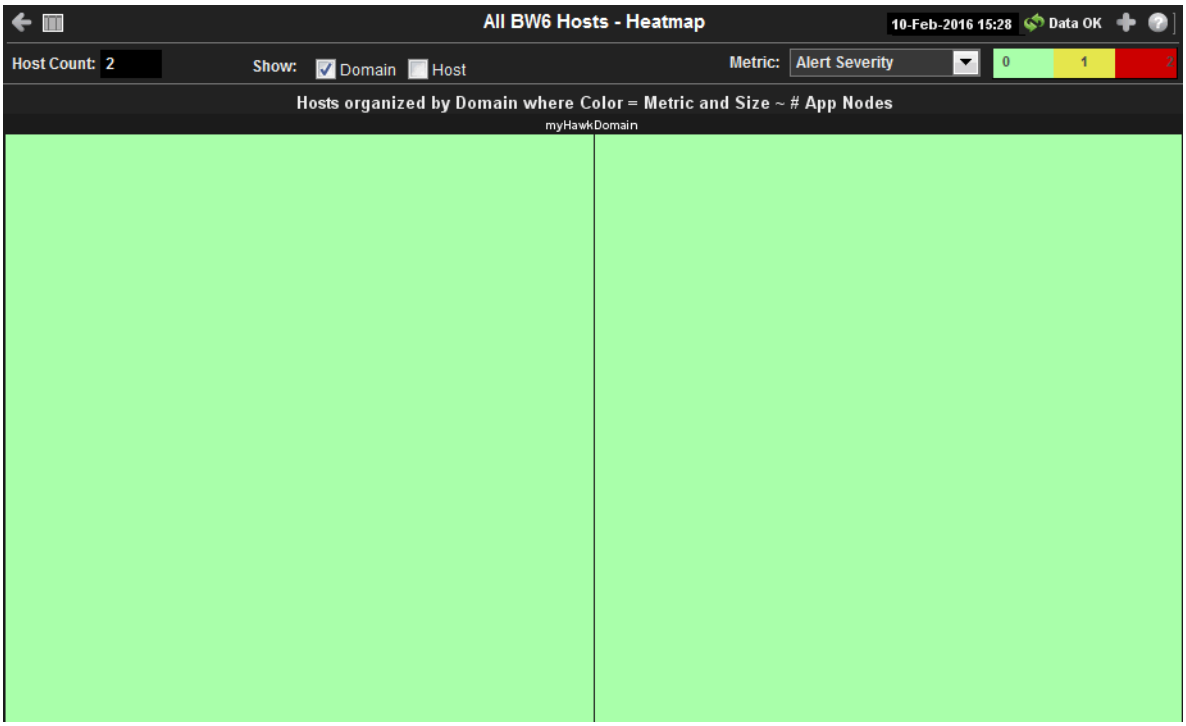
- “All Hosts Heatmap” on page 86
- “All Hosts Table” on page 88

All Hosts Heatmap

View the most critical alert states for host servers supporting BusinessWorks 6 applications and resources. Use this display to quickly identify host servers with critical alerts. Drill-down and investigate by clicking a rectangle in the heatmap to view host details in the **Hawk Views -** “Host Summary” display.

Each rectangle in the heatmap represents a host server. The rectangle color indicates the most critical alert state associated with the host server. The rectangle size represents the number of AppNodes associated with the host; a larger size is a larger value.

Choose a metric to display from the **Metric** drop-down menu. Mouse over a rectangle to see additional metrics. By default, this display shows **Alert Severity**.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

Fields and Data:

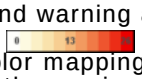
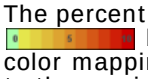
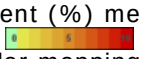
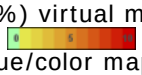
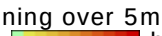
Host Count: The total number of hosts in the display.

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.

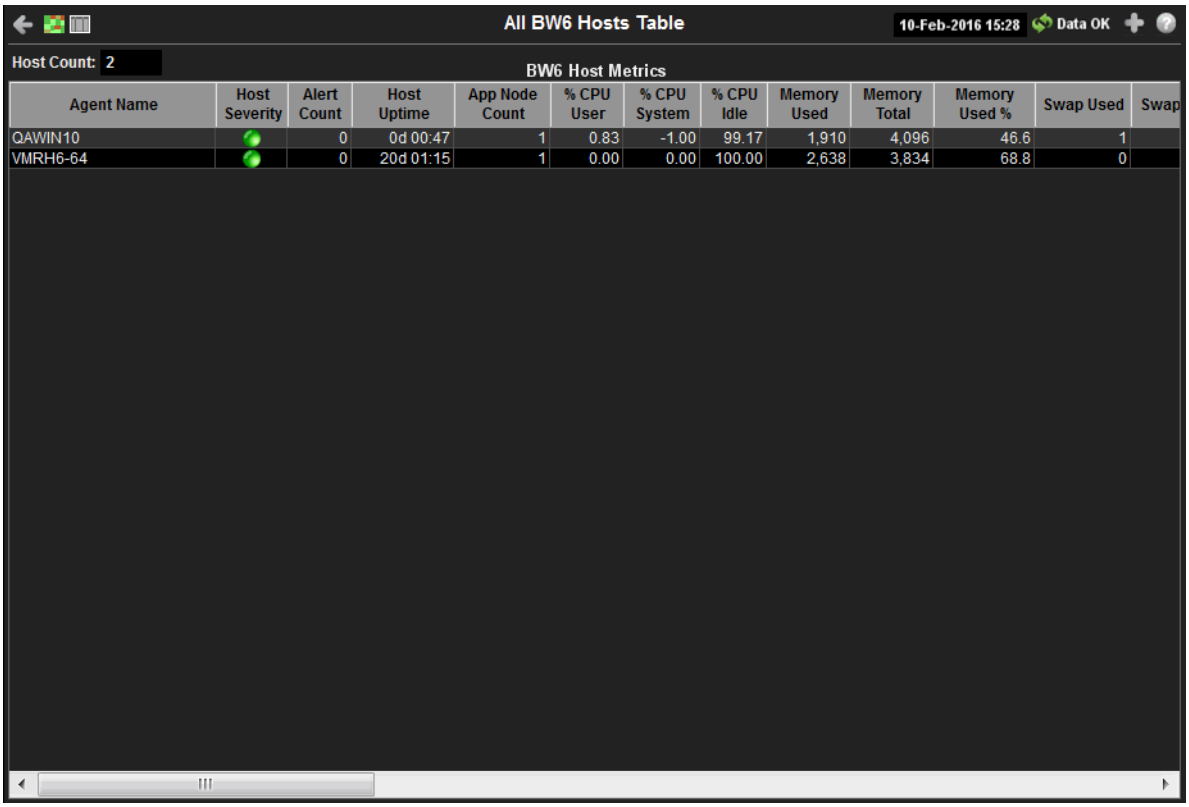
- **Alert Severity** The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient bar, where **2** is the highest Alert Severity:
  - Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
  - Yellow indicates that one 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 (%) 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.
% Virtual 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.
1 Minute Load	The average number of processes running over 1 minute 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.
5 Minute Load	The average number of processes running over 5minutes 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.
15 Minute Load	The average number of processes running over 15 minutes 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 Hosts Table

View data for host servers supporting BusinessWorks 6 applications and resources in a tabular format. Use this display to see all available data for this View.

Each row in the table is a host. 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 **Hawk Views -** "Host Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

Fields and Data:
The display might include these filtering options:

Host Count: The total number of hosts in the table.

Table:
Each row in the table is a different host.

Agent Name The name of the agent associated with the host.

Host 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.
Host Uptime	The amount of time the host has been running, in the following format: **0d 00:00 <days>d <hours>:<minutes>:<seconds>** For example: **10d 08:41:38**
App Node Count	The number of BW6 processes running on the host.
% CPU Used	The amount of CPU used, in percent.
% CPU System	The amount of system CPU used, in percent.
% CPU Idle	The amount of CPU not used, in percent.
Memory Used	The amount of memory, in megabytes, currently used by the application.
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 by the application.
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, in megabytes, currently used by the application.
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 Class	The specific version of the agent software.
Source	The 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. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
Time Stamp	The date and time the data was last updated.

BW Engines

These displays present performance metrics for BW5 Engines. Displays in this View are:

- "All Engines Heatmap" on page 91:Performance metrics of CPU and memory utilization for all BW Engines.
- "All Engines Table" on page 94: Available metrics from the Hawk microagent for each BW Engine.
- "All Engines Grid" on page 97: Displays the main health metrics and a single trend graph per engine, summarizing the status of each BW Engine.
- "Single Engine Summary" on page 99: 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.

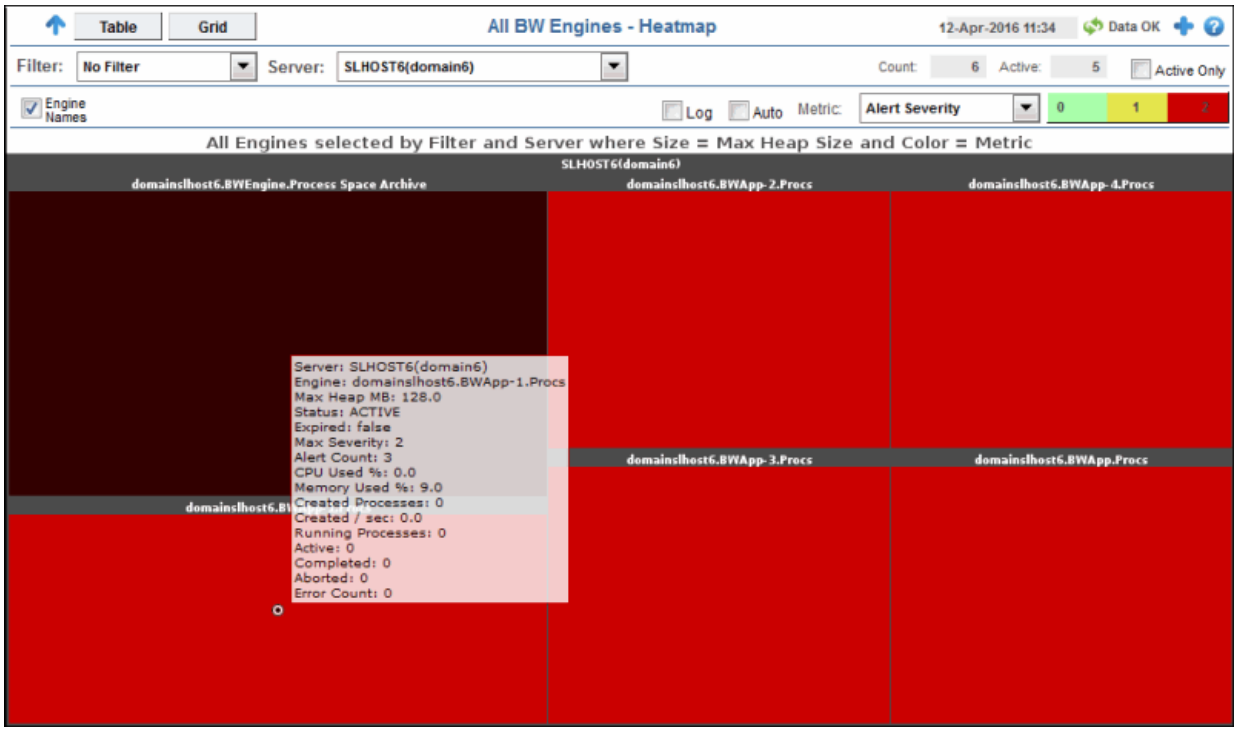
Green indicates that no metrics have exceeded their alert thresholds.

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. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
- **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.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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: The total number of engines in the display.

Active Number of engines currently active.

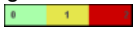
Active Only If selected, only engines with a status of ACTIVE are displayed. Otherwise, if deselected, all engines for the given Filter/Server selection are displayed.

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.

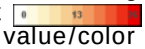
Metric Choose a metric to view in the display.

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.

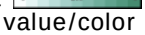
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

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.

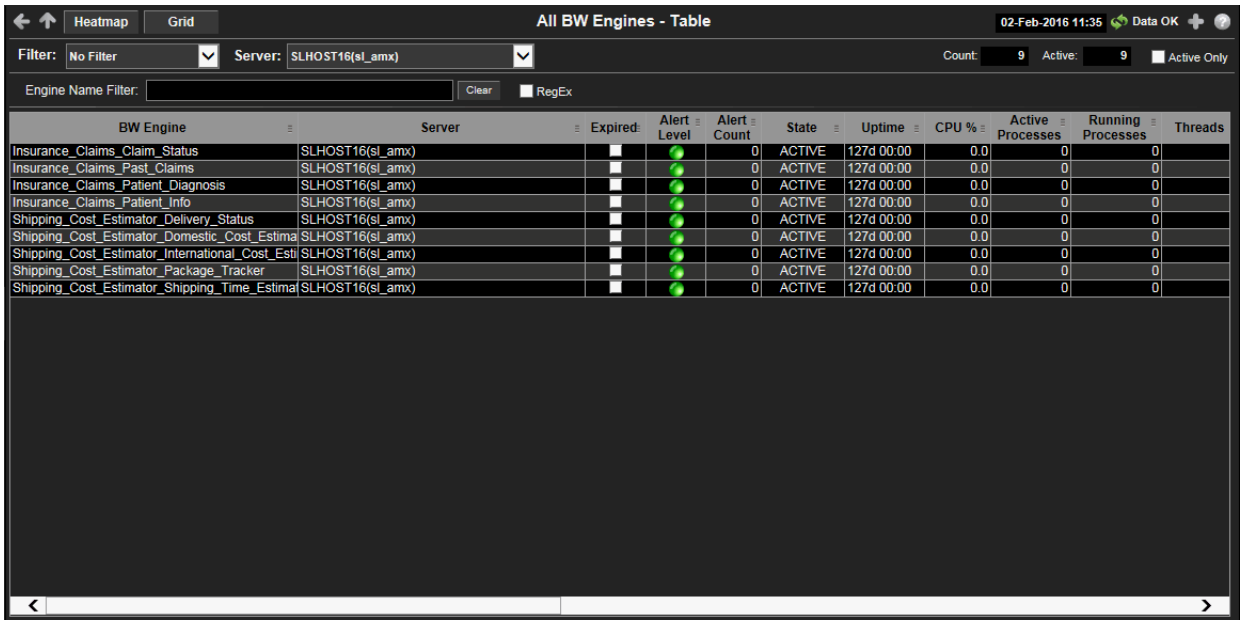
Created Processes The number of created processes in the heatmap rectangle. The color gradient bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient 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: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
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.

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 s not displayed in the table but is present in "raw" cache data.
Host	Host name of server. Note: This information s not displayed in the table but is present in "raw" cache data.
Adapter Name	Name of adapter. Note: This information s not displayed in the table but is present in "raw" cache data.

Instance ID	Instance ID name of the engine. Note: This information s not displayed in the table but is present in "raw" cache data.
Version	Engine project version number. Note: This information s 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.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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. A server is EXPIRED when the threshold specified by the $bwserverExpirationTime substitution is exceeded. The default is 75 seconds. An EXPIRED engine is deleted from displays when the associated server $bwserverExpirationTimeForDelete substitution exceeds its specified threshold. The default is 3600 seconds. Processes and activities associated with the engine are also deleted from displays.

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.

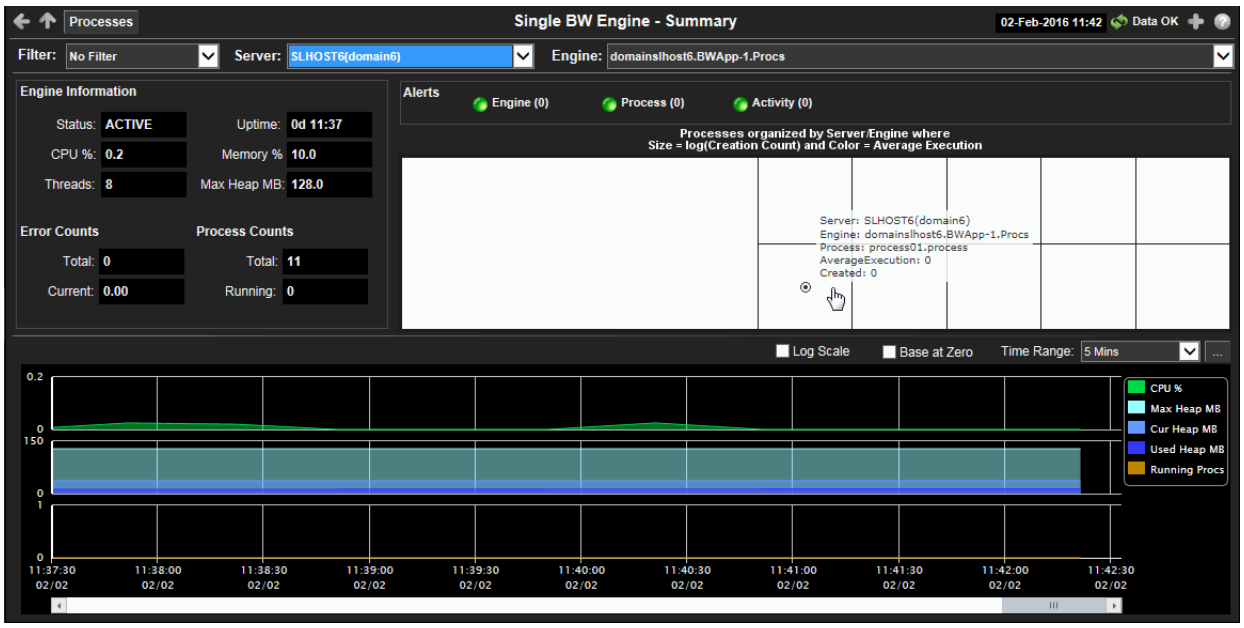
CPU Traces percent of server CPU in use.

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. An engine is not running when the engine name is appended with **(X)**.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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. A server is EXPIRED when the threshold specified by the $bwserverExpirationTime substitution is exceeded. The default is 75 seconds. An EXPIRED server is deleted from displays when the threshold specified by the $bwserverExpirationTimeForDelete substitution is exceeded. The default is 3600 seconds. Engines, processes and activities associated with the server are also deleted from displays.
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
Click on any alert indicator to drill down to the **BW Engine - Tables** display to view 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.

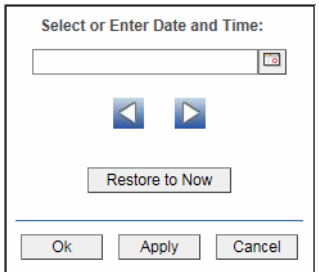
Heatmap
Shows processes organized by Server/Engine where Size = Creation Count and Color = Average Execution. Click on a node to drill down to a specific engine.

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.

BW Processes

These displays present performance metrics for BW5 processes. Displays in this View are:

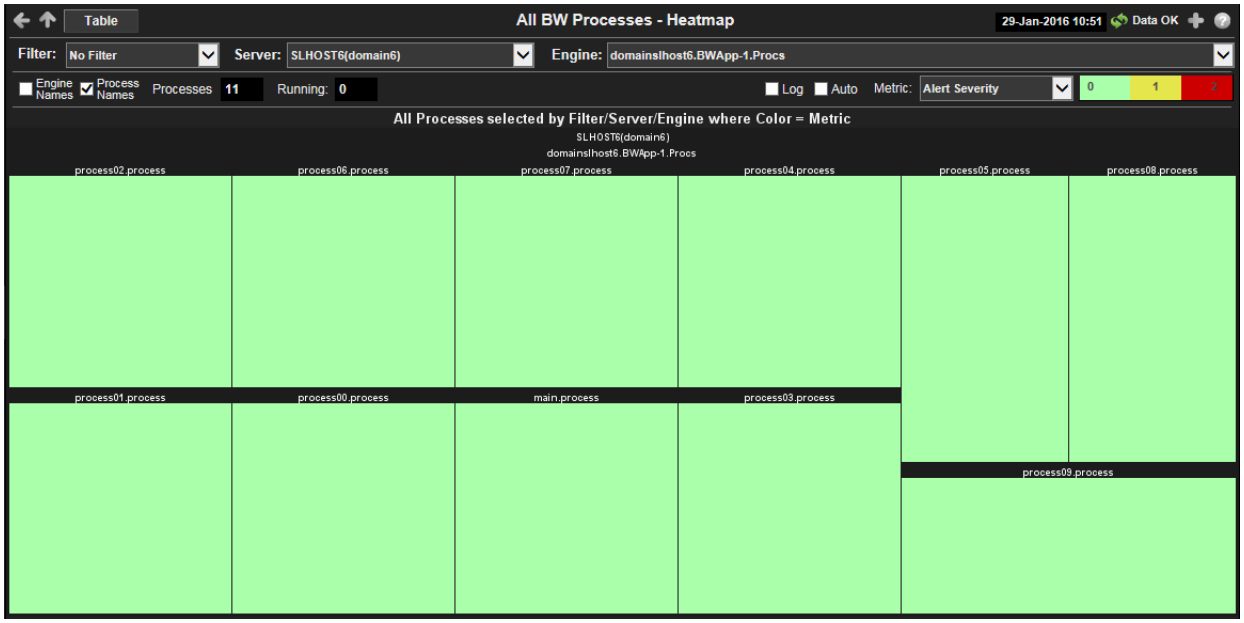
- "All Processes Heatmap" on page 102: Displays process execution metrics for all BW Engines.
- "All Processes Table" on page 105: Each row in the table displays all available metrics from the Hawk microagent for a process.
- "Single Process Summary" on page 108: Several views show historical and current 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.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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.

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.

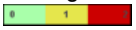
Processes The total number of processes in the display.

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.

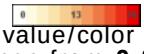
Metric Choose a metric to view in the display.

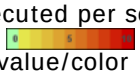
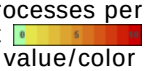
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

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.

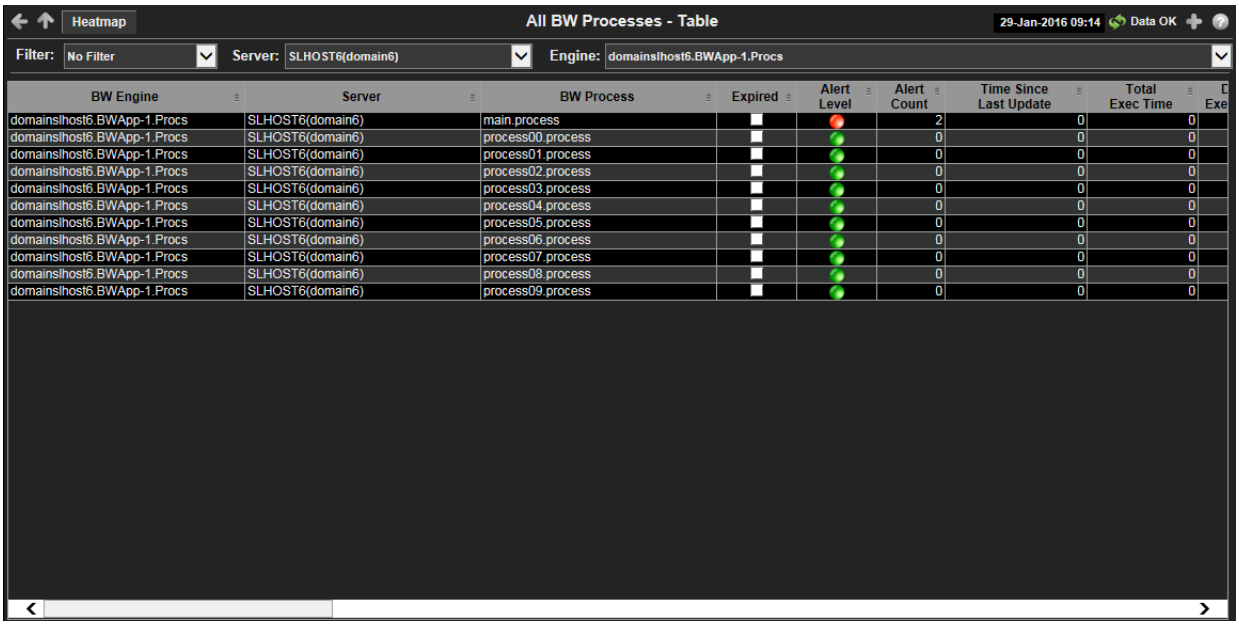
Completed Count	The total number of completed processes in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the 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

Each row in 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 an row in the table to drill down to the "Single Engine Summary" display.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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:

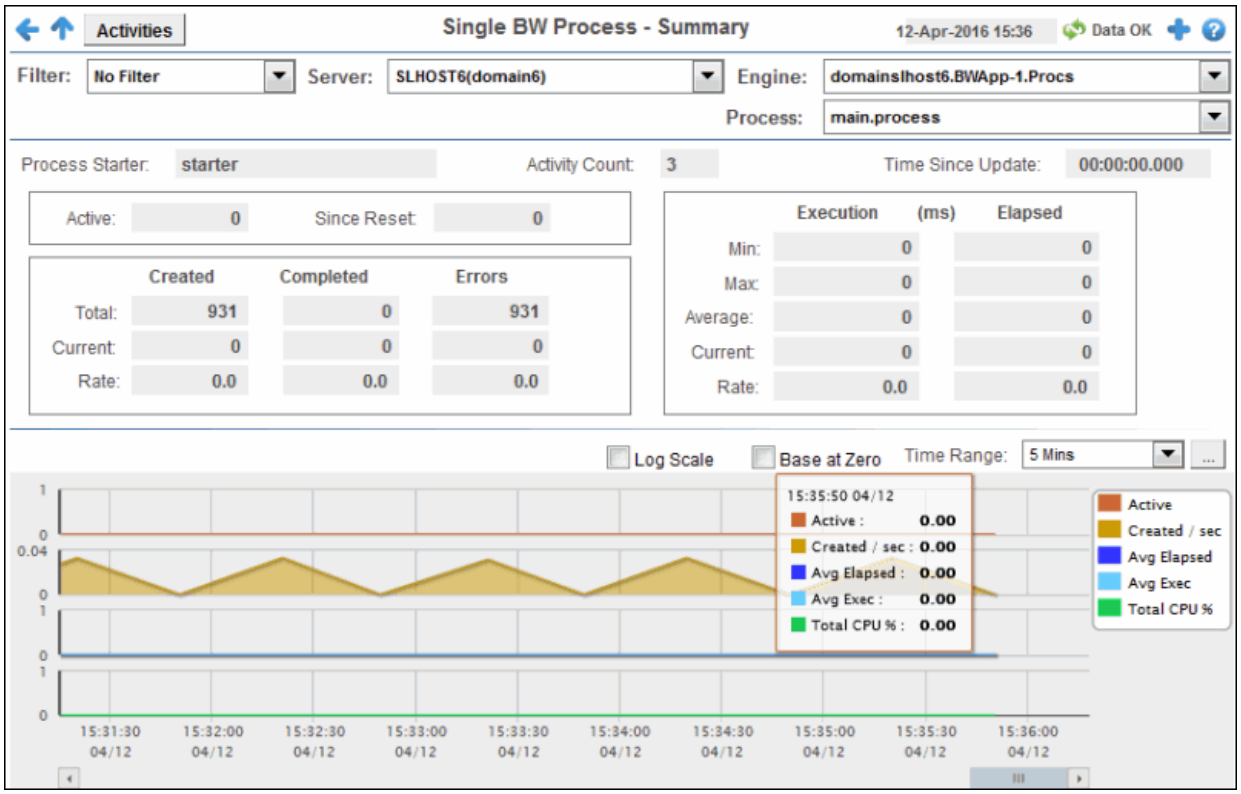
BW Engine	BW Engine name.
Server	Server agent name.
BW Process	The name of the process.
Expired	When checked, data has not been received from this host in the specified amount of time. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
Alert 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 this update cycle.
Exec Time/sec	Delta Execution time per second.
Min Exec Time	Time (in milliseconds) of the process instance that has the shortest execution time.
Max Exec Time	Time (in milliseconds) of the process instance that has the longest execution time.
Average Exec Time	Average execution time (in milliseconds) for all successfully completed process instances.
Recent Exec Time	The time since the last execution was performed.

Total Elapsed Time	Total elapsed time (in milliseconds) for all successfully completed process instances.
Delta Elapsed Time	Change in TotalElapsed this update.
Elapsed Time / sec	Change in TotalElapsed per second.
Min Elapsed Time	Elapsed clock time (in milliseconds) of the process instance that has the shortest amount of elapsed time.
Max Elapsed Time	Elapsed clock time (in milliseconds) of the process instance that has the longest amount of elapsed time.
Average Elapsed Time	Average elapsed clock time (in milliseconds) for all successfully completed process instances.
Recent Elapsed Time	The time since the last execution of the process was performed.
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.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

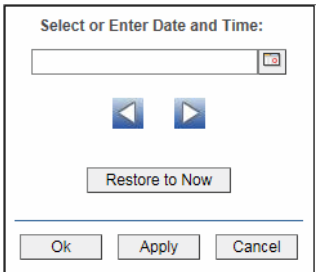
Trend Graphs

- **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.

BW Activities

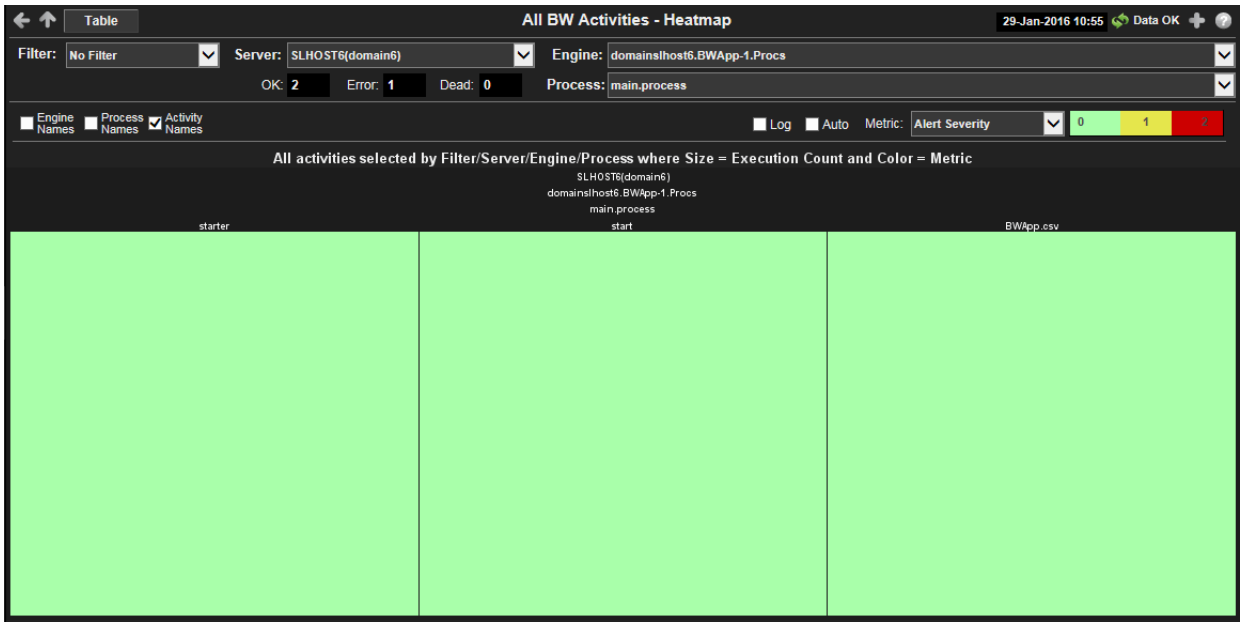
These displays present performance metrics for BW5 activities. Displays in this View are:

- "All Activities Heatmap" on page 111: Displays execution performance metrics for all BW activities.
- "All Activities Table" on page 113: Each row in the table displays all available metrics from the Hawk microagent for an activity.
- "Single Activity Summary" on page 116: 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.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.
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.

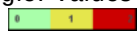
Process Names Select this check box to display the names of the processes above their respective rectangles in the heatmap.

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.

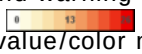
Alert Severity The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient 

bar, where **2** is the highest Alert Severity:

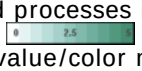
Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

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 

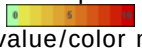
bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the average alert count.

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.

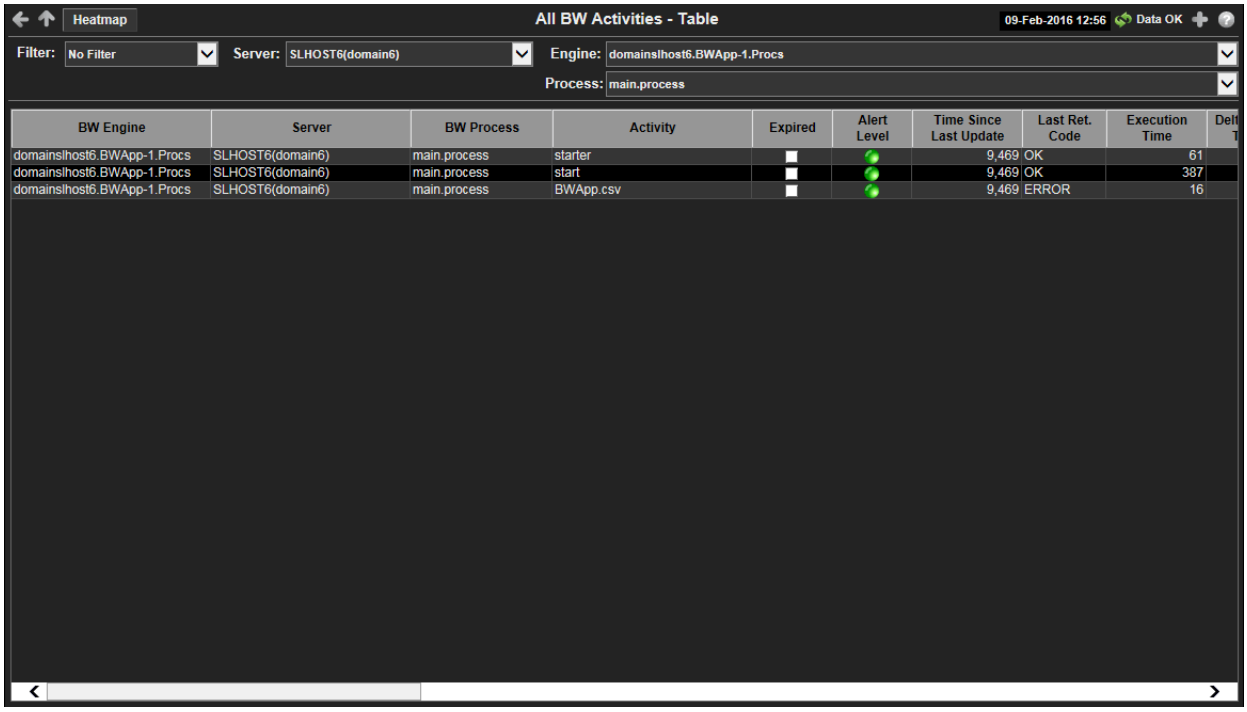
All Activities Table

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. A server is EXPIRED when the threshold specified by the **$bwserverExpirationTime** substitution is exceeded. The default is **600** seconds.

An EXPIRED activity and the associated engine are deleted from displays when the associated server **$bwserverExpirationTimeForDelete** substitution exceeds its specified threshold. The default is **3600** seconds. Processes associated with the engine are also deleted from displays.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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.
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.

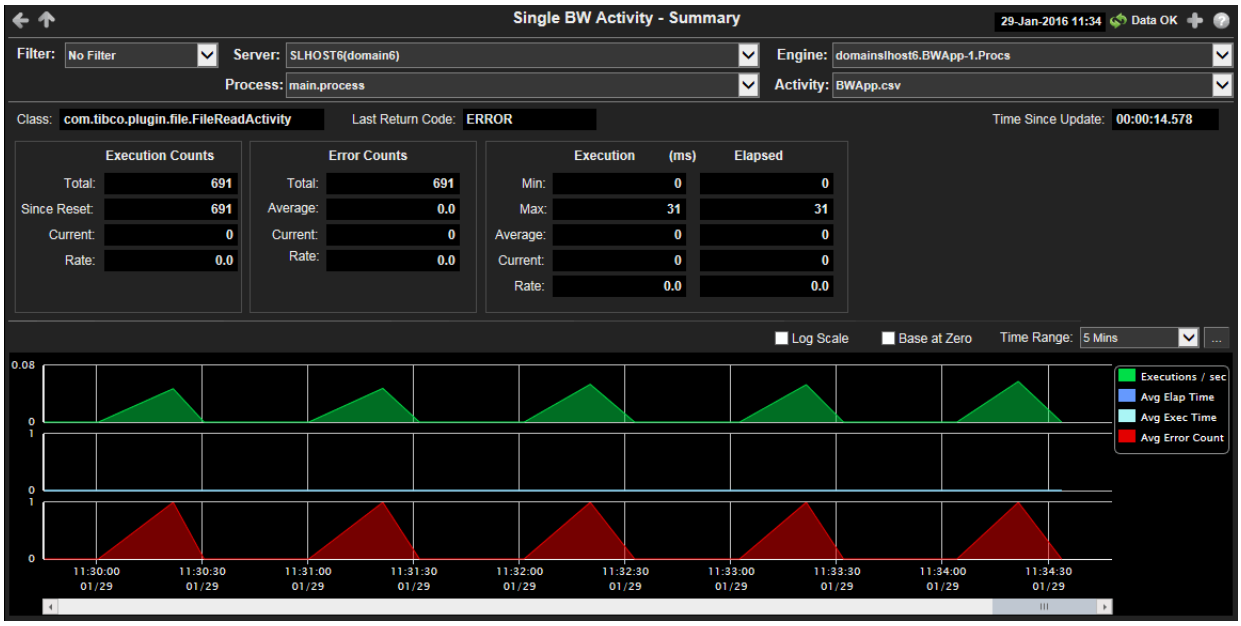
Table:

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. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.
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.
ExecutionCountSinceReset	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.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

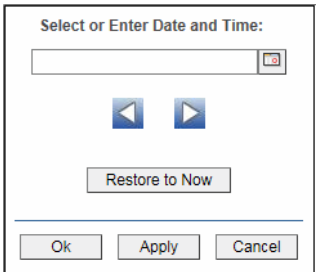
Min	Shortest time of any activity instance.
Max	Longest time of any activity instance.
Average	Average time across all successfully completed activity instance.
Current	Time accumulated this update cycle.
Rate	Time accumulated per second.

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.

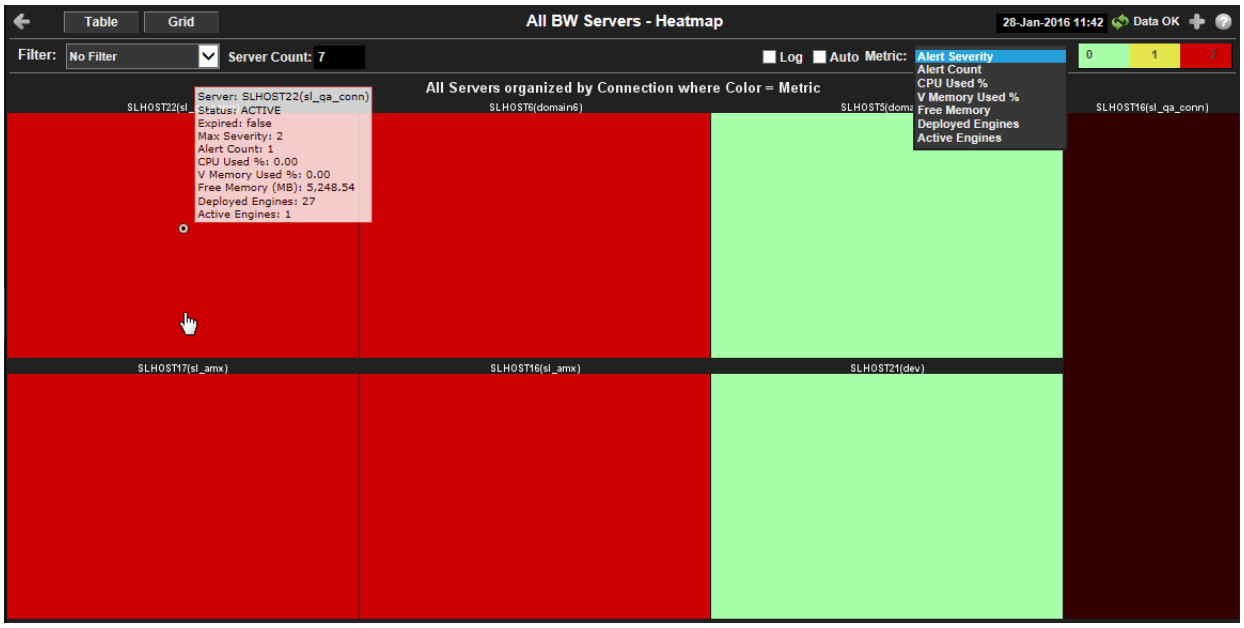
BW Servers

These displays present performance data for your BusinessWorks system. Displays in this View are:

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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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

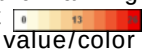
The maximum level of alerts in the heatmap rectangle. Values range from **0** - **2**, as indicated in the color gradient  bar, where **2** is the highest Alert Severity:

Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.

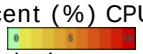
Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.

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.

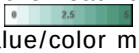
CPU Used %

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.

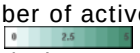
Free Memory

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

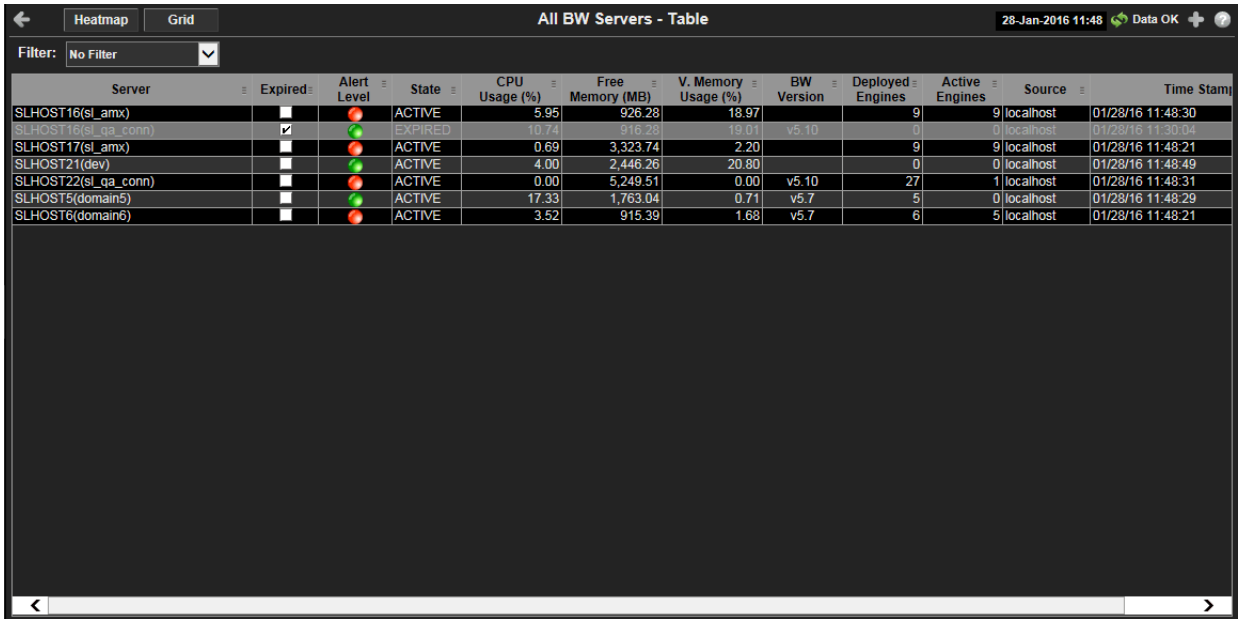
The number of deployed engines in the heatmap rectangle. The color gradient  bar, populated by the current heatmap, shows the value/color mapping. The numerical values in the gradient bar range from **0** to the maximum count of alerts in the heatmap. The middle value in the gradient bar indicates the 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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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. The host will be removed from the Monitor in the specified amount of time. The default setting is **60** seconds.

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.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.
Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this 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.
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**.

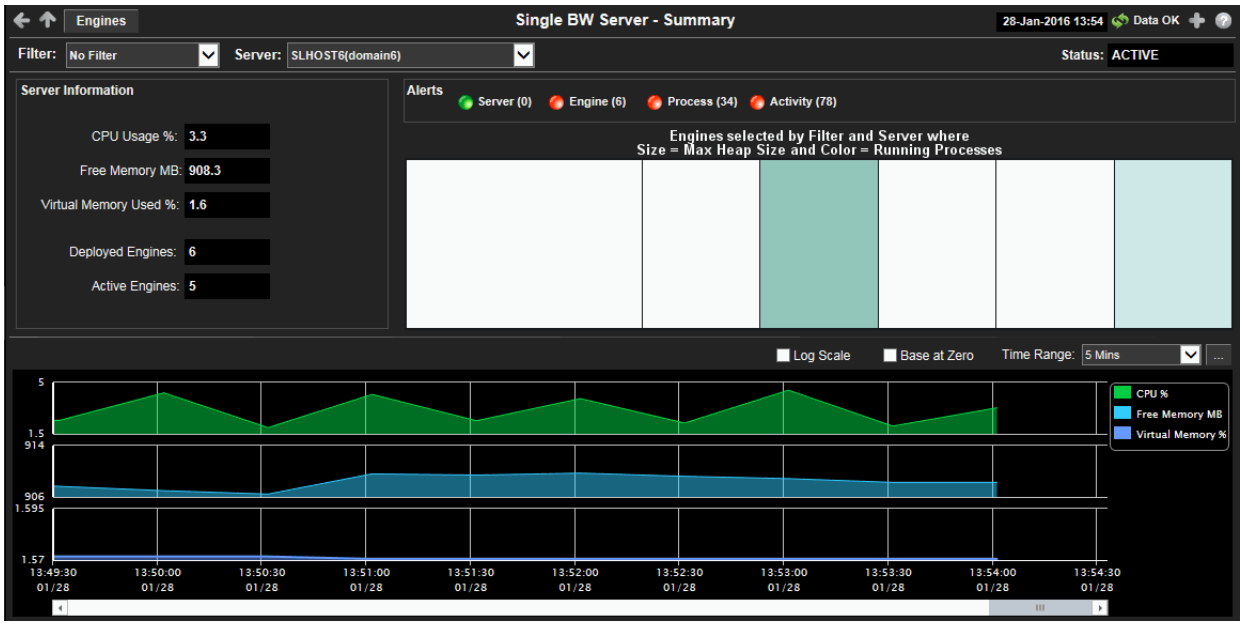
Fields and Data

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.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

Status Server status: ACTIVE or EXPIRED.

Server Information

CPU Usage (%) Percent of server CPU in use.

Free Memory (MB) Available physical memory remaining (in MB).

V. Memory Usage (%) Percent of virtual memory used.

Deployed Engines	Number of engines currently active
Active Engines	Shows data for the server.

Alerts
The number of alerts on servers, engines, processes and activities and the most critical alert state for each:

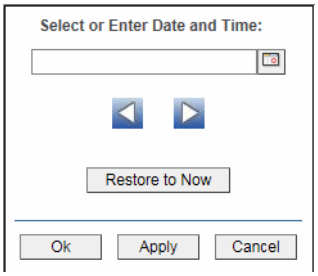
- Red indicates that one or more metrics exceeded their ALARM LEVEL threshold.
- Yellow indicates that one or more metrics exceeded their WARNING LEVEL threshold.
- Green indicates that no metrics have exceeded their alert thresholds.

Click on any alert indicator to drill down to the **BW Server - Tables** display to view current alerts for the selected server.

Heatmap
Engines selected by Filter and Server, where Size = Max Heap Size and Color = Running Processes. 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.

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 Displays”.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

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 Displays”.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

Filter By:
The display might include these filtering options:

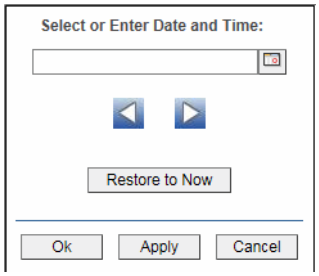
Filter: Choose a filter to show data for in the display. By default, the **Filter:** drop-down menu only contains the **No Filter** option. To create your own filtering options, see **Creating Customized Filters** in the User’s Guide.

Server: Choose a server to see metrics for.

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.

Hawk Views

These displays present performance data for your TIBCO BusinessWorks version 5 and 6 Hawk hosts. Use these displays to monitor performance and utilization for all your TIBCO Hawk hosts and agents.

Displays in this View are:

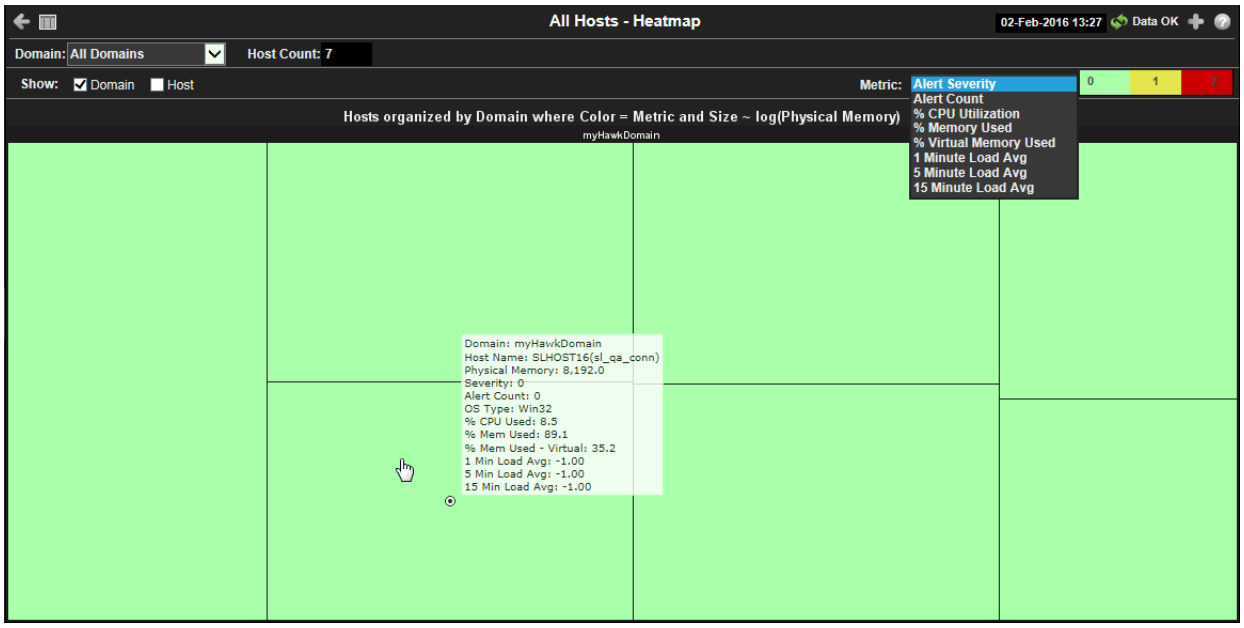
All Hosts Heatmap

View the most critical alert states pertaining to your TIBCO BusinessWorks version 5 and 6 Hawk 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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

Filter By:
The display might include these filtering options:

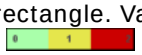
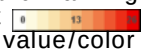
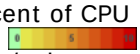
Domain: Choose a domain to show data for in the display. Domain names are specified when your administrator configures your Data Server to collect Hawk data, and applies to all host data collected from Hawk by that Data Server.

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.

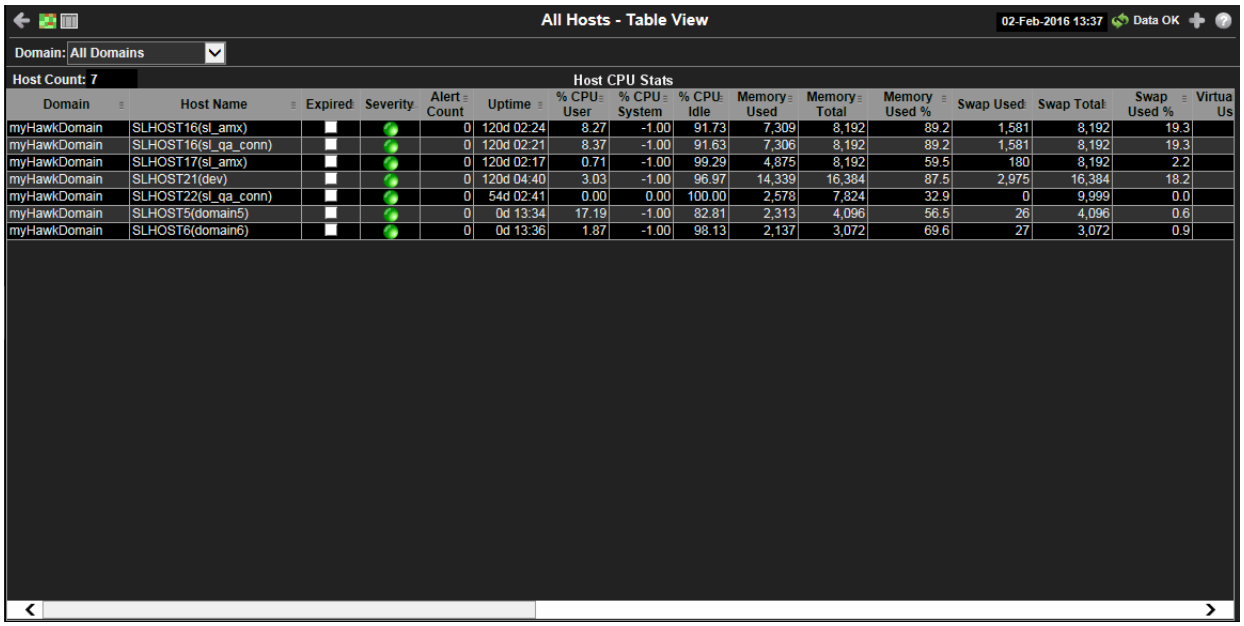
Metric Choose a metric to view in the display.

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 TIBCO BusinessWorks version 5 and 6 Hawk 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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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 view provides a list view of utilization metrics for all TIBCO BusinessWorks version 5 and 6 Hawk 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.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

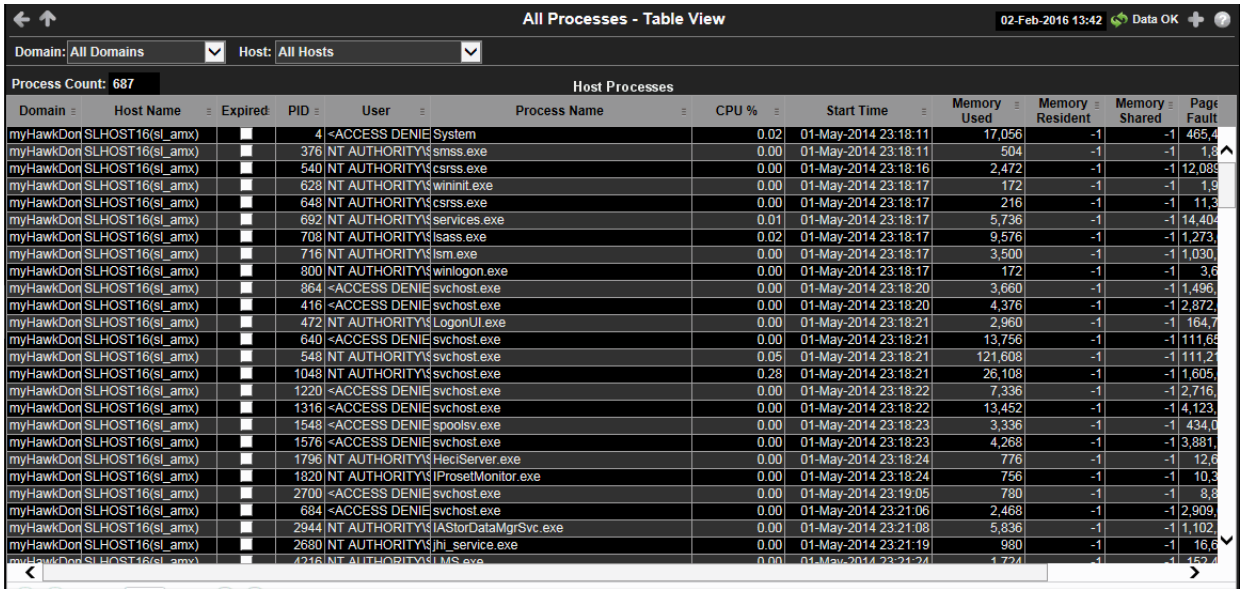
VMem Usage The bar graph shows the amount of virtual memory currently used.

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 TIBCO BusinessWorks version 5 and 6 Hawk 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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

Host Summary

This table provides a list view of utilization metrics for a TIBCO BusinessWorks version 5 or 6 server.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

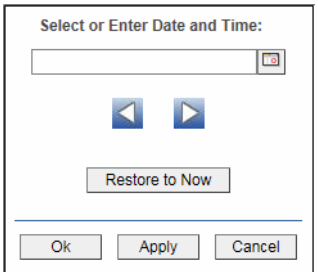
Trend Graphs
Traces metrics for the selected host.

- **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 ... .



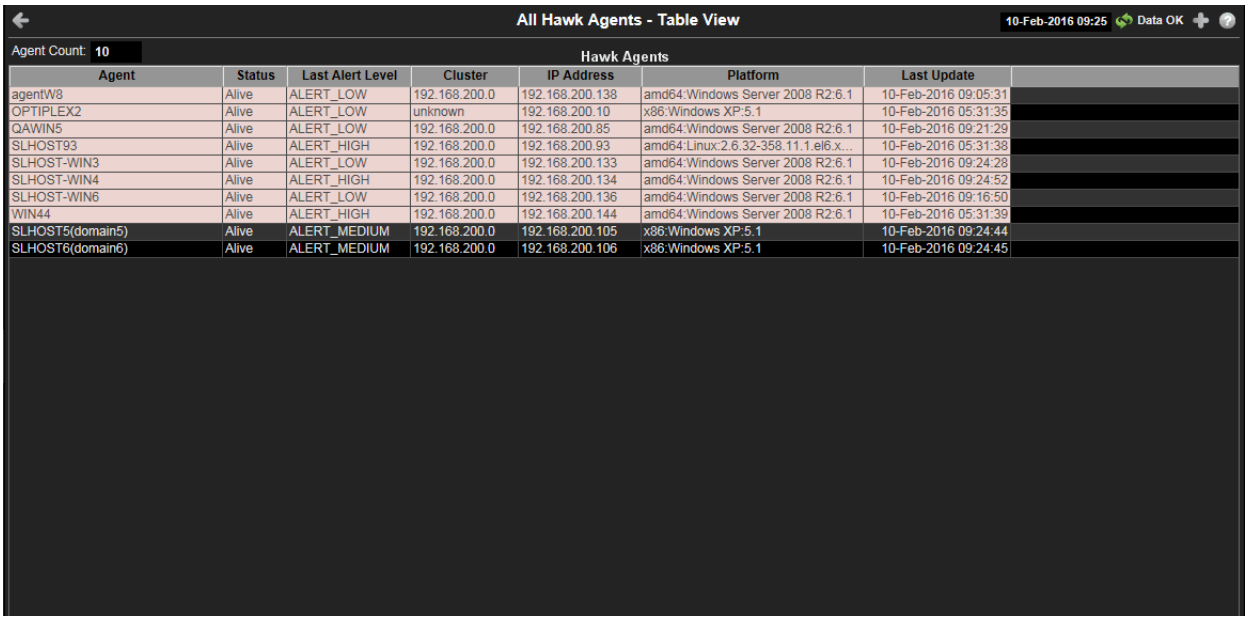
By default, the time range end point is the current time. To change the time range end point, click Calendar ... and select a date and time from the calendar or enter the date and time in the text field using the following format: **MMM dd, YYYY HH:MM**. For example, **Aug 21, 2011 12:24 PM**.

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.

All Hawk Agents Table

This table provides a list of TIBCO BusinessWorks version 5 and 6 Hawk agents as well as network connectivity details about each agent.



Agent	Status	Last Alert Level	Cluster	IP Address	Platform	Last Update
agentW8	Alive	ALERT_LOW	192.168.200.0	192.168.200.138	amd64:Windows Server 2008 R2:6.1	10-Feb-2016 09:05:31
OPTIPLEX2	Alive	ALERT_LOW	unknown	192.168.200.10	x86:Windows XP:5.1	10-Feb-2016 05:31:35
QAWIN5	Alive	ALERT_LOW	192.168.200.0	192.168.200.85	amd64:Windows Server 2008 R2:6.1	10-Feb-2016 09:21:29
SLHOST93	Alive	ALERT_HIGH	192.168.200.0	192.168.200.93	amd64:Linux:2.6.32-358.11.1.el6.x...	10-Feb-2016 05:31:38
SLHOST-WIN3	Alive	ALERT_LOW	192.168.200.0	192.168.200.133	amd64:Windows Server 2008 R2:6.1	10-Feb-2016 09:24:28
SLHOST-WIN4	Alive	ALERT_HIGH	192.168.200.0	192.168.200.134	amd64:Windows Server 2008 R2:6.1	10-Feb-2016 09:24:52
SLHOST-WIN6	Alive	ALERT_LOW	192.168.200.0	192.168.200.136	amd64:Windows Server 2008 R2:6.1	10-Feb-2016 09:16:50
WIN44	Alive	ALERT_HIGH	192.168.200.0	192.168.200.144	amd64:Windows Server 2008 R2:6.1	10-Feb-2016 05:31:39
SLHOST5(domain5)	Alive	ALERT_MEDIUM	192.168.200.0	192.168.200.105	x86:Windows XP:5.1	10-Feb-2016 09:24:44
SLHOST6(domain6)	Alive	ALERT_MEDIUM	192.168.200.0	192.168.200.106	x86:Windows XP:5.1	10-Feb-2016 09:24:45

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.
Table Navigate to displays commonly accessed from this display.
19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.
Open the **Alert Views - RTView Alerts Table** display.
Open an instance of this display in a new window.
Open the online help page for this display.

Fields and Data:

Agent Count: The total number of agents in the table.

Table:
Each row in the table is a different agent.

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.
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.

Alert Views

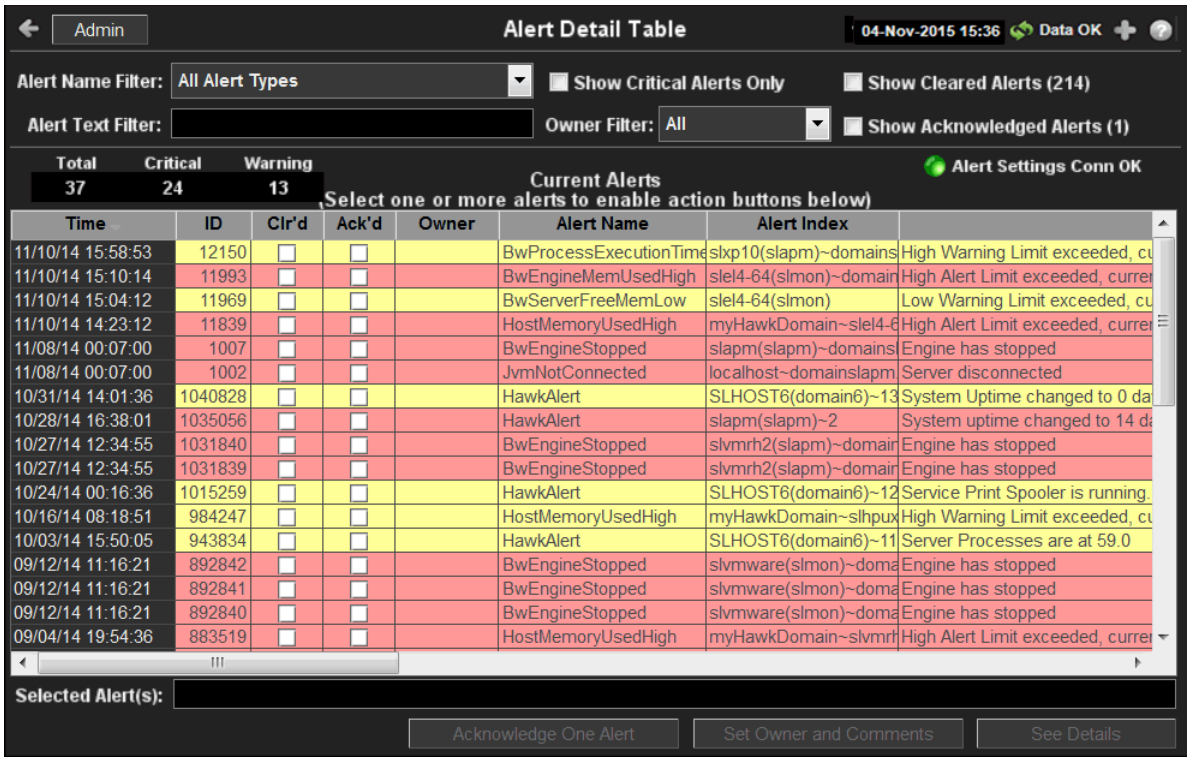
These displays present detailed information about all alerts that have occurred in your system. These displays present performance data for your BusinessWorks system. Displays in this View are:

- “Alert Detail Table” on page 140: Time ordered list of all alerts that have occurred in the system.
- “Hawk Alerts Table” on page 144: Summary of alerts delivered to Hawk agent according to its active rulebases.

Alert Detail Table

Use this display to track and manage all alerts that have occurred in the system, add comments, acknowledge or assign Owners to alerts.

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 Sort to order column data.



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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:

Alert Name Filter Select from a list of alert types or select All Alert Types. Filters limit display content and drop down menu selections to only those items that pass through the selected filter's criteria. Therefore if no items match the filter, you may see nothing in a given display and may not have any options available in the drop-down menu(s).

NOTE: Filter selection is disabled on drill down summary displays.

Show Critical Alerts Only If selected, only currently critical alerts are shown in the table. Otherwise, all active alerts are shown in the table.

Show Cleared Alerts If selected, cleared alerts are shown in the table.

Alert Text Filter Enter all or part of the Alert Text to view specific alerts. For example, High selects and displays all alerts that include High in the Alert Text. **NOTE:** Wild card characters are supported.

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.

Show Acknowledged Alerts If selected, acknowledged alerts are shown in the table.

Total Total number of alerts.

Critical Number of critical alerts.

Warning Total number of alerts that are currently in a warning state.

Alert Settings Conn OK The Alert Server connection state:
- Disconnected.
- Connected.

Alerts Table
This table lists all active alerts for the current filters.

Time	The time (Java format) that the alert was activated.
ID	A unique string identifier assigned to each activated alert.
Clr'd	When checked, this typically indicates that the alert has been resolved. An alert is automatically cleared when the value being monitored no longer in the alert threshold.
Ack'd	When checked, this typically indicates that the alert is being addressed.
Owner	The named owner assigned by the administrator.
Alert Name	The name of the alert. For a list of all alerts, see Alert Administration.
Alert Index	The IP address and port number for the source (application, server, and so forth) associated with the alert.
Alert Text	Descriptive text about the alert.
Severity	The severity of the alert: **0 = Normal** **1** = Warning / Yellow **2 = Alarm / Red** The color for the alert severity is shown by the row in the alert table.
Source	Name of RTView Data Server sending this data (or localhost).

Selected Alerts Lists the alerts selected in the table.

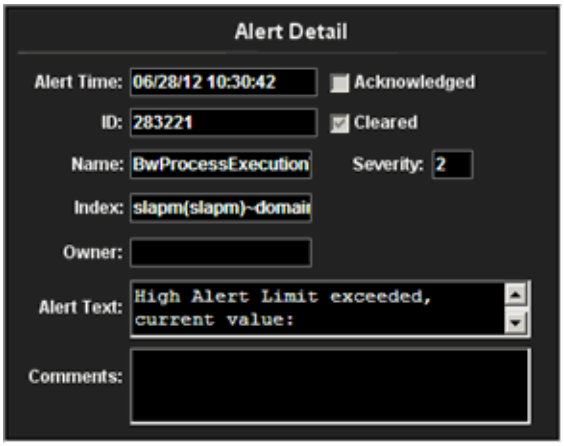
Acknowledge One Alert	Select one alert from the Current Alerts table and click to acknowledge.
Acknowledge Multiple Alerts	Select one or more alerts from the Current Alerts table and click to acknowledge.

Set Owner and Comments

Select one or more alerts from the Current Alerts table and click to open the Set Owner and Comments dialog.

See Details

Select an alert from the Current Alerts table and click to open the Set Owner and Comments dialog.



Hawk Alerts Table

If you have designated Hawk Alerts for your BW Engines, you can view a summary of alerts delivered to a Hawk agent according to its active rulebases. To enable Hawk Alerts to be displayed throughout the Monitor, go to the Alert Administration display.

To filter unwanted alerts out of the Hawk cache data, enter the following into the **sample.properties** file (located in the project settings directory you created):

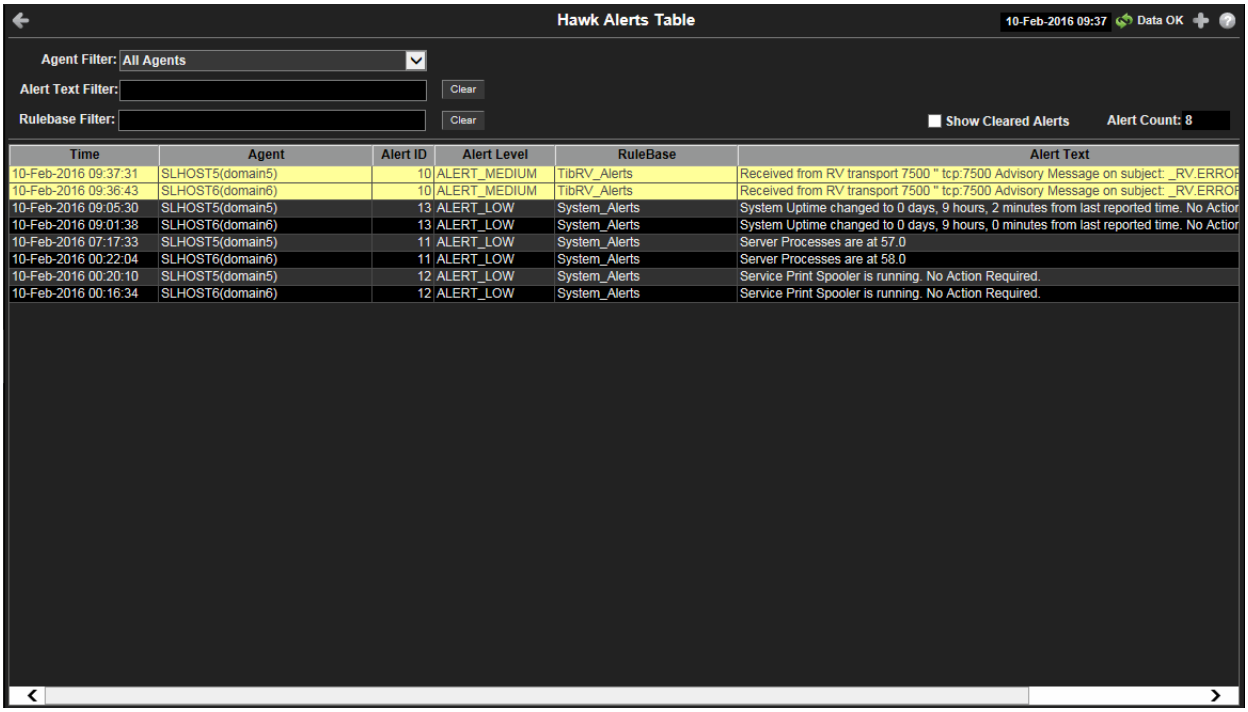
sl.rtview.sub=$hawkAlertTextFilterOut:AlertText

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



Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

Filter By:
The display might include these filtering options:

Agent Filter: Select from a list of agents or select All.

This filter limits items in this table to contain only those Hawk Alerts from a particular Agent. Therefore if there are no alerts from the selected Agent, there may be nothing displayed in this table.

Alert Text Filter: Enter all or part of the Alert Text to view alerts on specific agents. For example, High selects and displays all alerts that include High in the Alert Text. NOTE: Wild card characters are supported.

Clear Removes Alert Text Filter and all agents for the selected **Agent Filter** are displayed.

Rulebase Filter: Enter all or part of the Rulebase to view alerts for specific agents. For example, System selects and displays all alerts that include System in the RuleBase column. NOTE: Wild card characters are supported.

Clear Removes Rulebase Filter and all agents for the selected **Agent Filter** are displayed.

Show Cleared Alerts	If selected, both active and cleared alerts are shown in the table. Otherwise, only currently active alerts are shown in the table.
Alert Count:	Number of alerts currently being displayed. NOTE: Alerts filtered out from this display are not removed from the data and therefore will still be included in other alert counts and displays throughout the Monitor.

Hawk Alerts Table:
Displays last 100 Hawk Alerts received from all BW Engine agents.

Time	Time (Java format) that the alert was activated.
Agent	Name of the agent that posted the alert.
AlertID	A unique string identifier assigned to each activated alert.
Alert Level	Rulebase state of the alert, where the values ALERT-LOW, ALERT-MEDIUM, ALERT-HIGH correspond to the TIBCO Hawk Console API.
RuleBase	Rulebase that posted the alert.
AlertText	Text for the alert.
Cleared	If selected, the alert has cleared.

Administration

These displays enable you to set alert thresholds, observe how alerts are managed, and view internal data gathered and stored by RTView (used for troubleshooting with SL Technical Support). Displays in this View are:

- "Alert Administration" on page 146: Displays active alerts and provides interface to modify and manage alerts.
- "RTView Cache Tables" on page 152: View cached data that RTView is capturing and maintaining, and use this data use this for debugging with SL Technical Support.
- "RTView Agent Administration" on page 154: Display information about RTView Agent data servers.

Alert Administration

Set global or override alert thresholds. Alert settings are global by default.

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. The Index Types available are determined by the Solution Package installed. For example, the EMS Monitor package lets you set an alert for a specific *topic* on a specific *server* (such as the PerServerTopic Index option), rather than for all topics on all servers.

Title Bar: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

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 Engine Enabled	Alerting is disabled. Alerting is enabled (by default).
Disable	Suspends all alerting.
Alert Settings Conn OK	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**.

NOTE: To filter the alerts shown in the table by Solution Package, use the **$rtvAlertPackageMask** substitution.

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.

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.

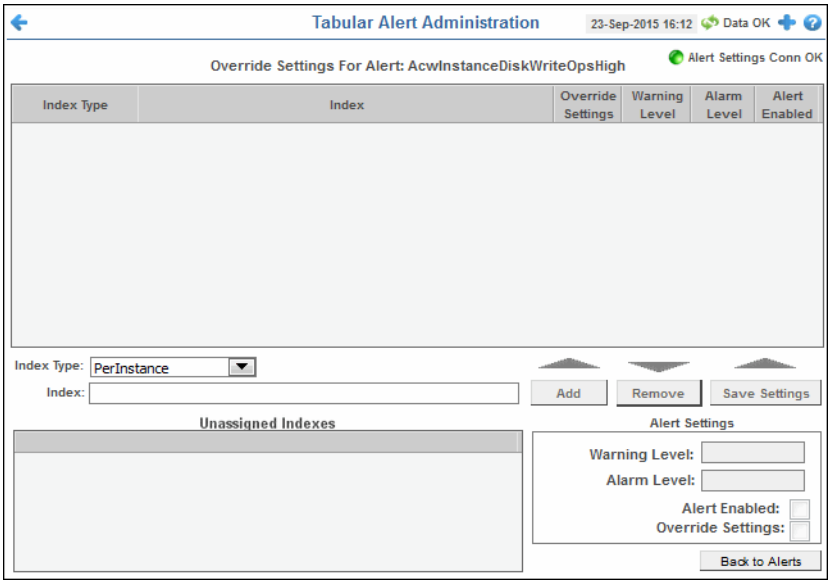
To set override alerts, click on **Override Settings** to open the **Tabular Alert Administration** display.

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.

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.

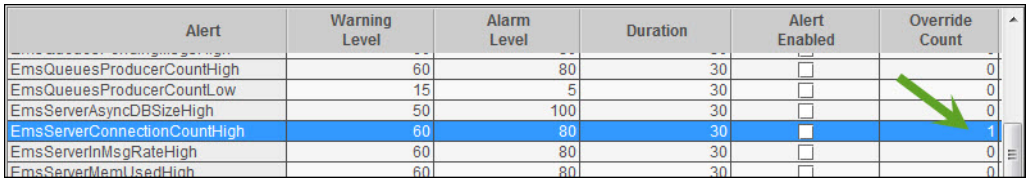
  Override Settings Select this option.

- 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..

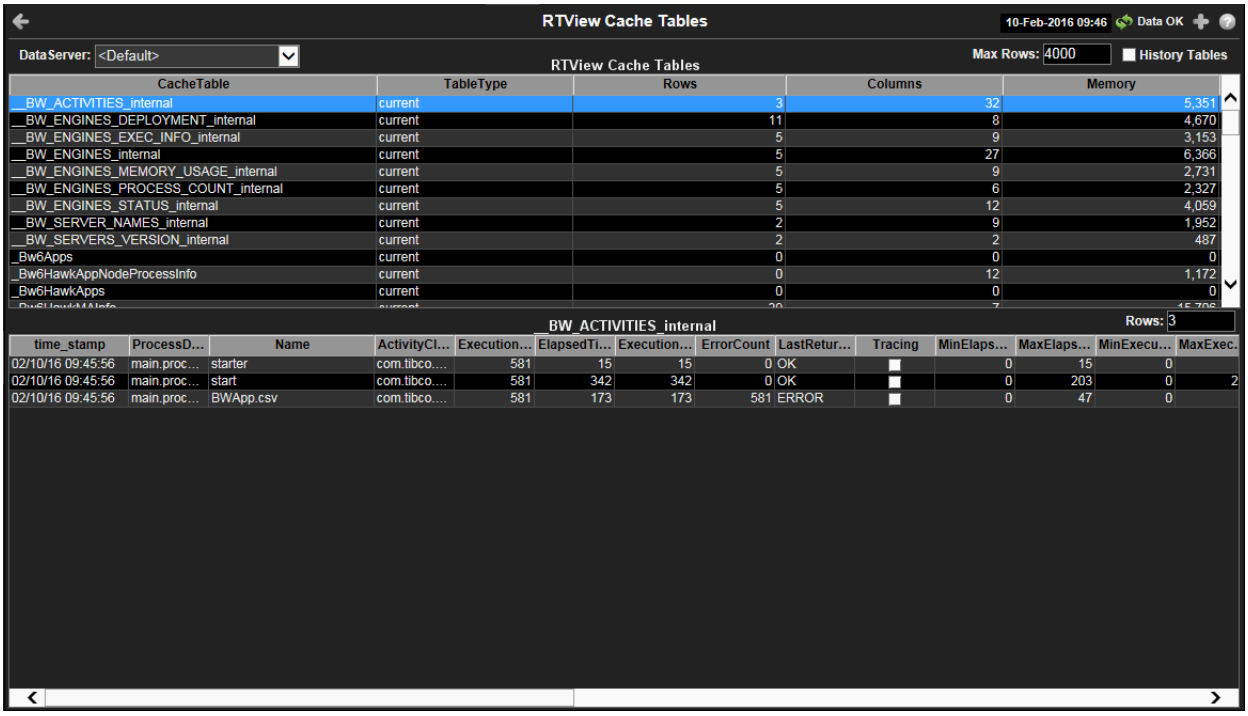


Alert	Warning Level	Alarm Level	Duration	Alert Enabled	Override Count
EmsQueuesProducerCountHigh	60	80	30	☐	0
EmsQueuesProducerCountLow	15	5	30	☐	0
EmsServerAsyncDBSizeHigh	50	100	30	☐	0
EmsServerConnectionCountHigh	60	80	30	☐	1
EmsServerInMsgRateHigh	60	80	30	☐	0
EmsServerMemUsedHigh	60	80	30	☐	0

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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

DataServer Select a data server from the drop down menu.

Max Rows Enter the maximum number of rows to display in RTView Cache Tables.

History Tables Select to include all defined history tables in RTView Cache Tables.

RTView Cache Tables
This table lists and describes all defined RTView Cache Tables for your system. Cache tables gather Monitor data and are the source that populate the Monitor displays.

NOTE: When you click on a row in RTView Cache Tables a supplemental table will appear that gives more detail on the selected Cache Table.

CacheTable The name of the cache table.

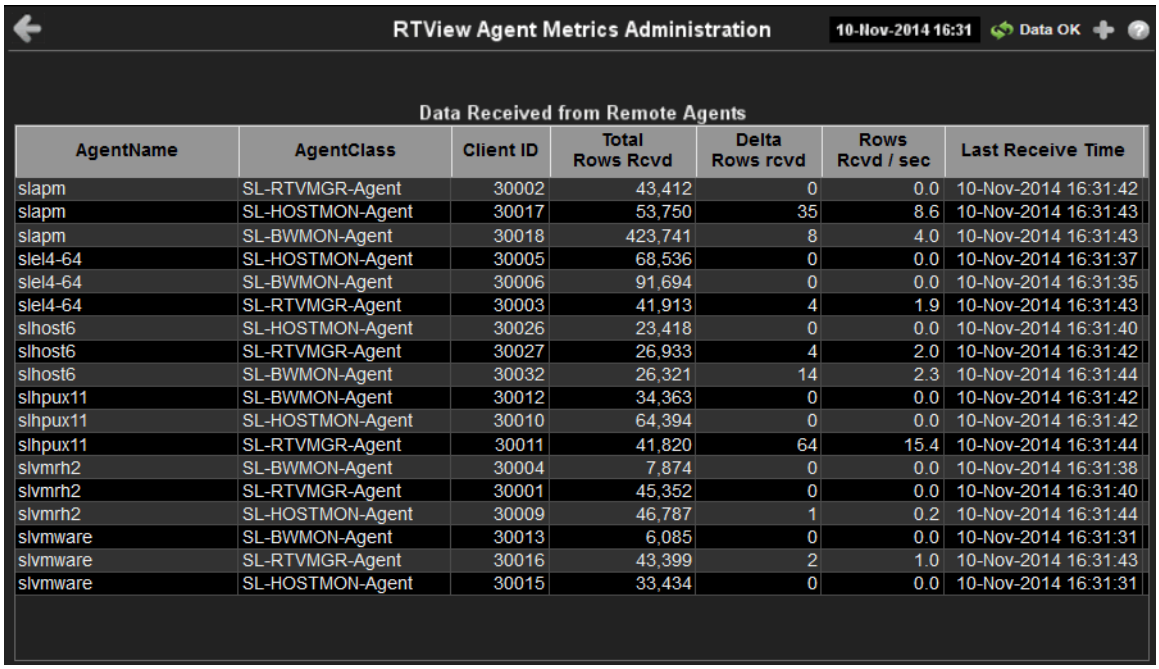
TableType The type of cache table:

current Current table which shows the current values for each index.

	current_condensed	Current table with primary compaction configured.
	history	History table.
	history_condensed	History table with primary compaction configured.
Rows	Number of rows currently in the table.	
Columns	Number of columns currently in the table.	
Memory	Amount of space, in bytes, used by the table.	

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: Indicators and functionality might include the following:

Open the previous and upper display.

Table Navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

RTView Servers

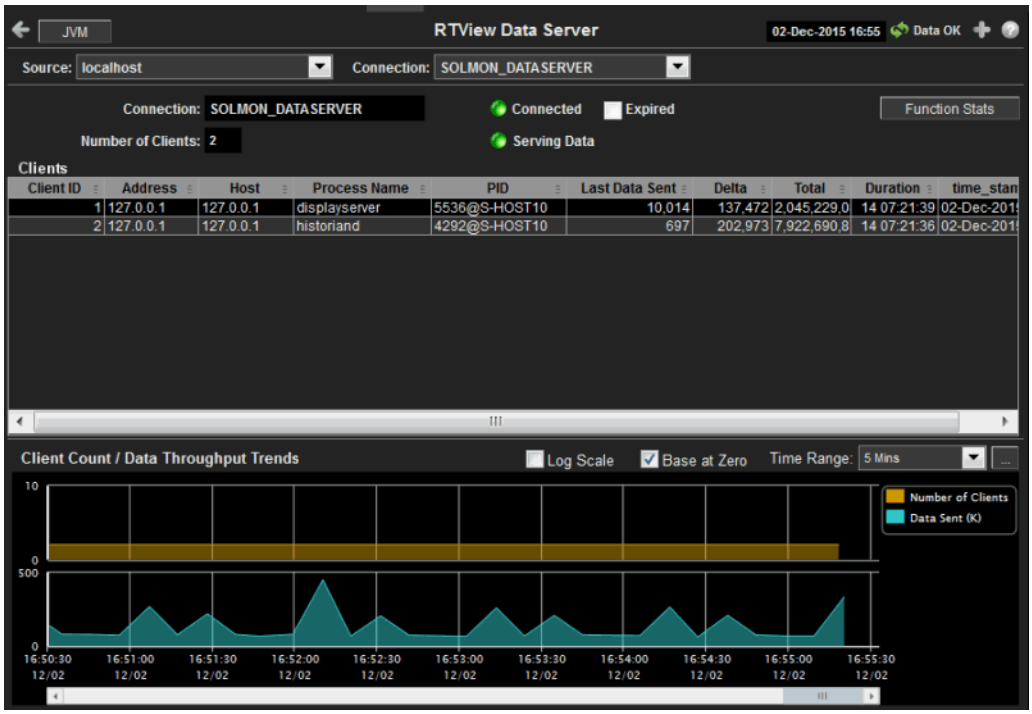
These displays present performance data for all RTView Servers. Displays in this View are:

- "Data Server Metrics" on page 155: Shows metrics for RTView Data Servers.
- "Display Server Metrics" on page 159: Shows metrics for RTView Display Servers.
- "Historian Servers" on page 160: Shows metrics for RTView Historian Servers.
- "Tomcat Server Summary" on page 162: Shows metrics for Tomcat application sessions, including Tomcat hosting and connection details.
- "Tomcat Modules Summary" on page 165: Shows metrics for Tomcat application modules and utilization details.
- "JVM CPU/Mem Summary" on page 168: Shows Java Virtual Machine memory and CPU usage, JVM system information, application performance metrics, and input arguments for a single connection.
- "JVM Mem Pool Trends" on page 172: Shows Java Virtual Machine heap and non-heap memory usage for a single connection.
- "JVM Mem GC Trends" on page 175: Shows Java Virtual Machine garbage collection memory usage for a single connection.
- "JVM System Properties" on page 177: Shows Java Virtual Machine input arguments and system properties for a single connection.
- "Version Info" on page 178: Shows version information for all connected RTView applications.
- "About" on page 180: Shows the Monitor version and all available data sources.

Data Server Metrics

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:
Indicators and functionality might include the following:

Open the previous and upper display.

CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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 RTVMGR has a JMX connection defined for the selected Data Server.

Clients
This table describes all clients on the selected server.

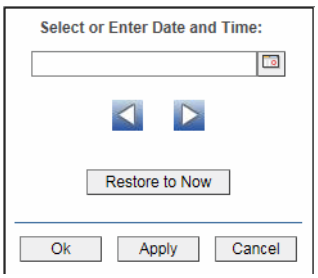
Address	The client IP address.
Client ID	The unique client identifier.
Duration	The amount of time for this client session. Format: **dd HH:MM:SS** **<days> <hours>:<minutes>:<seconds>** **For example:** **10d 08:41:38**
Host	The client host name.
Last Data Sent	The amount of data, in bytes, last sent 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.

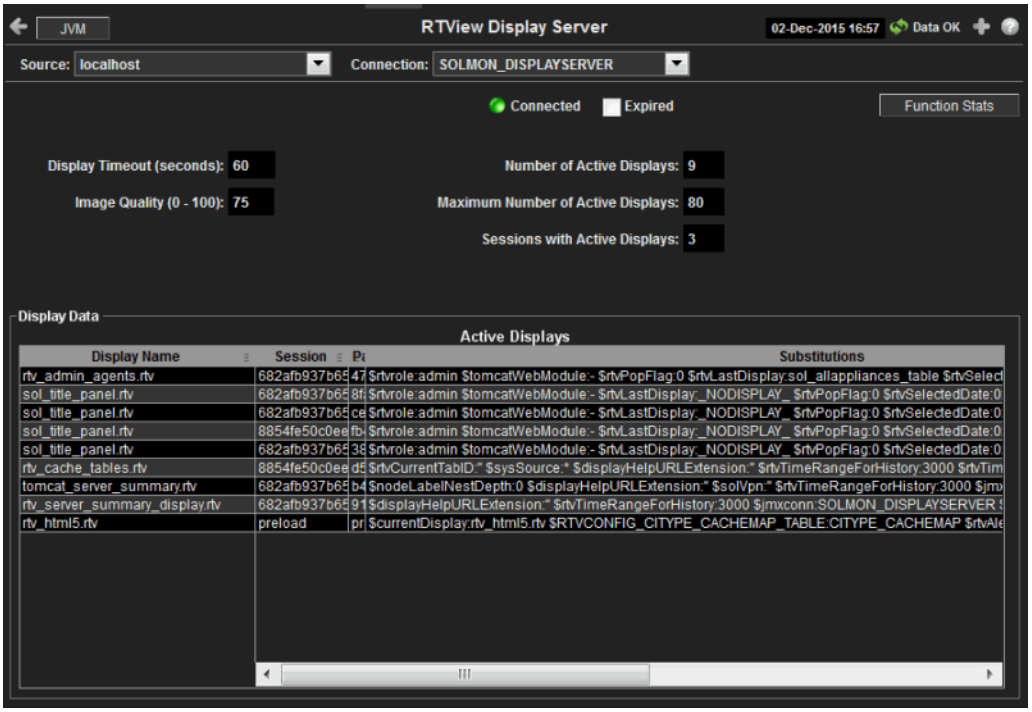
Number of Clients Traces the number of clients being served by the Data Server.

Data Sent Traces the total amount of data, in Kilobytes, sent to all clients.

Display Server Metrics

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:
Indicators and functionality might include the following:

Open the previous and upper display.

CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

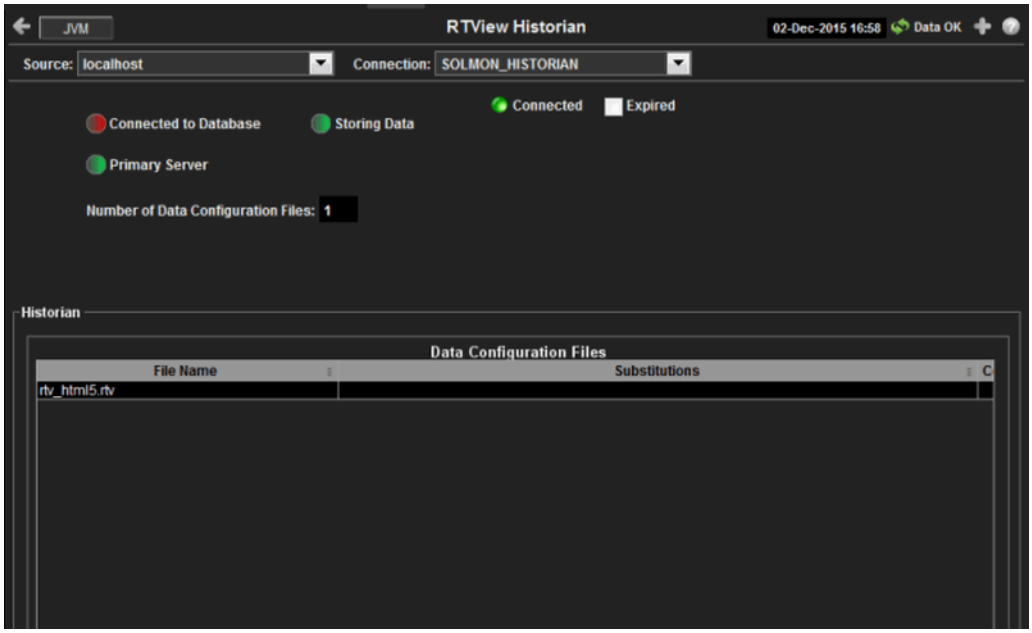
Display Data / Active Displays

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:
Indicators and functionality might include the following:

Open the previous and upper display.

CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

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. he trends include Active Sessions, Requests per Sec, and Process Time.

Title Bar:
Indicators and functionality might include the following:

Open the previous and upper display. CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

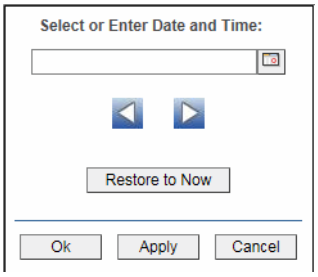
Connectors
This table shows Tomcat application connection information.

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.

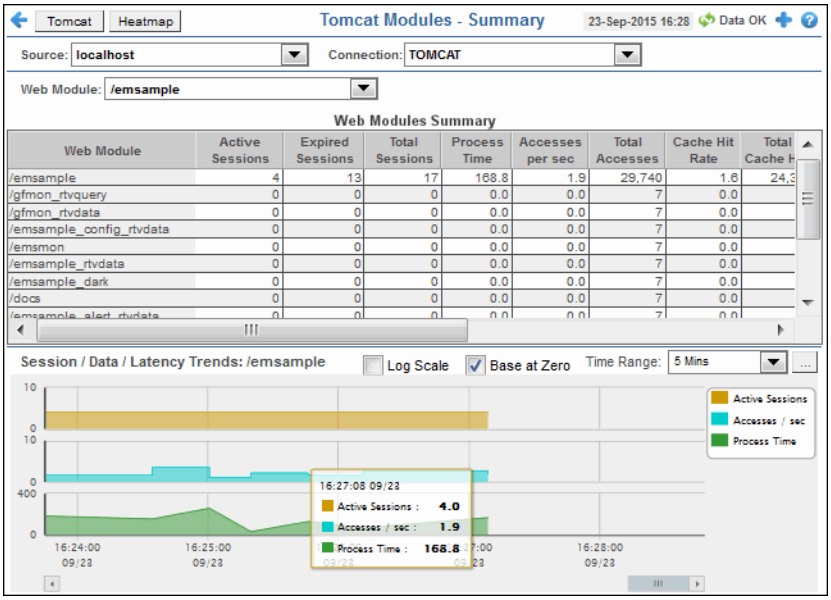
Log Scale	Select to enable a logarithmic scale. Use Log Scale to see usage correlations for data with a wide range of values. For example, if a minority of your data is on a scale of tens, and a majority of your data is on a scale of thousands, the minority of your data is typically not visible in non-log 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 A**ll 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 Modules 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:
Indicators and functionality might include the following:

Open the previous and upper display.

CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

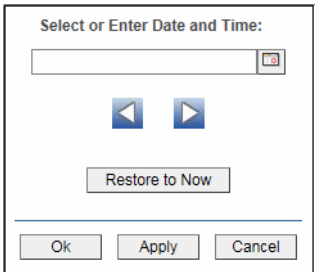
Fields and Data
This display includes:

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 A**ll 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.

JVM CPU / Mem 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:
Indicators and functionality might include the following:

Open the previous and upper display. CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

Fields and Data
This display includes:

Source Select the type of connection to the RTView Server.

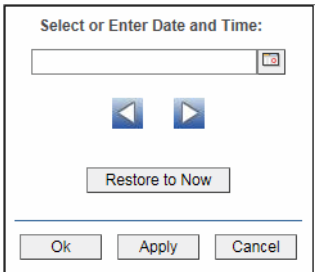
Connection Select an RTView Server from the drop-down menu. Names can be modified in the RTView Server configuration properties file.

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 A**ll 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 Mem 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:
Indicators and functionality might include the following:

Open the previous and upper display.

CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

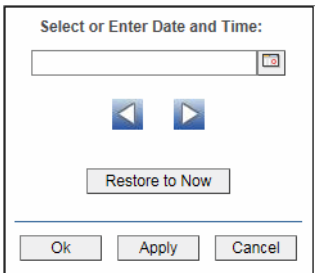
Open an instance of this display in a new window.

Open the online help page for this 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 A**ll 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 Mem 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:
Indicators and functionality might include the following:

Open the previous and upper display.

CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this display.

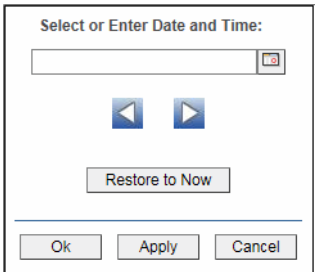
Fields and Data
This display includes:

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 A**ll 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.

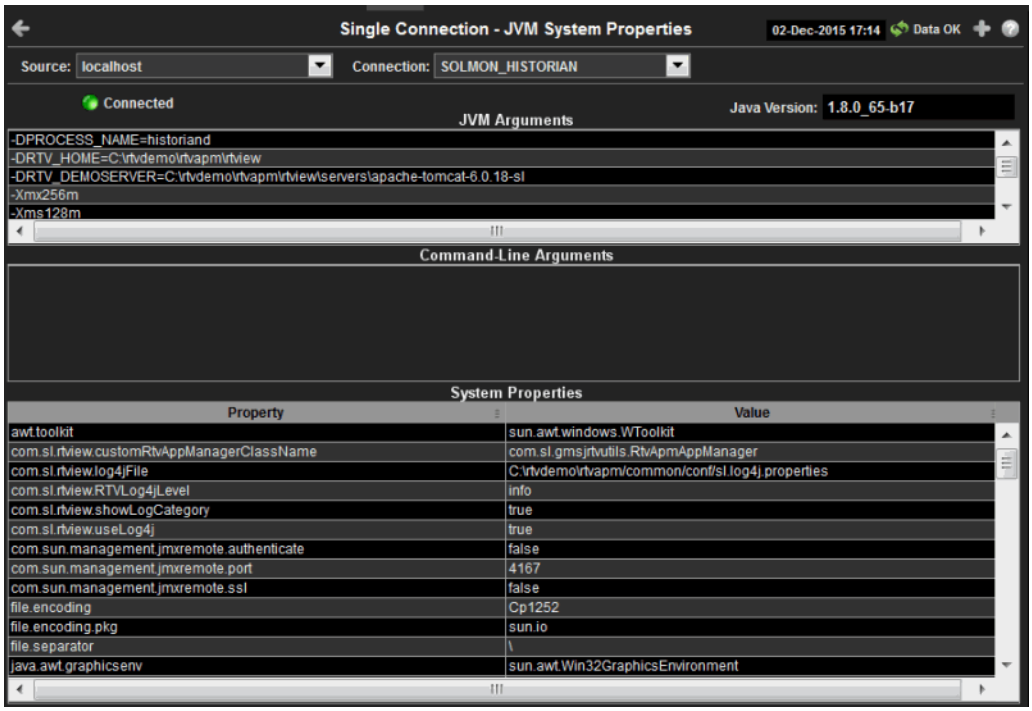
Used - After Traces the amount of memory used after the last garbage collection.

Duration The duration, in seconds, of garbage collection.

Duty Cycle The percentage of time that the application spends in garbage collection.

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:
Indicators and functionality might include the following:

Open the previous and upper display. CMDB and Table navigate to displays commonly accessed from this display.

19-Feb-2014 16:50 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the time is correct and the **Data OK** indicator is green, this is a strong indication that the platform is receiving current and valid data.

Cls: 3,047 The number of items in the display.

Data OK The data connection state. Red indicates the data source is disconnected (for example, 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.

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

Open an instance of this display in a new window.

Open the online help page for this 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.

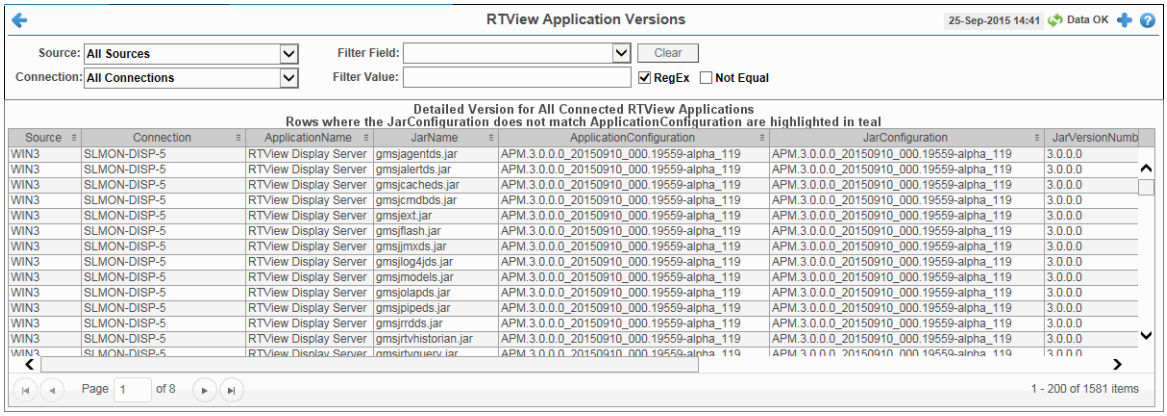
Property Name of the property.

Value Current value of the property.

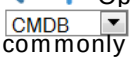
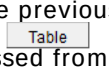
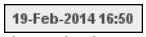
Version Info

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. 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.



Title Bar:
Indicators and functionality might include the following:

 Open the previous and upper display.
 and  navigate to displays commonly accessed from this display.
 The current date and time. When the time is incorrect, this might indicate that RTView stopped running. When the 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 number of items in the display.

 The data connection state. Red indicates the data source is disconnected (for example, 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.
 Open the **Alert Views - RTView Alerts Table** display.
 Open an instance of this display in a new window.
 Open the online help page for this display.

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 this check box 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 RTVMGR.
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 RTVMGR data server connection.

About

This display shows details about the Monitor version and data sources available to your system.

CHAPTER 5 Third-Party Reports

This section describes third-party reports for BusinessWorks 6, including system requirements, configuration steps, and the available parameters within each report.

This section includes:

TIBCO Spotfire Reports

Currently, there is one TIBCO Spotfire report that is provided with the Monitor, the **BusinessWorks Engines Metrics Report**. This section includes:

System Requirements

This section describes the minimum system requirements necessary to use these reports.

- **TIBCO BusinessWorks 6**
- **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

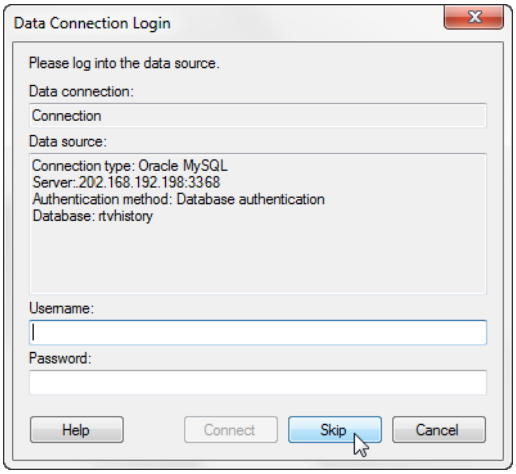
You can configure the **BusinessWorks Engines Metrics Report** using Oracle or MySQL:

MySQL Report Configuration

This section describes how to configure the **BusinessWorks Engines Metrics Report** using MySQL.

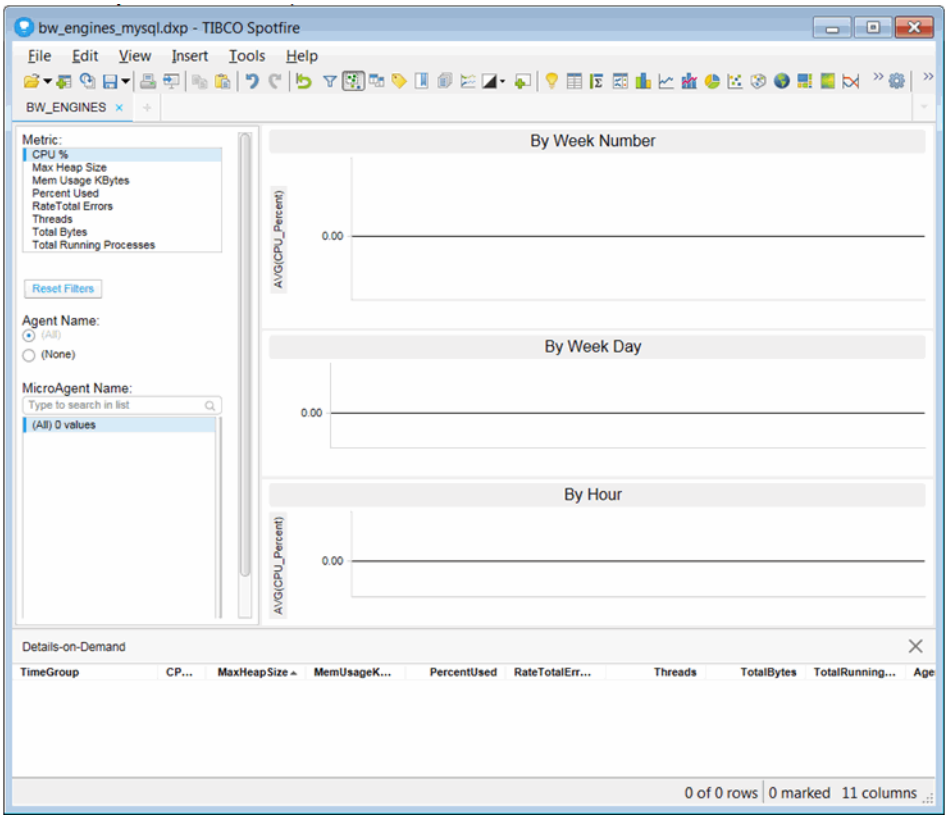
1. Open the **bw_engines_mysql.dxp** Spotfire Analysis file in the **rtvapm/bwmon/projects/reports/Spotfire** directory that was created during the Monitor installation.

   The **Data Connection Login** window opens.



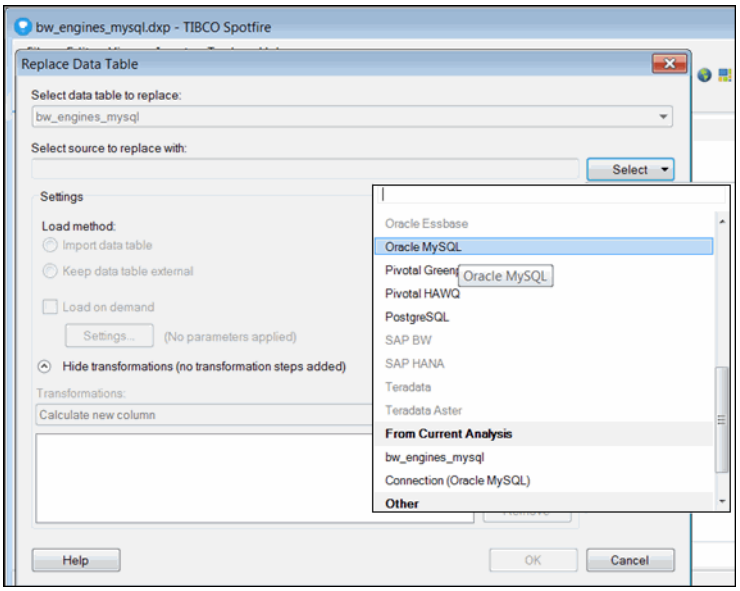
2. Click **Skip** (there is no need to log in at this point). Because there is no data, Spotfire might display a “Missing Data” dialog. Click **OK** to dismiss it.

   The **TIBCO Spotfire** dashboard opens.



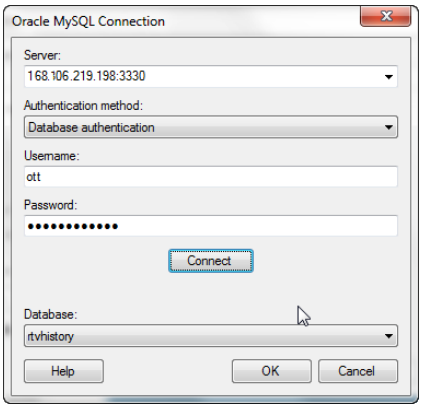
3. Click **File/Replace Data Table**.

The **Replace Data Table** window opens.



4. Click **Select** (associated with the **Select source to replace with** field) and choose **Oracle MySQL**.

   The **Oracle MySQL Connection** window opens.

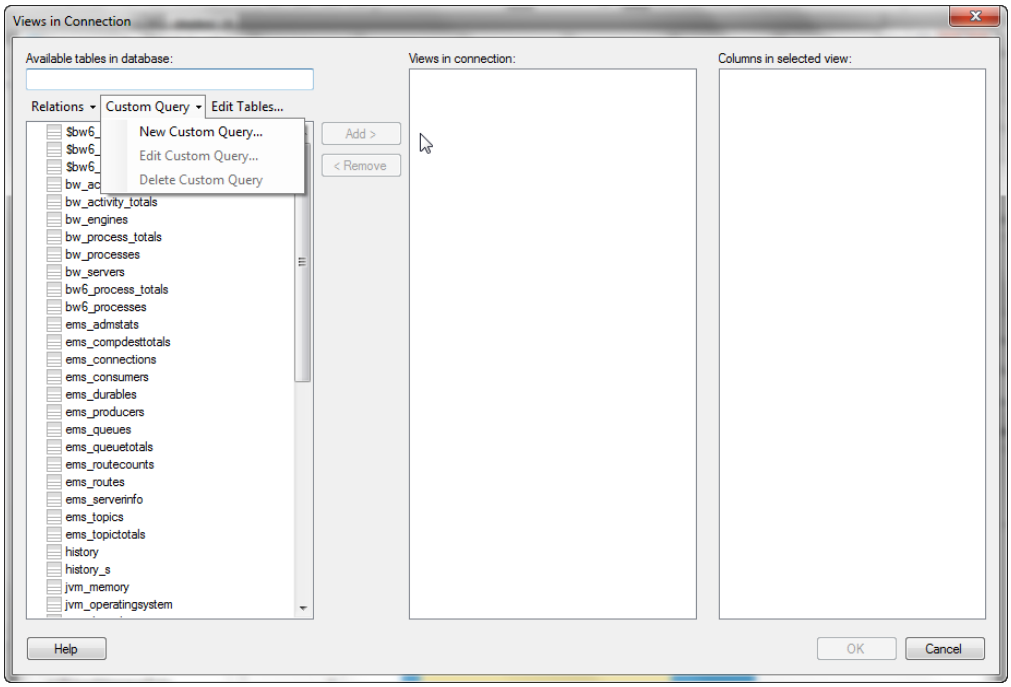


5. Enter the **Server**, **Username** and **Password**, select **Database authentication** as the **Authentication Method**, and click **Connect**.

   The **Database** drop down menu should populate.

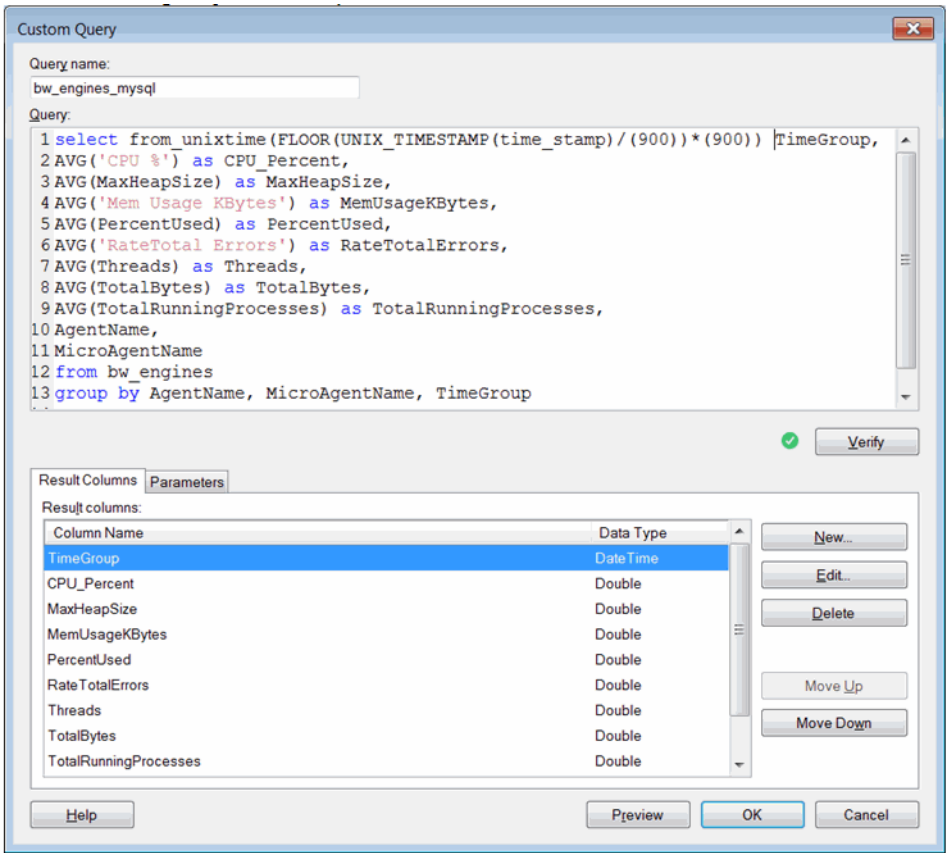
6. Select **rtvhistory** from the **Database** drop down menu and click **OK**.

The **Views in Connection** window opens.



7. Select the **Custom Query** drop down list and choose **New Custom Query**.

The **Custom Query** window opens.



8. Enter the desired name (a name that is meaningful for you) in the **Query_name** field.

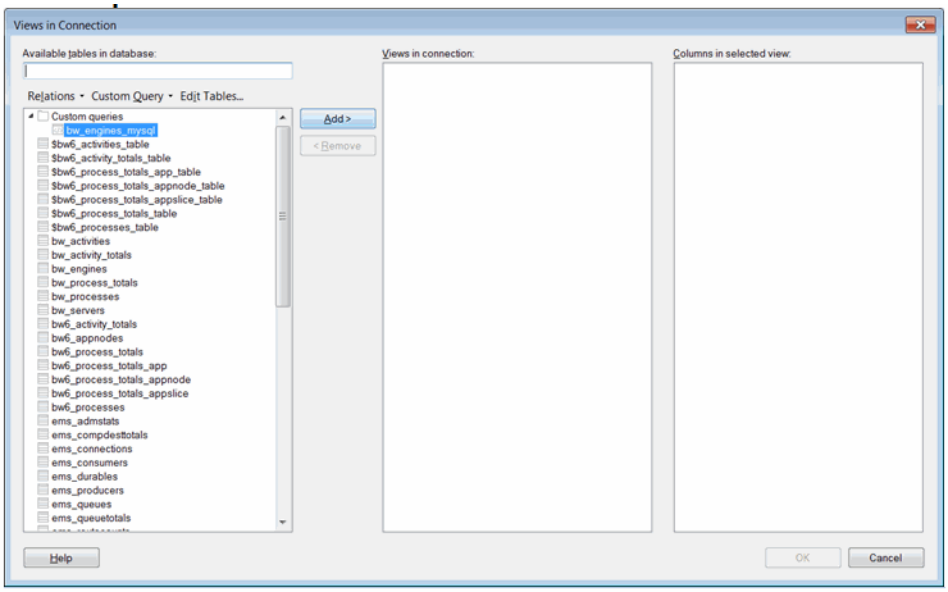
9. Open **bw_engines_mysql.txt** file and copy/paste the SQL code from the file into the **Custom Query** window **Query** field. Click **Verify**.

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.

After the SQL is verified, the column names display in the **Result Columns** tab.

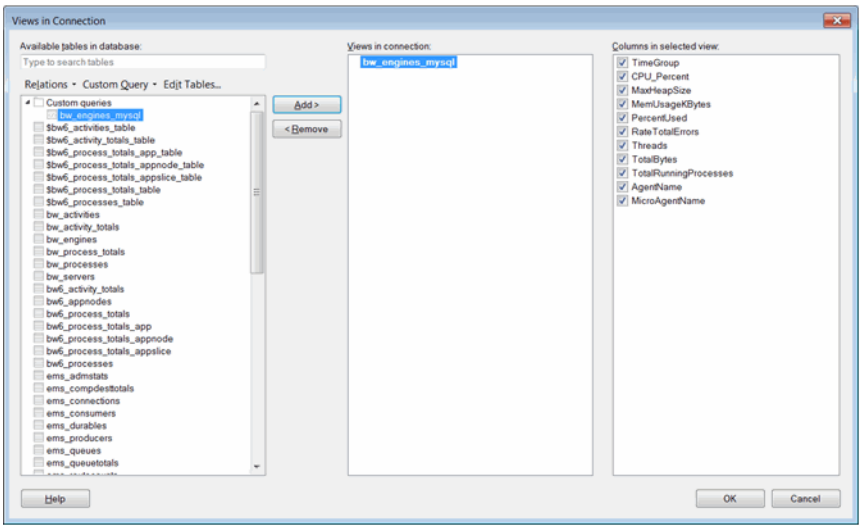
10. Click **OK** on the **Custom Query** window.

The new query (for example, **BW_engines_mysql)** should display in the list of **Custom queries** on the **Views in Connection** window.



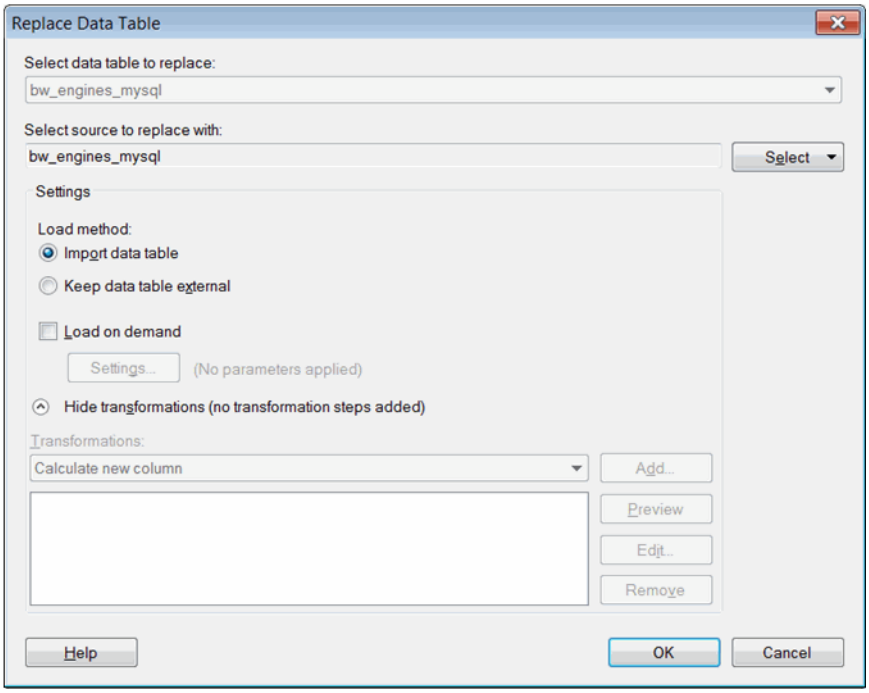
11. Select your new custom query and click **Add**.

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.



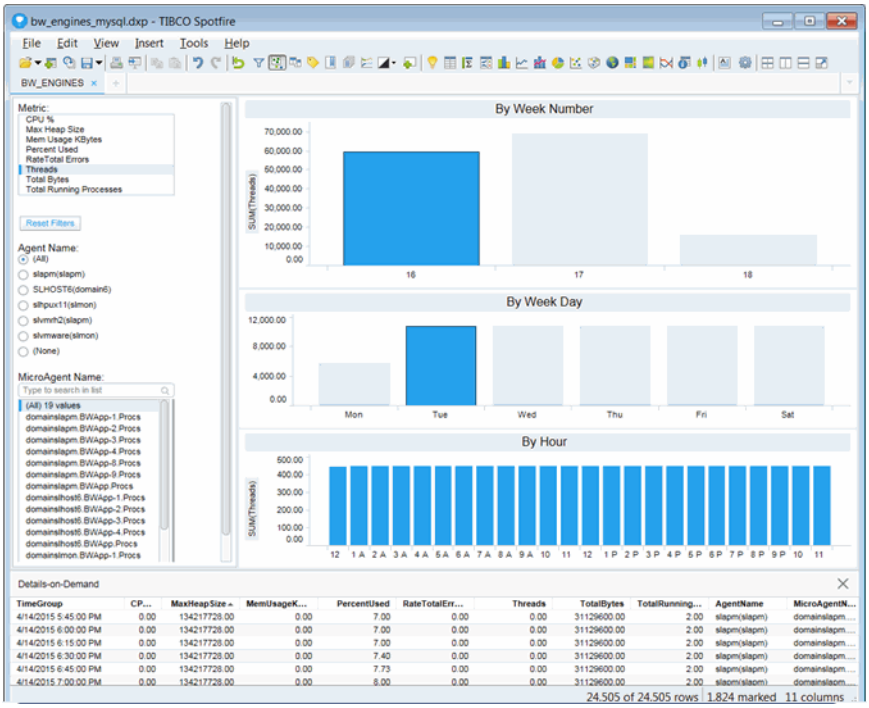
12. Click **OK** on the **Views in Connection** window.

The **Replace Data Table** window displays.



13. Select the **Import data table** radio button and click **OK**.

Your data should display in TIBCO Spotfire.

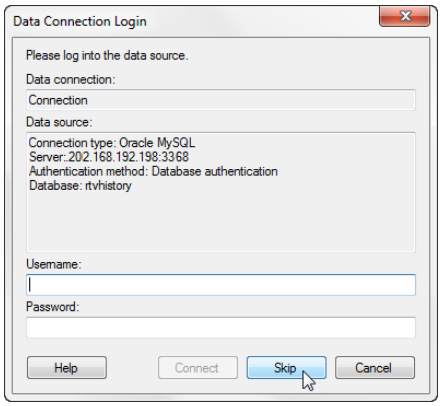


Oracle Report Configuration

This section describes how to configure the **BusinessWorks Engines Metrics Report** using Oracle.

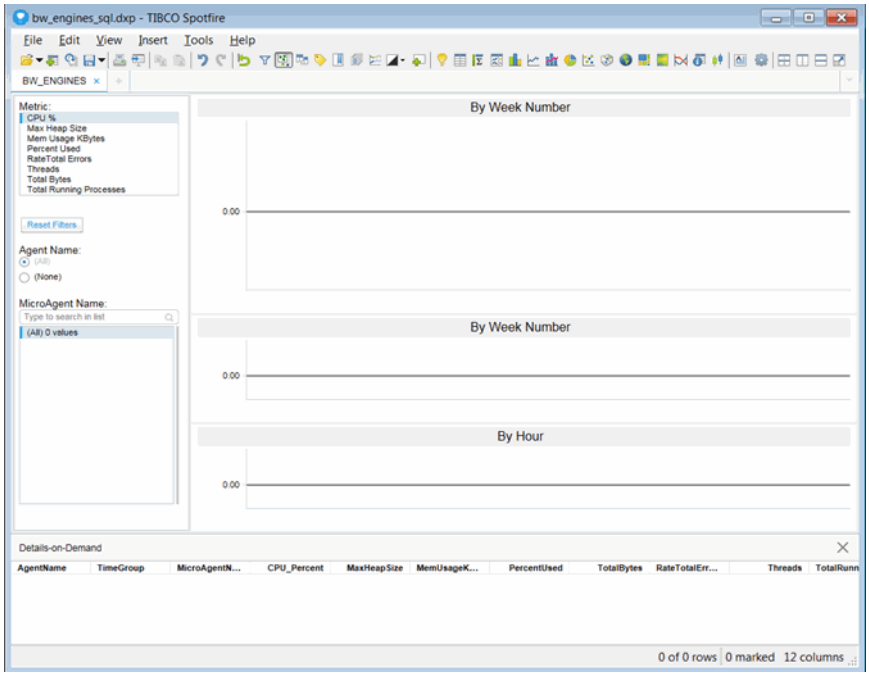
1. Open the **bw_engines_sql.dxp** Spotfire Analysis file in the **rtvapm/bwmon/projects/reports/Spotfire** directory that was created during the Monitor installation.

   The **Data Connection Login** window displays.



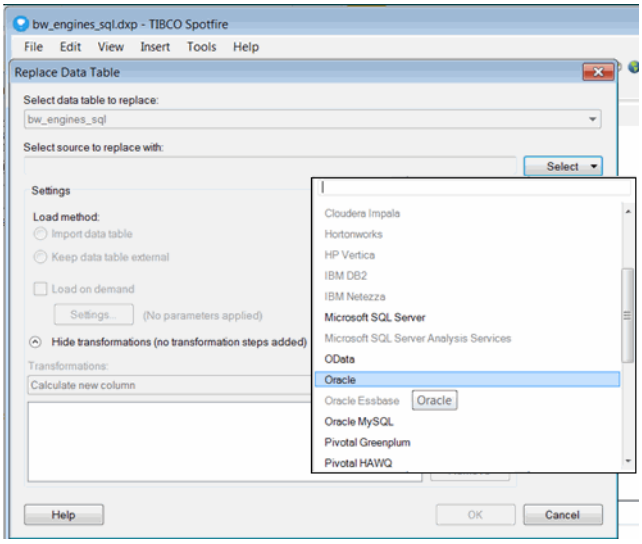
2. Click **Skip** (there is no need to log in at this point). Because there is no data, Spotfire might display a “Missing Data” dialog. Click **OK** to dismiss it.

   The **TIBCO Spotfire** dashboard opens.



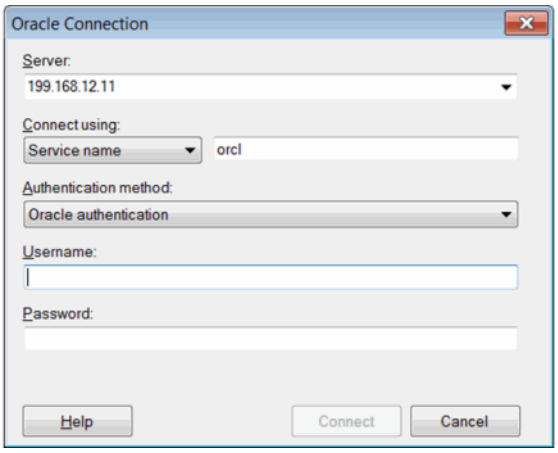
3. Click **File> Replace Data Table**.

The **Replace Data Table** window opens.



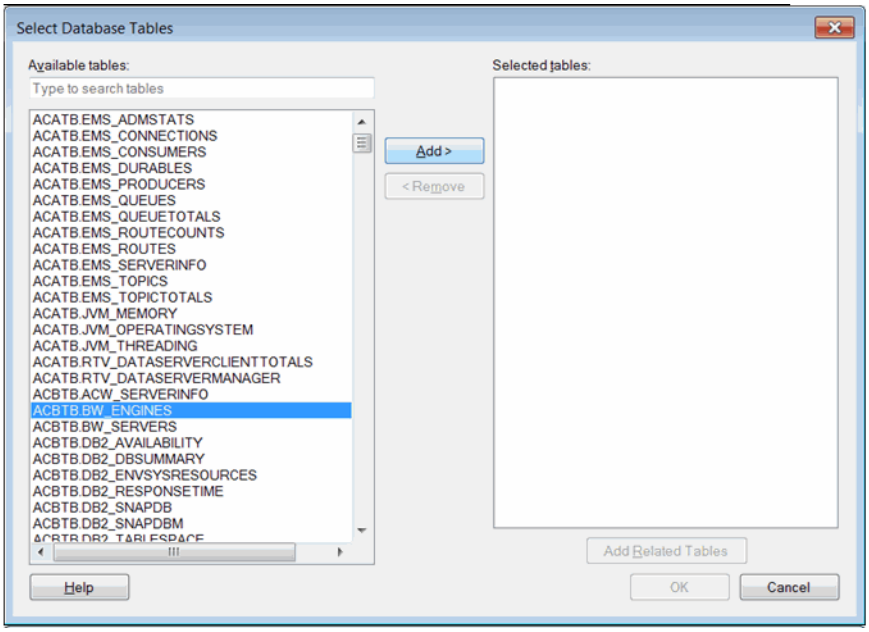
4. Click **Select** (associated with the **Select source to replace with** field) and select **Oracle**.

   The **Oracle Connection** window opens.

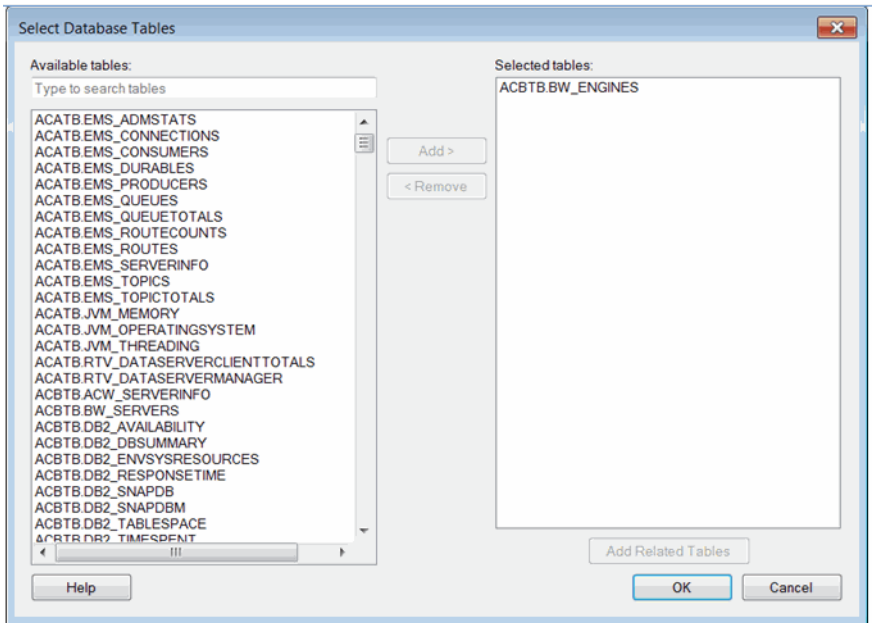


5. Enter the **Server**, select **SID** in the **Connect using** drop down (and enter **orcl** in the associated field if not defaulted), select **Oracle authentication** as the **Authentication Method**, enter the **Username** and **Password**, and click **Connect**.

The **Select Database Tables** window opens.

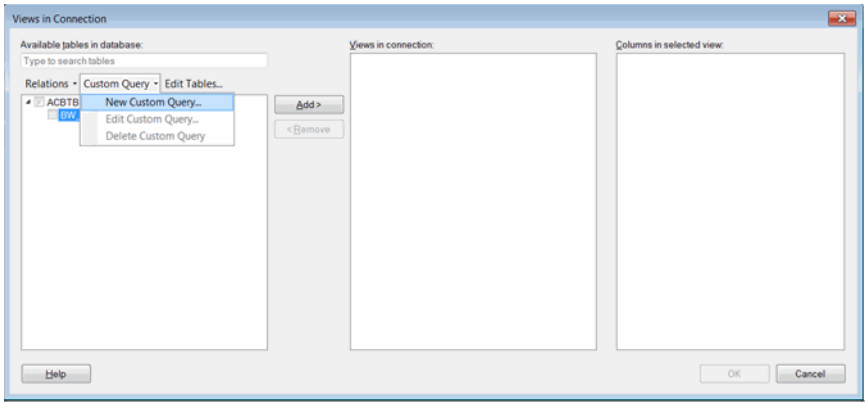


6. Select **BW_ENGINES** from the **Available Tables** list and click **Add**.
The table displays in the **Selected tables** region.

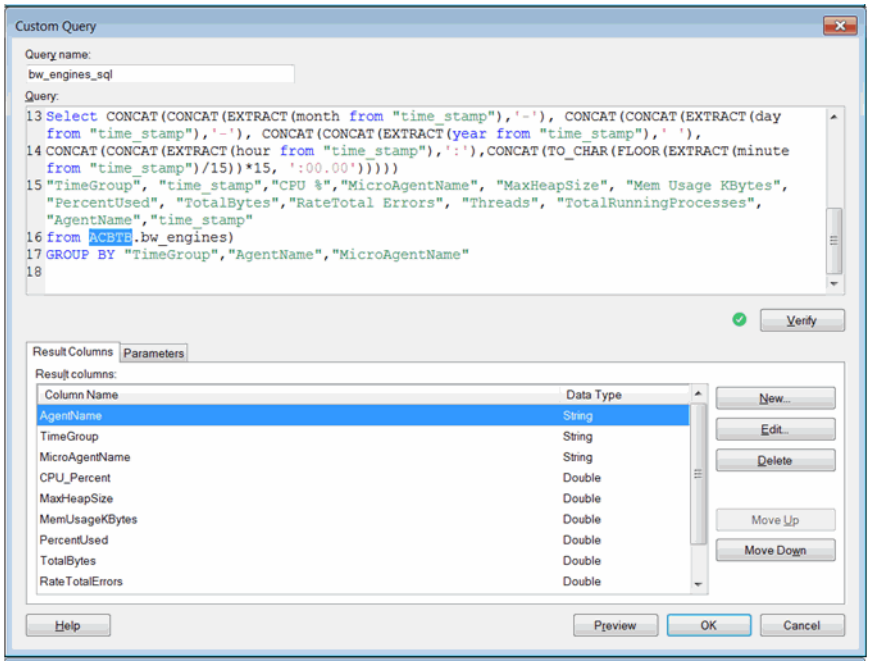


7. Click **OK**.

The **Views in Connection** window displays with the selected table listed in the **Available tables in the database** region.



8. Select the **BW_ENGINES** table from the list and click **Custom Query / New Query**. The **Custom Query** window opens.



9. Enter the desired name (a name that is meaningful for you) into the **Query_name** field.

10., Open the **bw_engines_sql.txt** file and copy/paste the SQL code from the file into the **Custom Query** window **Query** field.

11. Click **Verify**.

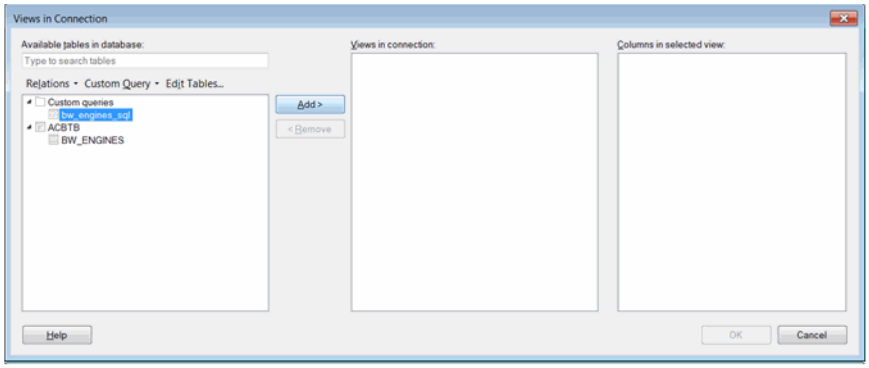
Note: Depending on your environment, you might need to add your server name prefix in front of the **bw_engines** table name, as shown in the screen shot, above.

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.

After the SQL script is verified, the column names display in the **Result Columns** tab.

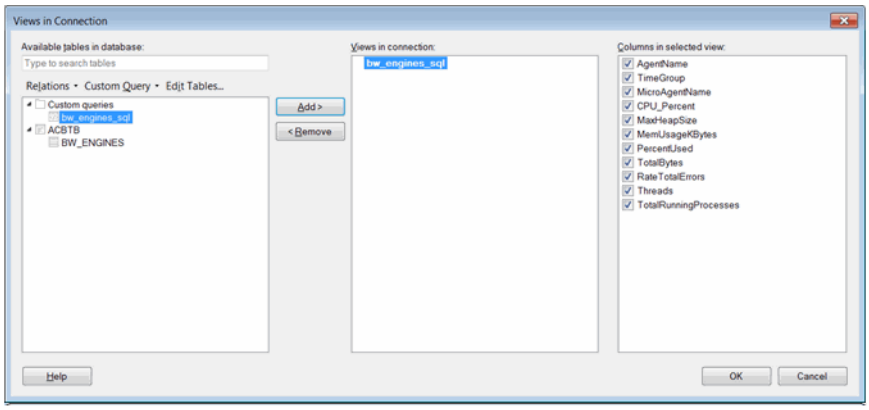
12. Click **OK**.

The new query displays under **Custom queries** in the **Available tables in database** list on the **Views in Connection** window.



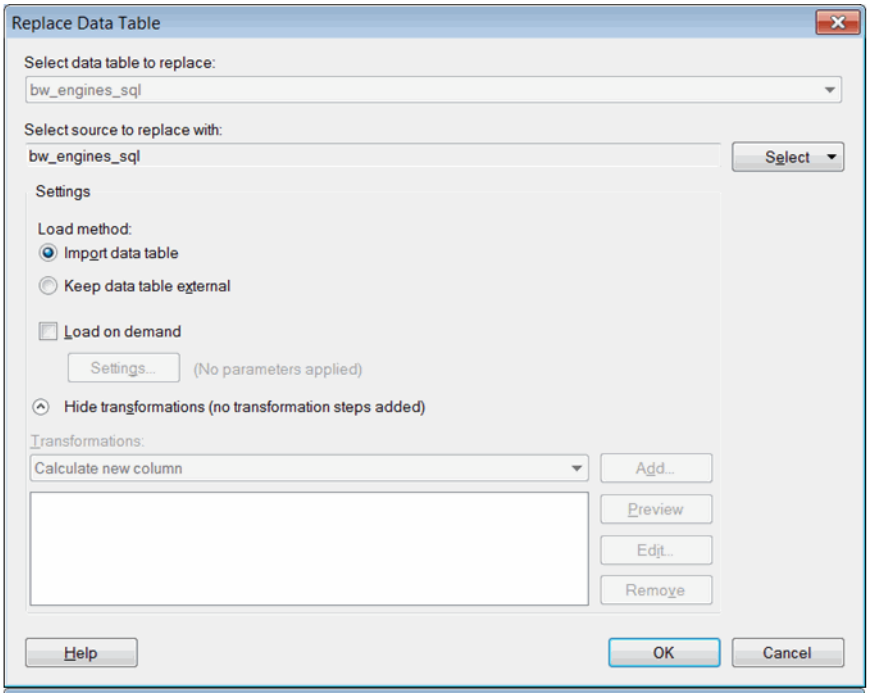
13. Select your newly added query/view and click **Add**.

The new query displays in the **Views in connection** list and the associated columns display in the **Columns in selected view** region.



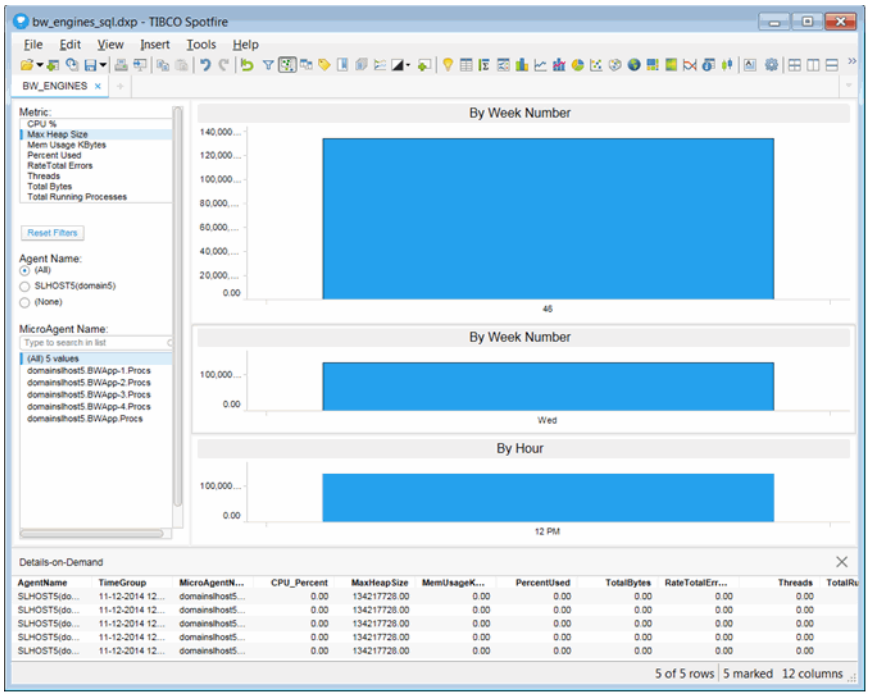
14. Click **OK**.

The **Replace Data Table** window opens.



15. Select **Import data table** as the **Load Method** and click **OK**.

Your report should display in the TIBCO Spotfire dashboard.

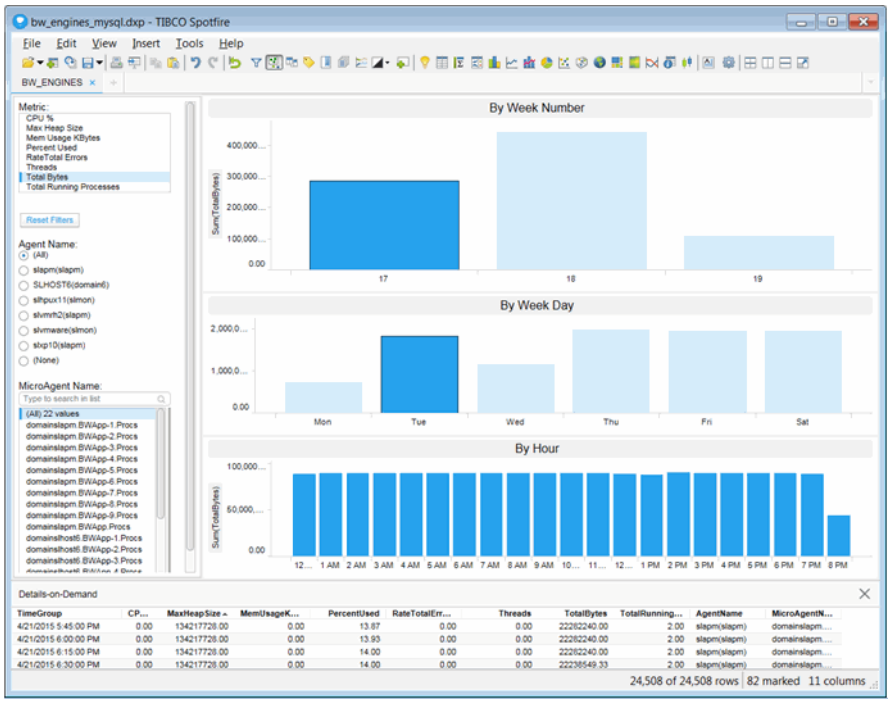


Reports

The following reports are available:

BusinessWorks Engines Metrics Report

The **BusinessWorks Engines 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.

CPU %	The percent (%) of server CPU used by the engine.
Max Heap Size	The maximum amount of heap memory allocated to this engine for the JVM.
Mem Usage Kbytes	The amount of server memory, in kilobytes, used by the engine.
Percent Used	The percent (%) of allocated memory currently consumed by this engine from within the JVM. Equal to the value of: (**100*UsedBytes**) divided by **MaxBytes**.
Rate Total Errors	The number of errors per second.
Threads	The number of threads used by this engine.

	Total Bytes	The total bytes of memory within the JVM currently used by the engine.
	Total Running Processes	The number of running processes.
Reset All Filters	Resets the Agent Name and MicroAgent Name filters.	
Agent Name	The name of the TIBCO Hawk agent.	
MicroAgent Name	The name of the TIBCO Hawk MicroAgent.	
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** window.	

APPENDIX A Monitor Scripts

This section describes Monitor scripts and 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 the following section without the **.bat** suffix; on UNIX systems you must replace the **.bat** suffix with **.sh** for each command. For example, **rundata.sh**.

Name	Description
dos2unix.sh	Replaces Windows line termination to Unix format. This script is not available as a **.bat** script. **Location:** **rtvapm/common/bin**
my_alert_actions.bat	Sample script to define actions for alerts. **Location:** **rtvapm/common/bin**
rtvapm_init.bat	Initializes a command window. **Format:** **rtvapm_init.bat** **Location:** **rtvapm** (execute from the Monitor installation root directory) **Note:** In UNIX, the script used to initialize a terminal window depends on whether you are in csh or rsh (e.g. Linux, Mac OS X). With a Bourne shell, open a terminal window, go to your Monitor installation directory and type: **./rtvapm_init.sh**
runa.bat	Executes RTView Analyzer to extract the function chain of the chosen **.rtv** file. It returns a **.pdf** file with a graph of all the function chains in the file. **Format:** **runa.bat [rtvFileName].rtv** **rtvFileName** - Any RTView file with function chains of relative complexity. **Location:** **rtvapm/common/bin**

Name	Description
runb.bat	Starts the Display Builder. We recommend that you use the **start_rtv.bat** script with the appropriate configuration and server. For example: **start_rtv builder** **start_rtv builder_ds** **Format:** **runb.bat [-ds] [-bg]** **-ds** - To use the currently running Data Server. **-bg** - Runs the Display Builder as a background process. **Location:** **rtvapm/common/bin**
rundata.bat	Starts the Data Server. We recommend that you use the **start_rtv.bat** script with the appropriate configuration and server. For example: **start_rtv default dataserver-properties:sample** **Format:** **rundata [-properties:Property File Name] [-propfilter:Property Filter]** **-properties -** flag used to apply a specific property file. **Property File Name** - the name of the properties file to apply. **-propfilter** - flag used to apply a property filter. **Property** - the name of the property to apply. **Location:** **rtvapm/common/bin** **Example:** **rundata -properties:mycustom.properties**
rundb.bat	Starts the HSQLDB database. We recommend that you use the **start_rtv.bat** script with the appropriate configuration and server. For example: **start_rtv default database** **Location:** **rtvapm/common/bin**
rundisp.bat	Starts the Display Server. We recommend that you use the **start_rtv.bat** script with the appropriate configuration and server. For example: **start_rtv default displayserver-properties:sample** **Location:** **rtvapm/common/bin**
runhist.bat	Starts the Historian. We recommend that you use the **start_rtv.bat** script with the appropriate configuration and server. For example: **start_rtv default historian-properties:sample** **Location:** **rtvapm/common/bin**
runv.bat	Starts the Display Viewer. We recommend that you use the **start_rtv.bat** script with the appropriate configuration and server. For example: **start_rtv default viewer** **Location:** **rtvapm/common/bin**

Name	Description

start_rtv.bat	Starts processes of a named configuration as specified in the **rtvservers.dat** configuration file. A named configuration should include a Data Server, a Display Server or Viewer, an Historian and a Database. The **start_rtv** script only attempts to start processes if it detects they are not running. The action of starting processes can be applied to all named configurations, a single named configuration or a single process in a named configuration.
	Note: The Display Viewer can be started using the **start_rtv** script, but cannot be stopped using the **stop_rtv** script. Stop the Viewer by closing its window.
	To use additional arguments you should either specify a named configuration (to apply the argument to all processes in that configuration) or specify **all** (to apply the argument to all configurations).
	–console (or **–c**) - Start the processes with a command window (which is useful for debugging and 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`
	`database`
	`dataserver`
	`historian`
	`displayserver`
	Location:
	rtvapm/common/bin

	all Starts all named configurations specified in the **rtvservers.dat** file. The **all** argument applies the action to named configurations specified in the **rtvservers.dat** file. **Note:** When multiple configurations are specified in the **rtvservers.dat** file and they have different project directory locations, the **all** argument processes all of the configurations. However, if the configurations have the same project directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations. For details, see the **rtvservers.dat** section (next). **Example:** **start_rtv.bat all**
	[Configuration Name] To start a single Monitor configuration specified in the **rtvservers.dat** file: **start_rtv.bat [Configuration Name]** **Configuration Name** is the named configuration specified in the **rtvservers.dat** file. The action applies to all servers or clients specified in the configuration. **Example:** **start_rtv.bat web_deployment**

Name	Description
	[Process Name] To start a single process in a Monitor configuration specified in the **rtvservers.dat** file: **start_rtv.bat [Configuration Name] [Process Name]** **Process Name** is the name of a process defined in the **rtvservers.dat** configuration file. For example, **dataserver**, **displayserver**, **historian** and **database**. The action applies only to that specific process in the configuration. **Example:** **start_rtv.bat default dataserver**

status_rtv.bat	Returns the status all Monitor configurations specified in the **rtvservers.dat** configuration file. This action uses defined JMX ports for monitoring the status of the process. A named configuration should include a Data Server, a Display Server or Viewer, an Historian and a Database. The action can be applied to all named configurations, a single named configuration or a single process in a named configuration.
	To use additional arguments you must either specify a configuration (to apply the argument to all servers in a configuration) or **all** (to apply the argument to each of the configurations).
	This command returns status information upon execution. For example:
	status_rtv default returns:
	`dataserver: Running PID 4696 Uptime 000:00:01:47 CPU 00:00:02 Heap 0.7% Clients 2`
	`displayserver: Running PID 6340 Uptime 000:00:01:45 CPU 00:00:01 Heap 1.0% Displays 0`
	`historian: Running PID 6108 Uptime 000:00:01:42 CPU 00:00:01 Heap 1.3% Connected true`
	`database: Running PID 6848 Uptime 000:00:01:39 CPU 00:00:00 Heap 0.4%`
	In the above example, note that the Data Server reports two clients, the Display Server and the Historian. Both the Display Server and the Historian were started with the **–ds** argument, which connects them to the Data Server. Note also that the Historian reports that it is connected to the database.
	In the following example, **status_rtv default** reports that a configured port is in use but the process using the port does not appear to belong to named configuration:
	`dataserver: Data port xxx in use by PID yyy`
	`displayserver: JMX port xxx in use by PID yyy`
	When **status_rtv** is used without arguments, it returns usage information and a list of available configurations:
	`Usage: status_rtv config [server] or 'all'`
	`Available configs:`
	`default`
	Location:
	rtvapm/common/bin

Name	Description
	all Returns the status of all named configurations specified in the **rtvservers.dat** configuration file. The **all** argument applies the action to all named configurations specified in the **rtvservers.dat** configuration file. **Note:** When multiple configurations are specified in the **rtvservers.dat** file and they have different project directory locations, the **all** argument processes all of the configurations. However, if the configurations have the same project directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations. For details, see the **rtvservers.dat** section (next). **Example:** **status_rtv.bat all**
	[Configuration Name] Returns the status of a single named configuration specified in the **rtvservers.dat** configuration file: **status_rtv.bat [Configuration Name]** **Configuration Name** is the named configuration specified in the **rtvservers.dat** file. The action applies to all servers or clients specified in the configuration. Example: **status_rtv.bat web_deployment**
	[Process Name] Returns the status of a single process in a named configuration specified in the **rtvservers.dat** configuration file: **status_rtv.bat [Configuration Name] [Process Name]** **Process Name** is the name of a process defined in the **rtvservers.dat** configuration file. For example, **dataserver**, **displayserver**, **historian** and **database**. The action applies only to that specific process in the configuration. **Example:** **status_rtv.bat default dataserver**

Name	Description

stop_rtv.bat	Stops processes in a named configuration as specified in the **rtvservers.dat** configuration file. This action uses defined JMX ports for monitoring. A named configuration might include a Data Server, a Display Server or Viewer, an Historian and a Database. The action can be applied to all named configurations, a single named configuration or a single process in a named configuration.
	To use additional arguments you must either specify a named configuration (to apply the argument to all processes in that configuration) or **all** (to apply the argument to all named configurations). If the Display Viewer is started using the **start_rtv** script, the Viewer cannot be stopped using the **stop_rtv** script. Stop the Viewer by closing its window.
	Note: The HSQLDB server (if used) runs with a command window on Windows and cannot be stopped using the **stop_rtv** command. Stop the HSQLDB server by typing **Ctrl-C** in its command window.
	This command returns status information upon execution. For example, stop_rtv.bat default returns:
	`dataserver: Stopped PID 4696 via JMX port 3368`
	If no JMX port is configured the **stop_rtv** command reports the following:
	`dataserver: No JMX port configured; must kill PID xxx by system command.`
	If the port is in use but the PID is not available (this might happen on HP-UX and some Linux systems) then the **stop_rtv** and **status_rtv** command will report the PID as "???", for example:
	`dataserver: Running PID ??? Uptime 000:00:00:37 CPU 00:00:01 Heap 1.3% Clients 1`
	`dataserver: Stopped PID ??? via JMX port 3368`
	When used without arguments, returns usage information and a list of available configurations. For example, **stop_rtv** returns:
	`Usage: stop_rtv [ConfigurationName] [ProcessName] or 'all'`
	Location:
	rtvapm/common/bin

	all Stops all named configurations specified in the **rtvservers.dat** configuration file. The **all** argument applies the action to all named configurations specified in the **rtvservers.dat** configuration file. **Note:** When multiple configurations are specified in the **rtvservers.dat** configuration file and they have different project directory locations, the **all** argument processes all of the configurations. However, if the configurations have the same project directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations. For details, see the **rtvservers.dat** section (next). **Example:** **stop_rtv.bat all**
	[Configuration Name] Stops a single named configuration specified in the **rtvservers.dat** configuration file: **stop_rtv.bat [Configuration Name]** **Configuration Name** is the named configuration specified in the **rtvservers.dat** configuration file. The action applies to all processes specified in the configuration. Example: **stop_rtv.bat default**

Name	Description
	[Process Name] Stops a single process in a named configuration specified in the **rtvservers.dat** configuration file: **stop_rtv.bat [Configuration Name] [Process Name]** Process Name is the name of a process in the named configuration. For example, **dataserver**, **displayserver**, **historian** and **database**. The action applies only to the process chosen from the named configuration. **Example:** **stop_rtv.bat default dataserver**
update_wars.bat	Script to regenerate war files when the configuration of the Solution Package has changed. **Location:** **rtvapm/*mon/projects/sample**

rtvservers.dat

The **rtvservers.dat** text file, located in the ***mon/projects/mysample** directory, is used to manage your Monitor deployment and processes.

The **rtvservers.dat** configuration file contains one or more named configurations. A named configuration should include any of the following: Data Server, Historian, HSQLDB database, and either a Display Server (for a Web Deployment) or a Display Viewer (for a Desktop Deployment). The **rtvservers.dat** configuration file is used when the following scripts are executed:

- **start_rtv** Starts Monitor processes specified in the **rtvservers.dat** configuration file.
- **stop_rtv** Stops the Monitor processes specified in the **rtvservers.dat** configuration file.
- **status_rtv** Returns status information for processes specified in the **rtvservers.dat** configuration file.

NOTE: You can write the paths in the **rtvservers.dat** configuration file by exclusively using the forward-slash (**/**) notation for both Windows and UNIX systems. For example, if your project settings directory is located in a subdirectory below the location of your **rtvservers.dat** file, you write the path as **./**subdirectory on both Windows and UNIX.

Single Configuration File

The following **rtvservers.dat** configuration file contains a single named configuration, which is called *default*, for a Web deployment:

default . database rundb

default . dataserver rundata

default . historian runhist -ds

default . displayserver rundisp -ds

NOTE: The **rtvservers.dat** configuration file must end with a new line.

In this example, to start the default configuration type: **start_rtv defaultor start_rtv all**. To start a single process from the configuration, type **start_rtv[ConfigurationName] [ProcessName]**. For example: **start_rtv default displayserver**. Each line has the following format consisting of four fields:

<Configuration Name> <Project Directory Location> <Process Filter> <Command>

<Configuration Name>	The name of the configuration ("default" in this example).
<Project Directory Location>	The project directory location, relative to the location of the **rtvservers.dat** configuration file (".", the current directory, in this example).
<Process Filter>	The filter that identifies the process, which is the property filter under which the JMX port for monitoring 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. **runv**: Starts the Display Viewer. **runb**: Starts the Builder.

Multiple Configuration File

When multiple configurations are specified in the rtvservers.dat configuration file and they have different project directory locations, the **all** argument processes each of the configurations. However, if the configurations have the same project directory locations, the **all** argument processes only the first configuration as the others are considered alternative configurations. Alternative configurations allow you to alternate among several configurations for the same Monitor deployment.

For example, the following rtvservers.dat configuration file contains two configurations, *system1* and *system2*. Note that the project directory locations differ (**../system1** and **../system2**, respectively).

```
system1 ../system1 dataserver rundata
system1 ../system1 historian runhist -ds
system1 ../system1 displayserver rundisp -ds

system2 ../system2 dataserver rundata
system2 ../system2 historian runhist -ds
system2 ../system2 displayserver rundisp –ds
```

Because the project directory locations differ, you can type **start_rtv all** to start both configurations. To start only the system1 configuration, type: **start_rtv system1**. To start a single process of the system1 configuration, type **start_rtv <Configuration Name> <Process Name>**. For example: **start_rtv system1 displayserver**.

The following illustrates an **rtvservers.dat** configuration file with two configurations: *desktop*, which is for a Desktop Deployment and *browser*, which is for a Browser Deployment. Note that the project settings directory locations are the same (**../system1** for both). The following **rtvservers.dat** configuration file allows you to switch between a Web Browser and a Desktop Deployment:

```
desktop ../system1 dataserver rundata–properties:desktop
desktop ../system1 historian runhist -ds–properties:desktop
desktop ../system1 viewer runv -ds–properties:desktop


browser ../system1 dataserver rundata–properties:browser
browser ../system1 historian runhist -ds–properties:browser
browser ../system1 displayserver rundisp -ds–properties:browser
```

where **desktop.properties** and **browser.properties** files reside in the system1 project directory containing all necessary settings for each deployment.

When the **rtvservers.dat** file contains several alternate configurations as this example does, the **all** argument processes only the first defined configuration, in this case, the desktop configuration. To execute the second configuration you type: **start_rtv browser**.

APPENDIX B Properties

This section describes properties that are available for the Monitor and how to configure them. This section includes:

Overview

Monitor configuration is specified using a series of properties. Properties can be specified in the command line, in properties files, or in a properties database. However, the most convenient way from a maintenance perspective is to create your own properties files. You can override certain Monitor default settings by editing properties. There are several property files that you might edit to configure or optimize your Monitor deployment.

Modify properties in the **sample.properties** file. These instructions assume you have a project directory, as described in "Create a Project Directory" on page 5. The **sample.properties** file is located in your project directory.

Set properties using command line options in an initialized command window. For details about initializing a command window, see "Initializing a Command Prompt or Terminal Window" on page 10.

Options specified on the command line are applied last, therefore command line arguments override values saved in configuration files (such as **.properties** files). Also, in many cases the command-line option cannot be used as a property, or vice versa. For these reasons, we recommend that you use properties rather than command line options. To specify a property in the command line:

- Add a dash (-) at the beginning.
- Remove the prefix (sl.rtview.).
- Remove the "Property Filters" prefix if present (for example, displayserver.). For details, see "Property Filters" on page 208.
- Replace the colon (**:**) with an equals sign (**=**).

For example, the property **myprefix.sl.rtview.someflag=true** is **-someflag:true** as a command line option. If a command line argument contains a space or a semicolon, the entire argument must be enclosed in quotes (e.g.: **"-sub:$data:my Data"**).

Property Format

This section describes the format for Monitor properties in the **sample.properties** file. These instructions assume you have a project directory, as described in "Create a Project Directory" on page 5. The **sample.properties** file is located in your project directory. properties. All properties have the prefix **sl.rtview** which is followed by a property name = value pair: **sl.rtview.<property_name>=:<value>**. For example, to specify the Data Server port number globally: **sl.rtview.dataserver.port=3278**

Property Filters

Filters are available to apply limit the scope to which a property is applied. Filters precede the **sl.rtview** property prefix followed by a period (**.**): **<property_filter>.sl.rtview.<property_name>=:<value>**.

For example, to specify the Data Server port number to only proxy clients, we use the **proxyclient** filter: **proxyclient.sl.rtview.dataserver.port=3278**

The following 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**
maincollector	This property filter applies to RTView EM installations. Applies the property to the main Data Collection Server. For example: maincollector.sl.rtview.alert.persistAlerts=true
mainreceiver	This property filter applies to RTView EM installations. Applies the property to the Agent main receiver Data Server. For example: mainreceiver.sl.rtview.jmxport=8911
proxyclient	Applies the property to the proxy client. For example: **proxyclient.sl.rtview.dataserver.port=2078**
receiver	Applies the property to any process which receives data. receiver.sl.rtvapm.bwmon.jmxsampleperiod=10000
rtvanalyzer	Applies the property to the RTView Analyzer. For example: **rtvanalyzer.sl.rtview.stylesheet=rtv_default,rtv_flat**

sender	Applies the property to the sender Data Server. For example: sender.sl.rtview.dataserver.port=3351
viewer	Applies the property to the Display Viewer. For example: **viewer.sl.rtview.panelconfig=custom_panels.xml**

You can define your own property filters and use them as prefixes in your properties files. To select a property filter on the command line use the **-propfilter** argument. For example, to apply the **historian** filter: **-propfilter:historian**

Properties

The following properties are available for the Monitor.

Name	Description
sl.rtview.sub	Specifies to use a substitution. For details, see "Substitutions". Example: **sl.rtview.sub=$rtvAlertMaxNumberOfHistoryRows:50000**

Substitutions

The following substitutions can be set to modify your Monitor configuration and display behavior. There are different ways you can set a substitution, but the preferred way is to use the sl.rtview.sub property.

Substitution	Description
$bw6AppExpirationTime	Specifies the time interval to wait for a response before an application is expired. The default is 600 seconds. Example: **sl.rtview.sub=$bw6AppExpirationTime:600**
$bw6AppExpirationTimeForDelete	Specifies the time interval to wait for a response before deleting an application. The default is 86400 seconds. Example: **sl.rtview.sub=$bw6AppExpirationTimeForDelete:86400**
$bw6ActivityPollInterval	Specifies the time interval to use when subscribing to Hawk for Activity-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bw6ActivityPollInterval:30**
$bw6AppNodePollInterval	Specifies the time interval to use when subscribing to Hawk for AppNode-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bw6AppNodePollInterval:30**
$bw6AppPollInterval	Specifies the time interval to use when subscribing to Hawk for application-related data. The default is 300 seconds. Example: **sl.rtview.sub=$bw6AppPollInterval:300**

$bw6ProcessPollInterval	Specifies the time interval to use when subscribing to Hawk for process-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bw6ProcessPollInterval:30**
$bw6ExpirationTime	Specifies the time interval to wait for a response before a table is expired. The default is 75 seconds. Example: **sl.rtview.sub=$bw6ExpirationTime:75**
$bw6ExpirationTimeForDelete	Specifies the time interval to wait for a response before a table is deleted. The default is 3600 seconds. Example: **sl.rtview.sub=$bw6ExpirationTimeForDelete:3600**
$bwactivityPollInterval	Specifies the time interval to use when subscribing to Hawk for activity-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bwactivityPollInterval:45**
$bwenginePollInterval	Specifies the time interval to use when subscribing to Hawk for engine-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bwprocessPollInterval:45**
$bwprocessFilterPattern **$bwprocessFilterPattern2**	Specifies BW5 process data to include in cache storage and displays. By default, all process data is included. Use one or both of the following properties in the **sample.properties** file to include or exclude processes by name: **collector.sl.rtview.sub=$bwprocessFilterPattern:''** **collector.sl.rtview.sub=$bwprocessFilterPattern2:''** Each property specifies a regular expression which is applied to a process name. If the name matches the pattern 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: **collector.sl.rtview.sub=$bwprocessFilterPattern:'0[3-5]'** data for **process03** to **process05** are stored and displayed. If you set the second property as follows: **collector.sl.rtview.sub=$bwprocessFilterPattern:'0[^4]'** data from **process04** is excluded and you continue getting data from **process03** and **process05**. The Data Server must be restarted for changes to take effect.
$bwprocessPollInterval	Specifies the time interval to use when subscribing to Hawk for process-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bwenginePollInterval:45**

$bwserverPollInterval	Specifies the time interval to use when subscribing to Hawk for server-related data. The default is 30 seconds. Example: **sl.rtview.sub=$bwserverPollInterval:45**
$bwserverExpirationTime	Specifies the amount of time that data updates are not received from a BW Server, in seconds, after which the server is considered expired. The default value is 75. When a BW Server expires, data relating to the BW Server reflects the expired state (heatmap area and table row change color, servers and engines are labeled EXPIRED) in Monitor displays. Expired BW Servers and their associated engines are removed from displays when the relevant Monitor Data Servers are restarted. Example: **sl.rtview.sub=$bwserverExpirationTime:75**

APPENDIX C Alert Definitions

This section describes alerts for TIBCO ActiveMatrix BusinessWorks and their default settings.

Alert	Warning Level	Alarm Level	Duration	Enabled
Bw6AppNodeCpuUsedHigh BW6 AppNode CPU usage exceeded limit. Index Type: PerAppNode Metric: CPU Usage%	50	80	30	FALSE
Bw6AppNodeMemUsedHigh BW6 AppNode memory usage exceeded limit. Index Type: PerAppNode Metric: Memory Usage%	50	80	30	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
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 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 exceeded limit. Memory usage is taken from Memory Used% in the BW Engine table, which is “Percentage of allocated memory currently consumed by this engine from within the JVM.” Index Type: PerEngine Metric: PercentUsed	50	80	30	FALSE
BwEngineStopped BW Engine has stopped running. Index Type: PerEngine Metric: Stopped	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
BwEngineCpuUsedHigh 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: CPU %	50	80	30	FALSE
BwEngineMemUsedHigh 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: PercentUsed	50	80	30	FALSE
BwProcessAvgElapsedTimeHigh BW Process Average Elapsed Time exceeded limit. This is calculated by taking the elapsed time of all process instances over the interval and dividing by the number of instances completed in the interval. Index Type: PerProcess Metric: Process Avg Elapsed Time	100	200	30	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
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
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
BwServerCpuUsedHigh BW Server 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: PerServer Metric: CPU Usage%	60	85	30	FALSE
BwServerFreeMemLow BW Server free memory available 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 $bwserverExpirationTime has passed since data was last received from the server. Index Type: PerServer Metric: Expired	NaN	NaN	30	FALSE
BwServerMemUsedHigh BW Server memory usage exceeded limit. Memory usage is the virtual memory in use expressed as a percentage of the available virtual memory. The meaning of available virtual memory is system-dependent: on Windows it refers to pagefile space; on Unix systems it refers to swap space. Index Type: PerServer Metric: Virtual Memory Used%	50	80	30	FALSE
HawkAlert Display Hawk alerts throughout the Monitor. To enable Hawk Alerts to be included in alert counts and displayed throughout the Monitor, scroll down to **HawkAlert** in the **Active Alert Table** and select the **Alert Enabled** checkbox. It is possible to filter unwanted alerts from the cache data so that those alerts are not included throughout the Monitor. To filter unwanted alerts out of the Hawk cache data, enter the following into the **sample.properties** file (located in the project directory you created). NOTE: Unwanted alerts are filtered out according to the AlertText. **sl.rtview.sub=$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

APPENDIX D Limitations

This section describes Monitor limitations. This section includes:

iPad Safari

- 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.

BW Servers

AIX

- Status will be **LIMITED**.
- CPU Usage, Free Memory and Virtual Memory Usage will not be available.

Engine Status for Business Works 5.7.1

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 E Third Party Notice Requirements

** Apache Tomcat is delivered for convenience only as a separate application and is licensed under the Apache License Version 2.0

** JEval 0.9.4 is licensed under the Apache License Version 2.0

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean thepreferred form for making modifications, including but not limited to softwaresource code, documentation source, and configuration files.

"Object" form shall mean anyform resulting from mechanical transformation or translation of aSource form, including but not limited to compiled object code,generated documentation, and conversions to other media types.

"Work" shall mean the work ofauthorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in orattached to the work (an example is provided in the Appendixbelow)

"Derivative Works" shall meanany work, whether in Source or Object form, that is based on (or derived from)the Work and for which the editorial revisions, annotations,elaborations, or other modifications represent, as a whole, an original workof authorship. For the purposes of this License, Derivative Works shallnot include works that remain separable from, or merely link (or bindby name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean anywork of authorship, including the original version of the Work and anymodifications or additions to that Work or Derivative Worksthereof, that is intentionally submitted to Licensor for inclusion inthe Work by the copyright owner or by an individual or Legal Entityauthorized to submit on behalf of the copyright owner. For the purposes ofthis definition, "submitted" means any form of electronic, verbal, orwritten communication sent to the Licensor or its representatives,including but not limited to communication on electronic mailinglists, source code control systems, and issue tracking systems that aremanaged by, or on behalf of, the Licensor for the purpose of discussingand improving the Work, but excluding communication that isconspicuously marked or otherwise designated in writing by the copyrightowner as "Not a Contribution."

"Contributor" shall meanLicensor and any individual or Legal Entity on behalf of whom a Contribution hasbeen received by Licensor and subsequently incorporated within theWork.

2. Grant of Copyright License. Subject tothe terms and conditions of this License, each Contributor herebygrants to You a perpetual, worldwide, non-exclusive, no-charge,royalty-free, irrevocable copyright license to reproduce, prepareDerivative Works of, publicly display, publicly perform,sublicense, and distribute the Work and such Derivative Works in Sourceor Object form.

3. Grant of Patent License. Subject to theterms and conditions of this License, each Contributor herebygrants to You a perpetual, worldwide, non-exclusive, no-charge,royalty-free, irrevocable (except as stated in this section)patent license to make, have made, use, offer to sell, sell, import, andotherwise transfer the Work, where such license applies only to thosepatent claims licensable by such Contributor that are necessarilyinfringed by their Contribution(s) alone or by combinationof their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against anyentity (including a cross-claim or counterclaim in alawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement,then any patent licenses granted to You under this License forthat Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce anddistribute copies of the Work or Derivative Works thereof in anymedium, with or without modifications, and in Source or Objectform, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof,You may choose to offer, and charge a fee for, acceptance ofsupport, warranty, indemnity, or other liability obligations and/orrights consistent with this License. However, in accepting suchobligations, You may act only on Your own behalf and on Your soleresponsibility, not on behalf of any other Contributor, and only ifYou agree to indemnify, defend, and hold each Contributorharmless for any liability incurred by, or claims asserted against,such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at:

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software distributed under the License isdistributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANYKIND, either express or implied. See the License for the specific languagegoverning permissions and limitations under the License.

==========

**TreeMap Algorithms v1.0 is used without modifications and licensed by MPL Version 1.1. The source for TreeMap Algorithms can be obtained from http://www.cs.umd.edu/hcil/treemap/

MOZILLA PUBLIC LICENSE

Version 1.1

1. Definitions.

1.0.1. "Commercial Use" means distribution or otherwise making the Covered Code available to a third party.

1.1. "Contributor" means each entity that creates or contributes to the creation of Modifications.

1.2. "Contributor Version" means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

1.3. "Covered Code" means the Original Code or Modifications or the combination of the Original Code andModifications, in each case including portions thereof.

1.4. "Electronic Distribution Mechanism" means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.5. "Executable" means Covered Code in any form other than Source Code.

1.6. "Initial Developer" means the individual or entity identified as the Initial Developer in the SourceCode notice required by Exhibit A.

1.7. "Larger Work" means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. "License" means this document.

1.8.1. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. "Modifications" means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

A. Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

B. Any new file that contains anypart of the Original Code or previous Modifications.

1.10. "Original Code" means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. "Patent Claims" means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. "Source Code" means the preferred form of the Covered Code for making modifications to it, including allmodules it contains, plus any associated interface definitionfiles, scripts used to control compilation and installation of anExecutable, or source code differential comparisons against eitherthe Original Code or another well known, available Covered Code of the Contributor's choice.The Source Code can be in a compressed orarchival form, provided the appropriate decompression or de-archivingsoftware is widely available for no charge.

1.12. "You" (or "Your") means an individual or a legal entity exercising rights under, and complyingwith all of the terms of, this License or a future version of thisLicense issued under Section 6.1. For legal entities, "You"includes any entity which controls, is controlled by, or is under common controlwith You. For purposes of this definition, "control"means (a) the power, direct or indirect, to cause the direction or management ofsuch entity, whether by contract or otherwise, or (b) ownershipof more than fifty percent (50%) of the outstanding shares orbeneficial ownership of such entity.

2. Source Code License.

2.1. The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices.

2.2. Contributor Grant.

Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections2.2(a) and 2.2(b) are effective on the date Contributorfirst makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code thatContributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with othersoftware (except as part of the Contributor Version) or otherdevices; or 4) under Patent Claims infringed by Covered Code in theabsence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License,including without limitation Section 2.2. The Source Code version ofCovered Code may be distributed only under the terms of thisLicense or a future version of this License released under Section6.1, and You must include a copy of this License with every copy ofthe Source Code You distribute. You may not offer or imposeany terms on any Source Code version that alters or restricts theapplicable version of this License or the recipients' rightshereunder. However, You may include an additional document offering theadditional rights described in Section 3.5.

3.2. Availability of Source Code.

Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

3.3. Description of Modifications.

You must cause all Covered Code to which You contribute to contain a file documenting the changes You made tocreate that Covered Code and the date of any change. You must includea prominent statement that the Modification is derived, directly orindirectly, from Original Code provided by the Initial Developerand including the name of the Initial Developer in (a) the Source Code,and (b) in any notice in an Executable version or relateddocumentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters

(a) Third Party Claims.

If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.

If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

(c) Representations.

Contributor represents that, exceptas disclosed pursuant to Section 3.4(a) above, Contributorbelieves that Contributor's Modifications are Contributor'soriginal creation(s) and/or Contributor has sufficient rights togrant the rights conveyed by this License.

3.5. Required Notices.

You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.6. Distribution of Executable Versions.

You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have beenmet for that Covered Code, and if You include a notice stating thatthe Source Code version of the Covered Code is available under theterms of this License, including a description of how and whereYou have fulfilled the obligations of Section 3.2. The noticemust be conspicuously included in any notice in an Executable version,related documentation or collateral in which You describerecipients' rights relating to the Covered Code. You may distribute theExecutable version of Covered Code or ownership rights under a licenseof Your choice, which may contain terms different from thisLicense, provided that You are in compliance with the terms of this Licenseand that the license for the Executable version does not attempt tolimit or alter the recipient's rights in the Source Code version fromthe rights set forth in this License. If You distribute the Executableversion under a different license You must make it absolutely clearthat any terms which differ from this License are offered by Youalone, not by the Initial Developer or any Contributor. You herebyagree to indemnify the Initial Developer and every Contributorfor any liability incurred by the Initial Developer or such Contributoras a result of any such terms You offer.

3.7. Larger Works.

You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.

If it is impossible for You to comply with any of the terms of this License with respect to some or all ofthe Covered Code due to statute, judicial order, or regulationthen You must: (a) comply with the terms of this License to the maximumextent possible; and (b) describe the limitations and the codethey affect. Such description must be included in the LEGAL filedescribed in Section 3.4 and must be included with all distributions of theSource Code. Except to the extent prohibited by statute orregulation, such description must be sufficiently detailed for a recipient ofordinary skill to be able to understand it.

5. Application of this License.

This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

6. Versions of the License.

6.1. New Versions.

Netscape Communications Corporation ("Netscape") may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions.

Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms ofthat version. You may also choose to use suchCovered Code under the terms of any subsequent version of the Licensepublished by Netscape. No one other than Netscape has the right tomodify the terms applicable to Covered Code created under this License.

6.3. Derivative Works.

If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a)rename Your license so that the phrases "Mozilla","MOZILLAPL", "MOZPL", "Netscape", "MPL", "NPL" or anyconfusingly similar phrase do not appear in your license (except to note that your licensediffers from this License) and (b) otherwise make it clear that Yourversion of the license contains terms which differ from theMozilla Public License and Netscape Public License. (Filling in thename of the Initial Developer, Original Code or Contributorin the notice described in Exhibit A shall not of themselves bedeemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.

COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply withterms herein and fail to cure such breach within 30 days of becomingaware of the breach. All sublicenses to the Covered Code which areproperly granted shall survive any termination of this License.Provisions which, by their nature, must remain in effect beyond thetermination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declatory judgment actions) against Initial Developer or a Contributor (the Initial Developeror Contributor against whom You file such action is referred to as"Participant") alleging that:

(a) such Participant's Contributor Version directly or indirectly infringes any patent, then any and allrights granted by such Participant to You under Sections 2.1and/or 2.2 of this License shall, upon 60 days notice fromParticipant terminate prospectively, unless if within 60 days after receipt ofnotice You either: (I) agree in writing to pay Participant amutually agreeable reasonable royalty for Your past and future use ofModifications made by such Participant, or (ii) withdraw Yourlitigation claim with respect to the Contributor Version against suchParticipant. If within 60 days of notice, a reasonable royalty andpayment arrangement are not mutually agreed upon in writing by theparties or the litigation claim is not withdrawn, the rights granted byParticipant to You under Sections 2.1 and/or 2.2 automaticallyterminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant's Contributor Version, directly orindirectly infringes any patent, then any rights granted to You by suchParticipant under Sections 2.1(b) and 2.2(b) are revoked effective as ofthe date You first made, used, sold, distributed, or had made,Modifications made by that Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent wheresuch claim is resolved (such as by license or settlement) prior to theinitiation of patent infringement litigation, then thereasonable value of the licenses granted by such Participant underSections 2.1 or 2.2 shall be taken into account in determining the amount orvalue of any payment or license.

8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

10. U.S. GOVERNMENT END USERS.

The Covered Code is a "commercial item," as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consistingof "commercial computer software" and "commercialcomputer software documentation," as such terms are used in 48 C.F.R. 12.212 (Sept.1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1through 227.7202-4 (June 1995), all U.S. Government End Users acquireCovered Code with only those rights set forth herein.

11. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of thisLicense is held to be unenforceable, such provision shall bereformed only to the extent necessary to make it enforceable. ThisLicense shall be governed by California law provisions (except to theextent applicable law, if any, provides otherwise), excluding itsconflict-of-law provisions. With respect to disputes in which atleast one party is a citizen of, or an entity chartered or registered todo business in the United States of America, any litigationrelating to this License shall be subject to the jurisdiction of theFederal Courts of the Northern District of California, with venue lyingin Santa Clara County, California, with the losing partyresponsible for costs, including without limitation, court costs andreasonable attorneys' fees and expenses. The application of the UnitedNations Convention on Contracts for the International Sale ofGoods is expressly excluded. Any law or regulation which provides thatthe language of a contract shall be construed against the draftershall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

13. MULTIPLE-LICENSED CODE.

Initial Developer may designate portions of the Covered Code as "Multiple-Licensed". "Multiple-Licensed" means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the NPL or the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

EXHIBIT A -Mozilla Public License.

``The contents of this file are subject to the Mozilla Public License Version 1.1 (the "License");you may not use this file except in compliance with the License. You mayobtain a copy of the License at http://www.mozilla.org/MPL/

Software distributed under the License is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governingrights and limitations under the License.

The Original Code is _____.

The Initial Developer of the Original Code is _____.

Portions created by _____ are Copyright (C) _____ _____. All Rights Reserved.

Contributor(s): _____.

Alternatively, the contents of this file may be used under the terms of the _____ license (the "[___] License"), in which case the provisions of [_____] License are applicable instead of those above. If you wish to allow use of your version of this file only under the terms of the [____] License and not to allow others to use your version of this file under the MPL, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the [___] License. If you do not delete the provisions above, a recipient may use your version of this file under either the MPL or the [___] License."

[NOTE: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original Code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

==========

**MD Datejs

Copyright © 2006-2010 Coolite Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to dealin the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE ANDNONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THESOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

==========

**JQuery

Copyright © 2009 John Resig

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE ANDNONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLEFOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OFCONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THESOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

==========

** JCalendar 1.3.2

This product uses JCalendar 1.3.2. JCalendar is distributed pursuant to the terms of the Lesser General Public License. The source code for the JCalendar may be obtained from http:// www.toedter.com/en/jcalendar/index.html

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

Copyright (C) 1991, 1999 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

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.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

one line to give the library's name and an idea of what it does.

Copyright (C) year name of author

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public

License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

signature of Ty Coon, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!