

RTView Datasource - JMX

JMX – Installation

Proper setup of RTView for JMX may require that the following environmental variables are defined:

RTV_USERPATH = jmx jars for the application to be monitored.

For example:

To monitor weblogic 10, the following jars need to be assigned:

RTV_USERPATH=wfullclient.jar, webserviceclient.jar

JMX – Configuration

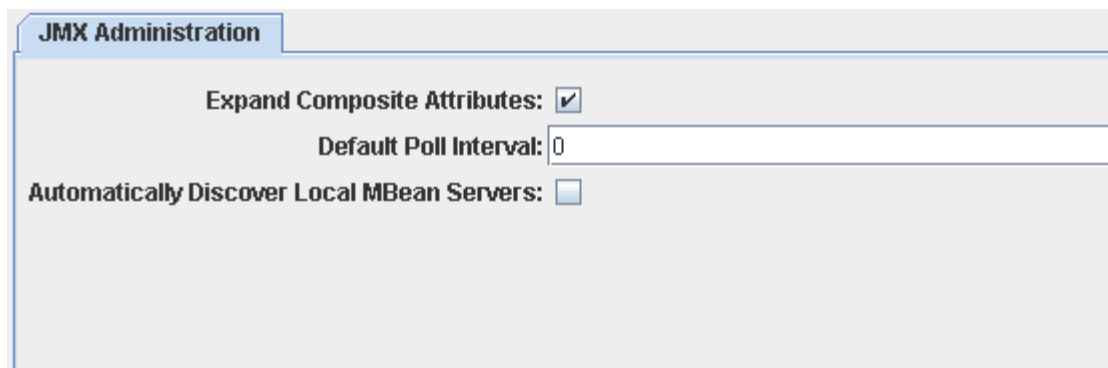
To configure, select Tools->Options>JMX

There are two Application Options tabs for JMX: JMX Administration and JMX Connections.

JMX Administration

Expand Composite Attributes: Select to expand composite attributes so that you display one column for each item when a composite attribute is displayed in a table with other attributes.
The column name will be *compositename.itemname*.

- **Default Poll Interval:** Enter the time in milliseconds to control how often MBean attributes are polled or operations in data attachments are executed if no Poll Interval is specified in the data attachment. Default is 0, which polls MBean attributes and operations according to the General Update Period specified in Application Options on the General tab.



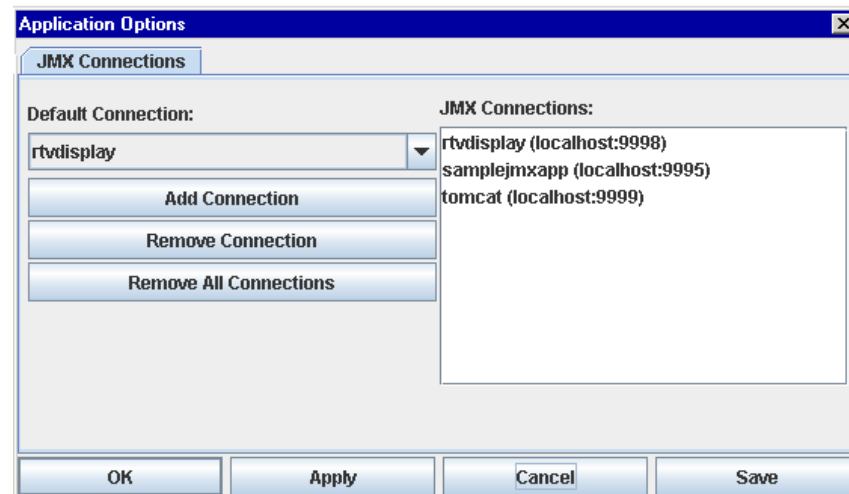
The screenshot shows a dialog box titled "JMX Administration". It contains three configuration options:

- Expand Composite Attributes:** A checkbox that is checked.
- Default Poll Interval:** A text input field containing the value "0".
- Automatically Discover Local MBean Servers:** A checkbox that is unchecked.

JMX - Configuration

JMX Connections

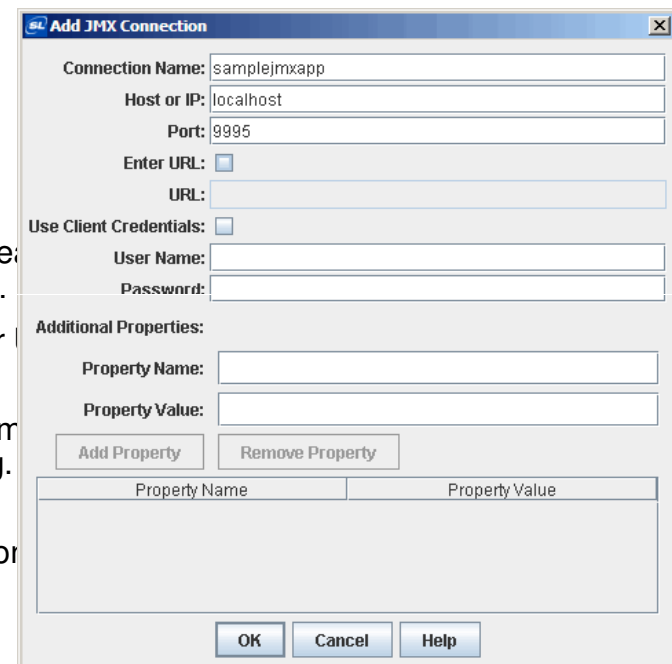
- Default Connection: Name of connection used as the default for data attachments. Select from drop down menu to change default setting.
- Add Connection: Click to open the Add JMX Connection dialog. To edit, select a connection from the JMX Connections list and double-click.
- Remove Connection: Select a connection from the list and click Remove Connection to delete.
- Remove All Connections: Removes all connections.



JMX – Configuration

JMX Connection dialog

- Connection Name: Name to use when referencing this JMX connection in your data attachments.
- Host or IP: Host name or IP address of the MBean server.
- Port: Port that your JMX instrumented application is using to expose MBean methods.
- Enter URL: Select to enter the URL (below) that should be used to create this connection. The Host and Port specified will be used to construct a URL for this connection.
- URL: URL that should be used to create this connection. Select Enter URL to create a local connection to an in-process MBean server.
- Use Client Credentials: If selected, the User Name and Password from the Add JMX Connection dialog will be used when you are running with login enabled.
- User Name (optional): User name to use when creating this connection.
- Password (optional): Password to use when creating this connection.



The screenshot shows the 'Add JMX Connection' dialog box with the following fields and options:

- Connection Name: samplejmxapp
- Host or IP: localhost
- Port: 9995
- Enter URL:
- URL: (empty field)
- Use Client Credentials:
- User Name: (empty field)
- Password: (empty field)
- Additional Properties:
 - Property Name: (empty field)
 - Property Value: (empty field)
 - Buttons: Add Property, Remove Property
 - Table:

Property Name	Property Value
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Buttons at the bottom: OK, Cancel, Help

JMX - Configuration

For example, to connect to Oracle Weblogic 10

URL:

`service:jmx:iiop://hostname:port/jndi/weblogic.management.mbeanservers.domainruntime`

Username: <username>

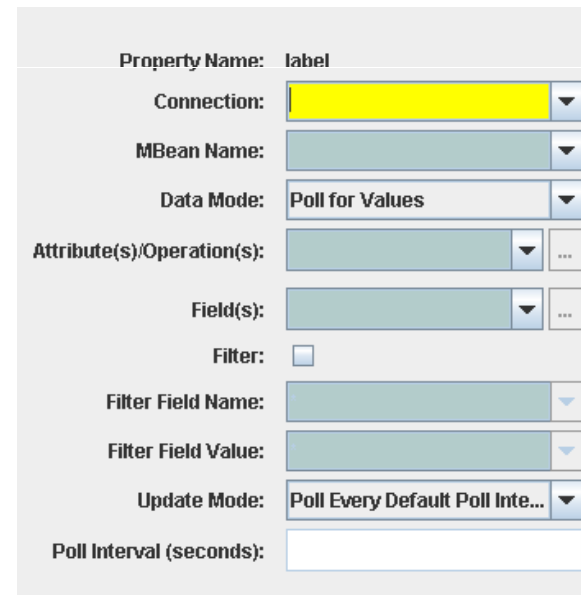
Password: <passwd>

Property Name: `jmx.remote.protocol.provider.pkgs`

Property Value: `weblogic.management.remote`

JMX – Data Attachment

- Connection: Connection name.
- MBean Name: Name of the MBean containing the method to execute.
- Data Mode: Poll for Values or Listen for Notifications
- Attribute(s)/Operation(s): Name of the attribute or operation to execute. If the attribute or operation you select requires arguments, then the dialog will populate with a text field for each argument. The values entered in these argument fields are not validated.
- Field(s): Name of the items to display from the selected attribute or operation. This field is not required if a single simple attribute is selected from Attribute(s)/Operation(s).
- Filter: Select this checkbox to filter the MBean method result.
- Filter Field Name: MBean method field to use as filter.
- Filter Field Value: Value that the filter field must equal.
- Update Mode: If Data Mode selected is Poll for Values, the following options are available: Poll Once, Poll Every Default Poll Interval, Poll Every Poll Interval, and Poll On Demand



The screenshot shows a dialog box for configuring JMX data attachment. It contains the following fields and controls:

- Property Name:** label
- Connection:** dropdown menu (highlighted in yellow)
- MBean Name:** dropdown menu
- Data Mode:** dropdown menu (set to "Poll for Values")
- Attribute(s)/Operation(s):** dropdown menu with a "..." button
- Field(s):** dropdown menu with a "..." button
- Filter:** checkbox (unchecked)
- Filter Field Name:** dropdown menu
- Filter Field Value:** dropdown menu
- Update Mode:** dropdown menu (set to "Poll Every Default Poll Inte...")
- Poll Interval (seconds):** text input field

JMX – Data Attachment and Debugging

- Poll Interval: Enter the time (in seconds) to poll for data. This option is only available if the Update Mode selected is Poll Every Poll Interval.

NOTE: Because the Poll Interval is superseded by the General Update Period, the amount of time elapsed between MBean polls may be longer than the value entered. For example, if the General Update Period is 2 seconds and the Poll Interval is 5 seconds, MBean attributes and operations will be polled every six seconds.

Debugging Flags

-jmxtrace:N shows jmx errors and mbean information and update times

where N=1,...8

Exercises

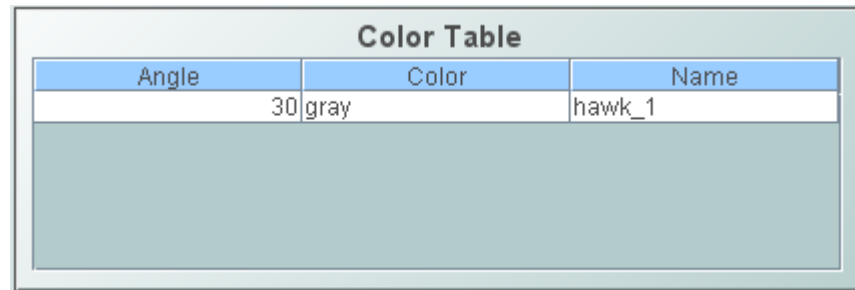
Ex 1: Using the builder, create a JMX connection on port 9995

1. Start the sample JMX application from the program menu:
Start->RTView->Demos->JMX Monitor->Sample JMX Application
2. From the builder, select Tools->Options>JMX
3. Select the JMX Administration tab
4. Set Default Poll Interval to 1000
5. Select the JMX Connections tab
6. Create a connection named samplejmxapp on localhost at port 9995
7. Verify that the builder can establish the connection.

Exercises

Ex 2: Attach a table to an MBean from each of the JMX connections created in Ex 1

1. Perform the steps in Ex 1
2. Add a table object to the display
3. Set the Label property to “Color Table”
4. Under the Column category, click the check box that enables autoResizeFlag
5. Under the Data category, right click the property name field for Data and select Attach to Data>JMX
6. Set Connection to samplejmxapp
7. Set MBean Name to SampleJmxApp:name=Manager
8. Set Method(s)/Attributes(s) to AllData
9. Set Field(s) to *
10. Click Apply, then OK
11. The table should look similar to the example on this page
12. Add hawks and gulls. Change their colors and observe that the table changes to reflect the actions performed in the application.



Color Table		
Angle	Color	Name
30	gray	hawk_1

RTView Debugging Options for Data Sources

Data Source	Configuration Files	Debug flag	Metadata tables
SQL	OPTIONS.ini	-sqltime, -sqltrace	RTViewDs>Keys>* RTViewDs>Connections>*
Hawk	HAWKOPTIONS.ini	-dstrace:N (N=1,...5)	
RV	RVOPTIONS.ini RVALIAS.ini TRANSPORTS.ini	-rvdstrace:N	
JMX	JMXOPTIONS.ini	-jmxdstrace:N (N=1,...8)	
JMS Admin	JMSADMOPTIONS.ini, servers.xml	-jmsadmverbose -jmsadmdstrace:N	
JMS	JMSOPTIONS.ini JMSALIAS.ini,	-jmsdstrace:N	
Data Server	DATASERVER.ini	-verbose -verbose2 (which shows specific byte transfer rates per data connection)	Function (Get Dataserver Status) JMX Mbeans – for dataserver jvm metrics

RTView Debugging Options for Components

Data Source	Configuration Files	Debug flag	Metadata tables
Data Server	DATASERVER.ini	-verbose -verbose2 (which shows specific byte transfer rates per data connection)	Function (Get Dataserver Status) JMX Mbeans – for dataserver jvm metrics
Display Server	DISPLAYSERVER.ini	-verbose	JMX Mbeans – for displayserver jvm metrics
Historian	HISTORY.ini	-verbose	JMX Mbeans – for historian jvm metrics