Monitoring Java EE Components in Oracle® Java CAPS

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Contents

Monitoring Java EE Components

The topics listed here provide information about how to monitor Java Platform, Enterprise Edition (Java EE platform) components in Oracle Java Composite Application Platform Suite (Java CAPS) Repository-based projects at runtime.

Enterprise Manager Basics

Enterprise Manager is a web-based interface with which you can manage running Java CAPS applications for both the Java Platform, Enterprise Edition (Java EE platform) and the Schema Runtime Environment (SRE). For information about supported browsers for accessing Enterprise Manager, see "Java CAPS 6.3 System Requirements" in *Planning for Oracle Java CAPS 6.3 Installation* .

Enterprise Manager contains an Explorer panel on the left and a Details panel on the right. Java EE platform applications and SRE applications appear in different branches of the Explorer panel.
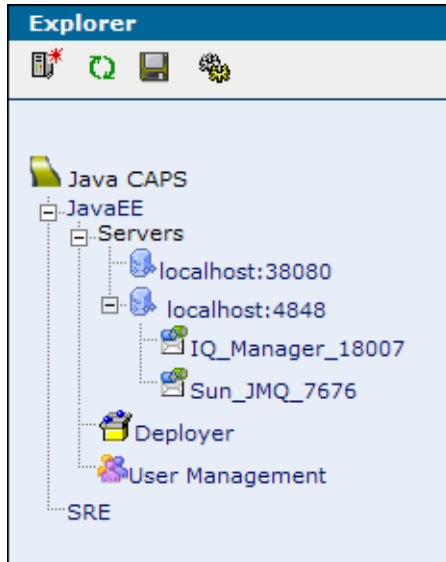
Enterprise Manager also includes a command-line client.

Starting the Enterprise Manager Server

Before users can log in to Enterprise Manager, you must start the server component.

▼ To Start the Enterprise Manager Server

1 Run the `start_emanager` script in the `JavaCAPS-install-dir` directory.

2 Wait for an INFO message that indicates the startup time in milliseconds. For example:

```
INFO: Server startup in 130006 ms
```

On UNIX platforms, this message appears in the `catalina.out` file in the `JavaCAPS-install-dir/emanager/server/logs` directory. On Windows platforms, this message appears in the command-line window.

Logging In to Enterprise Manager

Users log in to Enterprise Manager from a browser. For detailed information about Enterprise Manager user names and passwords, see *Managing Java CAPS Users*.

This procedure assumes that the Enterprise Manager server has been started.

▼ **To Log In to Enterprise Manager**

1   In a supported browser, enter the following URL:

`http://hostname:portnumber/`

Set the hostname to the TCP/IP host name or IP address of the server where Enterprise Manager is installed. Set the port number to the port number that was specified during the installation of Enterprise Manager. For example:

`http://myserver.company.com:15000/`

The Enterprise Manager Security Gateway screen appears.

2   In the User ID field, enter an Enterprise Manager user name.

3   In the Password field, enter the corresponding password.

4   Click Login.

Adding an Application Server Domain to Enterprise Manager

In order to manage a GlassFish Application Server domain in Enterprise Manager, you must first add the domain.

▼ **To Add an Application Server Domain to Enterprise Manager**

1   In the Explorer panel of Enterprise Manager, click the Java EE node.

The Manage Servers tab appears.

2   Enter the connection information.

Field	Description
Server Type	The type of application server. Set this field to Sun Java System Application Server Domain.
Host Name	The fully qualified host name (for example, myhost.company.com) or IP address of the computer on which the application server is running.
HTTP Administration Port	The port number of the Domain Administration Server. The default port number is 4848.
User Name	The user name required to access the domain.

Field	Description
Password	The password required to access the domain.

3   **Click Connect to Server.**

The application server domain is added to the Current Application Server List table.

Current Application Server List						
Server Type	**Host Name**	**HTTP Administration Port**	**HTTP Instance Port**	**Server Instance Name**	**Server Status**	**Available Actions**
Sun Java System Application Server Domain (9.1)	localhost	4848	N/A	server	Running	Remove

Adding an Application Server Instance to Enterprise Manager

In order to manage a GlassFish Application Server *instance* in Enterprise Manager, you must first add the instance. Managing instances is more limited than managing domains.

- You cannot deploy, undeploy, enable, or disable projects for an instance.
- The message server nodes (for example, IQ_Manager_18007 and Sun_JMQ_7676) do not appear in the Explorer panel of Enterprise Manager.
- The instance can receive alerts only if the corresponding domain has been added to Enterprise Manager.
- When you add the instance to Enterprise Manager, authentication is not performed.

▼ To Perform Prerequisite Steps on the Application Server

Before You Begin   In this procedure, you manage targets for the SeeBeyondSunOneDeployer web application and the logging connector module. These components are part of the Java CAPS runtime. The default application server domain includes the runtime. Any additional domains that you create do not include the runtime. Follow the steps in*Installing Oracle Java CAPS Domains and Runtime Components* to manually install the runtime on any additional domains.

1   **Log in to the GlassFish Application Server Admin Console.**

The URL is http://*hostname:port*. The default port number is 4848.

2   **In the left pane, expand Web Applications and select SeeBeyondSunOneDeployer.**

3   **Click the Target tab.**

4   **Click Manage Targets, add the instance to the Selected Targets list, and click OK.**

5   **In the left pane, expand the Connector Modules node and select the logging node.**

6   Click the Target tab.

7   Click Manage Targets, add the instance to the Selected Targets list, and click OK.

8   Go to the `asadmin` tool.

9   Stop and restart the instance.

▼   **To Add an Application Server Instance to Enterprise Manager**

1   In the Explorer panel of Enterprise Manager, click the Java EE node.

The Manage Servers tab appears.

2   Enter the connection information.

Field	Description
Server Type	The type of application server. Set this field to GlassFish Application Server Instance.
Host Name	The fully qualified host name (for example, myhost.company.com) or IP address of the computer on which the application server is running.
HTTP Instance Port	The port number of the HTTP port that the instance is using.
Server Instance Name	The name of the instance.

3   Click Connect to Server.

The application server instance is added to the Current Application Server List table.

Current Application Server List

Server Type	Host Name	HTTP Administration Port	HTTP Instance Port	Server Instance Name	Server Status	Available Actions
Sun Java System Application Server Instance (9.1)	localhost	N/A	38080	instance1	Running	Remove
Sun Java System Application Server Domain (9.1)	localhost	4848	N/A	server	Running	Remove

Using the Connectivity Map Controls

When you select a Connectivity Map node in the Explorer panel of Enterprise Manager, the actual Connectivity Map appears in the Details panel.
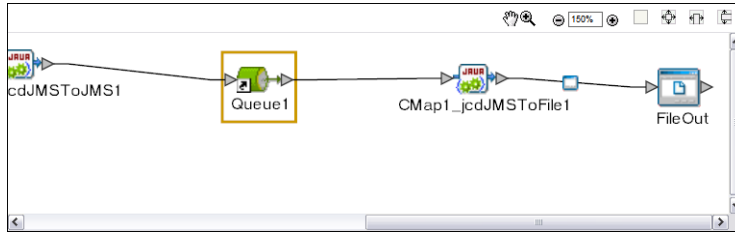
You can adjust the position of the Connectivity Map, and you can zoom in and out. In order to perform these tasks, you must enable the Zoom and Pan icon. The Zoom and Pan appears on the left of the toolbar. By default, the icon is disabled. To enable the icon, click the icon.

If you are using Internet Explorer, then you must install the SVG Viewer in order for the zoom functionality to work correctly. Follow the steps in the Java CAPS installation documentation to upload the `Enterprise_Manager_SVGPlugin-win32.sar` file to the Repository. Then download the executable file to the computer where the browser is located. Run the executable file to install the SVG Viewer.

The 100%, Fit All, Fit Width, and Fit Height icons provide the following functionality:

- The 100% icon sets the zoom percentage to 100.
- The Fit All icon sets the width and height of the Connectivity Map to the width and height of the upper Details panel.
- The Fit Width icon sets the width of the Connectivity Map to the width of the upper Details panel.
- The Fit Height icon sets the height of the Connectivity Map to the height of the upper Details panel.

▼ To Adjust the Position of the Connectivity Map

1 Press the Alt key.

Your cursor becomes a hand symbol.

2 Click the Connectivity Map and move it to the desired position.

▼ **To Zoom In on the Connectivity Map**

● **Click the Zoom In icon.**

▼ **To Zoom Out from the Connectivity Map**

● **Click the Zoom Out icon.**

▼ **To Specify an Exact Zoom Percentage**

● **Enter a whole number in the field between the Zoom Out and Zoom In icons.**

Stopping the Enterprise Manager Server

You use a script to stop the server component of Enterprise Manager.

▼ **To Stop the Enterprise Manager Server**

● **Run the `stop_emanager` script in the `JavaCAPS-install-dir` directory.**

Monitoring Application Servers

Enterprise Manager enables you to monitor application servers at runtime. You can perform the following tasks:

- View basic information
- View summary information
- Stop application server domains
- Monitor logs and alerts

For information about monitoring logs, see "Monitoring Logs" on page 19. For information about monitoring alerts, see "Monitoring Alerts" on page 22.

For basic information about Enterprise Manager, see "Enterprise Manager Basics" on page 5.

Viewing Basic Information About an Application Server

You can view basic information about an application server from Enterprise Manager.

To View Basic Information About an Application Server

1 **In the Explorer panel of Enterprise Manager, select the application server.**

The Status tab appears.

2 **View the information.**

The HostAndPort row displays the computer name and administrative port on which the application server is running.

The System row indicates whether the application server is located in the Java EE or SRE portion of the Explorer panel.

The Component row displays the hierarchy of the application server in the Explorer panel.

The State row specifies the current status of the application server. The valid values are Up and Down.

The RestartRequired row is set to true when you must restart the application server because of configuration changes.

Viewing Summary Information For an Application Server

You can view summary information for an application server from Enterprise Manager.

To View Summary Information for an Application Server

1 **In the Explorer panel of Enterprise Manager, select the application server.**

2 **Click the Summary tab.**

The Summary tab displays icons for the Connectivity Map components and message servers that are running in the domain.

Stopping Application Server Domains

You can stop an application server domain from Enterprise Manager.

Note – You cannot stop an application server instance from Enterprise Manager. Furthermore, you cannot start an application server domain or an application server instance from Enterprise Manager.

▼ To Stop an Application Server Domain

1 **In the Explorer panel of Enterprise Manager, select the application server domain.**

2 **Click Stop.**

Hiding, Showing, and Removing Application Servers

You can hide, show, and remove application servers in the Explorer panel of Enterprise Manager.

▼ To Hide an Application Server

● **In the Explorer panel of Enterprise Manager, right-click the application server and click Hide.**
The server is hidden.

▼ To Make All of the Hidden Application Servers Reappear

● **In the Explorer panel of Enterprise Manager, right-click the Servers node and click Show All Servers.**
The hidden server or servers reappear.

▼ To Maintain the Current Configuration of Hidden and Displayed Application Servers Between Enterprise Manager Sessions

● **In the Explorer panel of Enterprise Manager, click the Save Current User Preferences icon.**

> **Note –** If you change the configuration and you attempt to log out without saving the preferences, then Enterprise Manager displays a prompt that enables you to save the preferences.

▼ To Remove an Application Server

Before You Begin   You must be an Enterprise Manager user that has the Manager role.

1   **In the Explorer panel of Enterprise Manager, right-click the application server and click Remove.**

2   **When prompted to confirm, click OK.**

The server is removed.

Monitoring Collaborations

Enterprise Manager enables you to monitor Collaborations at runtime. You can perform the following tasks:

- View basic information
- View consumption information
- View summary information
- Stop and restart Collaborations
- Monitor logs and alerts

For information about monitoring logs, see "Monitoring Logs" on page 19. For information about monitoring alerts, see "Monitoring Alerts" on page 22. For basic information about Enterprise Manager, see "Enterprise Manager Basics" on page 5.

Viewing Basic Information About a Collaboration

You can view basic information about a Collaboration from Enterprise Manager.

▼ To View Basic Information About a Collaboration

1   In the Explorer panel of Enterprise Manager, select the Collaboration.

Note – If the Connectivity Map is displayed in the Details panel, you can select the Collaboration in the Connectivity Map.

The Status tab appears.

2   View the information.

The HostAndPort row displays the computer name and administrative port on which the Collaboration is running.

The System row indicates whether the Collaboration is located in the Java EE or SRE portion of the Explorer panel.

The Component row displays the hierarchy of the Collaboration in the Explorer panel.

The State row specifies the current status of the Collaboration.

The Since row indicates when the current status began.

The Type row indicates the category of Collaboration (for example, JCE Collaboration).

If the Collaboration subscribes to a topic, then the Subscriber row lists the subscriber name used by the Collaboration.

The Processed row lists the number of messages that the Collaboration has processed.

If the input to the Collaboration is a topic or queue, then the Waiting row lists the number of messages that are waiting to be processed by the Collaboration.

Viewing Consumption Information For a Collaboration

You can view statistics about the consumption of messages by a Collaboration.

▼ To View Consumption Information For a Collaboration

1 **In the Explorer panel of Enterprise Manager, select the Collaboration.**

Note – If the Connectivity Map is displayed in the Details panel, you can select the Collaboration in the Connectivity Map.

2 **Click the Consumption tab.**

The Waiting To Be Processed graphic lists the number of messages that are waiting to be processed by the Collaboration. This graphic appears only if the input to the Collaboration is a topic or queue.

The Processed By Collaboration graphic lists the number of messages that the Collaboration has processed.

Viewing Summary Information For a Collaboration

You can view summary information for a Collaboration.

▼ To View Summary Information For a Collaboration

1 **In the Explorer panel of Enterprise Manager, select the Collaboration.**

2 **Click the Summary tab.**

The Summary tab displays icons for the Connectivity Map components and JMS IQ Managers that are running in the domain.

Stopping and Restarting Collaborations

You can stop and restart Collaborations from Enterprise Manager.

▼ To Stop a Collaboration

1 **In the Explorer panel of Enterprise Manager, select the Collaboration.**

2 **Click Stop.**

▼ To Restart a Collaboration

1 **In the Explorer panel of Enterprise Manager, select the Collaboration.**

2 **Click Restart.**
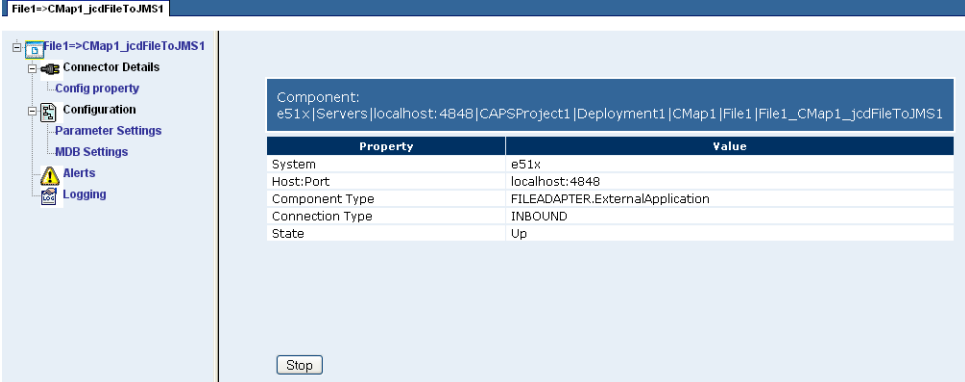
Monitoring Adapters

Enterprise Manager lets you display information about Adapters, as well as start or stop inbound Adapters.

Before you begin, ensure that the relevant Enterprise Manager plug-ins have been added for the Adapters that you want to monitor. The available plug-ins appear in the Downloads page of the Java CAPS Uploader. However, you install the plug-ins from Enterprise Manager. For detailed information about how to install the plug-ins, see *Using Oracle Java CAPS Enterprise Manager Management Applications*.

Displaying Information About an Adapter

Enterprise Manager contains a framework for displaying read-only information about Adapters.

▼ To Display Information About an Adapter

1 **In the Explorer panel of Enterprise Manager, expand the nodes of the application server and then select the Adapter.**

> **Note –** If the Connectivity Map is displayed in the Details panel, you can select the Adapter in the Connectivity Map.

The Details panel contains a tree component on the left.

2 Click a node in the tree to display information for that node.

3 The top node contains the properties described in the following table.

Property	Description
System	Indicates whether the Adapter is located in the Java EE or SRE portion of the Explorer panel.
Host:Port	The URL of the server in which the Adapter is deployed.
Component Type	An internal term for the Adapter.
Connection Type	Indicates whether the Adapter is being used in inbound or outbound mode.
State	Indicates whether the Adapter is started or stopped.

4 The Config Property node (under the Connector Details node) contains the properties described in the following table.

Property	Description
EwayResourceAdapterMBeanName	The name of the managed bean for the Adapter.
EwayName	The name of the Adapter.
EwayDescription	A brief description of the Adapter.
EwayVersion	The version number of the Adapter.
SupportedModes	A value of Inbound means that the Adapter supports receiving events from the external system by polling or listening. This is the server mode.
	A value of Outbound means that the Adapter supports client mode (that is, the client is an external system).
	A value of Inbound_Outbound means that the Adapter supports both inbound and outbound modes.

5 The properties of the nodes under the Configuration node are specific to each Adapter. The developer sets the values from the IDE.

6 For information about the Alerts node, see "Monitoring Alerts" on page 22.

7   For information about the Logging node, see .

Stopping and Starting Inbound Adapters

When you stop an inbound Adapter, the Adapter remains deployed. However, the Adapter is suspended until you start it again.

You cannot stop and start outbound Adapters.

▼ To Stop an Inbound Adapter

1   In the Explorer panel of Enterprise Manager, select a Connectivity Map.

2   In the Details panel of Enterprise Manager, click the External Application.

3   Click Stop.

▼ To Start an Inbound Adapter

1   In the Explorer panel of Enterprise Manager, select a Connectivity Map.

2   In the Details panel of Enterprise Manager, click the External Application.

3   Click Start.

Monitoring Logs

Enterprise Manager enables you to view the log files for the following components:

- GlassFish Application Server
- Java System Message Queue
- Java CAPS JMS IQ Manager
- Oracle Advanced Queue (if installed)
- WebLogic JMS (if installed)

Viewing the Application Server Log File

Enterprise Manager enables you to view the server log file for the GlassFish Application Server.

```
 Status   Summary   Logging   Alerts  Component: e51x|Servers|localhost:4848

 Log level: all  ▼   Regexp Filter: .*                              Lines/Page: 500 ▼  🔍 🔄
 Select page:  ◀◀  ◀   ▶   ▶▶
     Search on page for:                                         🔍 🔍 🔄

 73
 74 [#|2007-11-29T12:36:51.628-0800|INFO|sun-appserver9.1|javax.enterprise.system.tools.admin|_ThreadID=10;
 75
 76 [#|2007-11-29T12:36:53.451-0800|INFO|sun-appserver9.1|javax.enterprise.system.tools.admin|_ThreadID=12;
 77
 78 [#|2007-11-29T12:36:53.451-0800|INFO|sun-appserver9.1|javax.enterprise.system.tools.admin|_ThreadID=12;
 79
 80 [#|2007-11-29T12:36:53.461-0800|INFO|sun-appserver9.1|javax.enterprise.system.tools.deployment|_ThreadI
 81
```

▼ To View the Application Server Log File

1   In the Explorer panel of Enterprise Manager, select an application server, Collaboration, or Adapter.

2   Click the Logging tab or node.

The application server log file appears.

3   To filter the log messages for a specific log level and above, change the setting of the Log Level drop-down list and click the Search icon.

For example, if you select the WARNING log level, then Enterprise Manager displays any WARNING and SEVERE log messages.

4   To perform a regular expression search, use the Regexp Filter field.

The search is case sensitive.

You can enter multiple filters by using an ampersand (&). Here are two examples:

```
INFO & MBean
Project1 & Service1
```

5   To change the number of lines that appear in each page, change the setting of the Lines/Page drop-down list and click the Search icon.

6   To open the log messages in a new window, click the Detach Window icon.

7   To search for a string in the log file, enter a string in the Search On Page For field and click the Find On a Page or Find All On a Page icon.

The string must be at least three characters.

The Clear Results icon enables you to remove the highlighting of the search results.

Viewing the Message Server Log File

Enterprise Manager enables you to view the log file for Java System Message Queue and Java CAPS JMS IQ Manager.

▼ To View the Message Server Log File

1 **In the Explorer panel of Enterprise Manager, select the message server node (for example, IQ_Manager_18007, Sun_JMQ_7676, OracleAQ_*AQ_Name*, or WebLogicMQ_*WebLogicJMS_Name*).**

2 **Click the Logging tab.**

The log file appears.

3 **To filter the log messages for a specific log level and above, change the setting of the Log Level drop-down list and click the Search icon.**

For example, if you select the WARNING log level, then Enterprise Manager displays any WARNING and SEVERE log messages.

4 **To perform a regular expression search, use the Regexp Filter field.**

The search is case sensitive. You can enter multiple filters by using an ampersand (&). Here are two examples:

```
INFO & MBean
Project1 & Service1
```

5 **To change the number of lines that appear in each page, change the setting of the Lines/Page drop-down list and click the Search icon.**

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The string must be at least three characters.

The Clear Results icon lets you remove the highlighting of the search results.

Monitoring Alerts

Enterprise Manager enables you to monitor alerts at runtime. You can perform the following tasks:

- View alerts
- Filter alerts
- Delete alerts

Java CAPS provides an Alert Management API. For detailed information about the Alert Management API, see *Oracle Java CAPS Management and Monitoring APIs*.

Alerts Overview

An alert is triggered when a specified condition occurs in a Project component. The condition might represent a problem that must be corrected, or the condition might be informational.

The following table lists the predefined alerts for Java CAPS Enterprise Service Bus. Each predefined alert is identified by a code, such as `COL-00001`. The alert also includes a description, such as `Collaboration running`.

TABLE 1 Predefined Alerts for Java CAPS Enterprise Service Bus

Code	Description	Recommended Action
COL-00001	The Collaboration is running.	This alert does not indicate any malfunction. No user actions are necessary.
COL-00002	The Collaboration stopped.	No recommended action.
COL-00003	Collaboration user-defined alert	The recommended action depends on the purpose of the user-defined alert.
MS-00009	The Message Server has reached the throttling threshold of total number of messages.	For topics, you must wait for the subscribers to consume more messages. In the meantime, stop attempting to deliver messages to the JMS IQ Manager. For queues, you must wait for the receivers to consume more messages. In addition, you can try adding receivers to improve the throughput. If you can stop the runtime application and restart the application server, then increase the server throttling threshold.
MS-00010	The Message Server has moved below the throttling threshold of total number of messages.	No recommended action.

TABLE 1	Predefined Alerts for Java CAPS Enterprise Service Bus	*(Continued)*
Code	**Description**	**Recommended Action**
MS-00011	The Message Server has reached the throttling threshold for message destinations.	No recommended action.
MS-00012	The Message Server has moved below the throttling threshold for message destinations.	No recommended action.

To view information about the predefined alerts for Adapters, see *Alert Codes for Oracle Java CAPS Adapters*. Project developers can add custom alerts.

The initial status of an alert is Unobserved. You can change the status to Observed or Resolved. Observed indicates that you looked at and acknowledged the alert. Resolved indicates that you fixed the problem that caused the alert.

By default, alerts are not persisted to an external database. For information about configuring persistence, see "Configuring Alert Persistence" on page 26.

Viewing Alerts

You can view alerts at runtime. In addition, you can change the status of an alert.

▼ To View Alerts

1 In the Explorer panel of Enterprise Manager, select an application server, project component, or message server.

2 Click the Alerts tab or node.

The alerts for the selected component appear. The summary row below the tabs displays the total number of alerts for each alert type (Fatal, Critical, Major, Minor, Warning, and Info). The toolbar appears below the summary row.

3 By default, the alerts are sorted by date/time in reverse chronological order. To sort the alerts by different criteria, click the up/down arrows in the desired column.

4 To select all of the alerts, click the Select All icon.

5 To deselect the currently selected alerts, click the Select None icon.

▼ To View Alert Details

1 Either double-click the alert, or select the alert and click the View Details icon.
The Alert Details dialog box appears.

2 When you are done, click Close.

▼ To Change the Status of an Alert

1 Select the alert.

2 Click the Set Observed icon or Set Resolved icon.
You can also reset the status to Unobserved by clicking the Reset icon.

Filtering Alerts

You can control which alerts appear in Enterprise Manager.

▼ To Filter Alerts

1 In the Explorer panel of Enterprise Manager, select an application server, project component, or message server.

2 Click the Alerts tab or node.
The alerts for the selected component appear.

3 Click the Filter icon.
The Alerts Filter dialog box appears. The fields that appear in the dialog box depend on the type of component that you selected in the Explorer panel.

4 Specify one or more fields.

5 Click Submit.

▼ To Remove the Filter

● **Do either of the following:**

  - **Click the Clear Filter icon.**

  - **Click the Filter icon, click Clear, and click Submit.**

Deleting Alerts

You can delete a single alert, or multiple alerts at a time.

▼ To Delete an Alert

1 **In the Explorer panel of Enterprise Manager, select an application server, project component, or message server.**

2 **Click the Alerts tab or node.**
The alerts for the selected component appear.

3 **Select the alert.**

4 **Click the Delete icon or press the Delete key.**
A confirmation dialog box appears.

5 **Click OK.**

▼ To Delete More Than One Alert at a Time

1 **Select the alerts that you want to delete.**
  - To select all of the alerts, click the Select All icon.
  - To select alerts that may or may not be contiguous, use the CTRL key.
  - To select a contiguous range of alerts, click an alert at one end of the range, press the SHIFT key, and click the alert at the other end of the range.

2 **Click the Delete icon or press the Delete key.**
A confirmation dialog box appears.

3 **Click OK.**

▼ To Delete All Alerts For the Selected Component

1   Click the Delete All icon.

A confirmation dialog box appears.

2   Click OK.

Note – If an alert does not currently appear because of a filter, then the alert is not deleted. See "Filtering Alerts" on page 24.

Configuring Alert Persistence

The alert persistence architecture includes the following databases.

- Enterprise Manager's embedded database.
- An external database that you can use to persist alerts. The external database contains one alert table per domain.
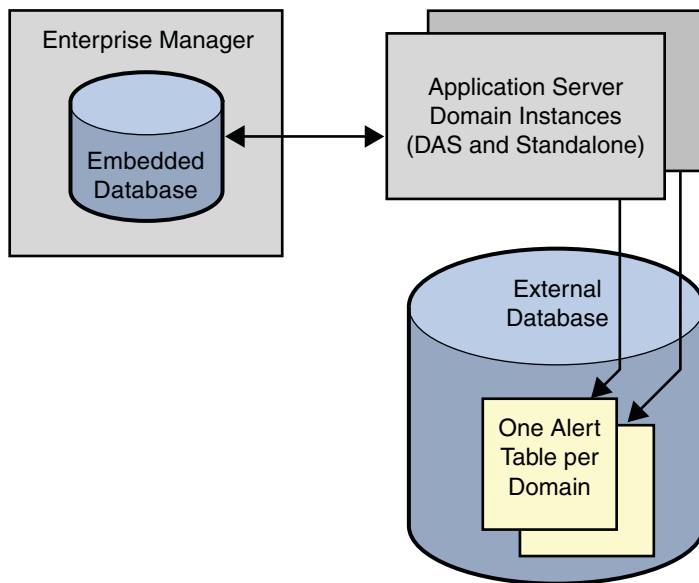
By default, alerts are not persisted to the external database. This topic describes how to enable persistence. Be sure to understand the behavior of the various persistence configurations.

- If persistence is disabled, then alerts are generated and sent to any monitoring instances that are currently running. The monitoring instances can include no more than one instance of Enterprise Manager, as well as any number of clients that use the Alert Management API. For detailed information about the Alert Management API, see *Oracle Java CAPS Management and Monitoring APIs*.

- If persistence is enabled and journaling is disabled, then the alerts are stored temporarily in the external database. The system makes a best effort to send the alerts to all monitoring instances. When the *reliable client* indicates that it received an alert, the alert is deleted from the database.

  There can be only one reliable client at a time. The most recent client to request reliable delivery becomes the reliable client. Enterprise Manager requests reliable delivery when you start the server. Clients that use the Alert Management API can request reliable delivery when they subscribe to the alert notification service.

  Note – If the reliable client is shut down, then there is no reliable client until the next request for reliable delivery is made.

- If persistence and journaling are both enabled, then alerts are stored permanently in the external database. When a client consumes an alert, the alert is *not* deleted from the database.

You can use any of the following database types for the external database. The Derby database is included with GlassFish Application Server. The other database types are not included.

- DB2
- Derby
- Oracle
- PointBase
- Sybase

If you want to use a database type other Derby, then you must perform additional configuration tasks. For example, you must use Java Database Connectivity (JDBC) software and the Java Naming and Directory Interface (JNDI) API to set up access to the database.

For all database types, you must log in to the Configuration Agent and modify the alert notification fields.

Perform the following tasks to configure alert persistence:

▼ To Configure the Alert Table Name (Databases Other Than Derby)

1 Open the `eventmanagement.properties` file in the `JavaCAPS-install-dir/appserver/domains/domain-name/jbi/config` directory.

2 If necessary, change the default value of the `AlertTableName` property and save the file.

You might need to change the default value to match your organization's naming conventions, or to comply with the database server's character limit for table names.

▼ To Set Up Database Access (Databases Other Than Derby)

1 Log in to the GlassFish Application Server Admin Console.

2 Integrate the JDBC driver.

You can make the driver accessible to the common class loader or the system class loader.

For detailed information about how to integrate a JDBC driver, click Help in the Admin Console.

3 In the left pane, expand the Resources node and the JDBC node, and select the Connection Pools node.

4 Click New.

5 Create the JDBC connection pool.

For detailed information about how to create a JDBC connection pool, click Help in the Admin Console.

6 In the left pane, select the JDBC Resources node.

7 Click New.

8 Create the JDBC resource.

You will enter the JNDI name of the JDBC resource in a later procedure. Set the pool name to the JDBC connection pool that you just created.

For detailed information about how to create a JDBC resource, click Help in the Admin Console.

▼ To Run the Database Scripts (Databases Other Than Derby)

1   Open the `jbi_rt.jar` file in the `JavaCAPS-install-dir/appserver/jbi/lib` directory.

2   Extract the SQL scripts for your database type.

3   If you are using Oracle, then create the tablespace and user that will be used to persist alerts.

   a.   Open the `create_event_store_user.sql` script and make any changes needed to match your database configuration.

   b.   Run the `create_event_store_user.sql` script.

4   Create the table that will be used to persist alerts.

   a.   Open the `create_event_store_schema.sql` script and make any changes needed to match your database configuration.

   Ensure that the table name matches the value in the eventmanagement.properties file.

   b.   Run the `create_event_store_schema.sql` script.

▼ To Log In to the Configuration Agent

1   If the application server is not running, then start the application server.

2   In a browser, enter the following URL:

   http://hostname:portnumber/configagent

   Set the hostname to the TCP/IP host name of the computer where the application server is installed. Set the port number to the administration port number of the application server. For example:

   http://myserver.company.com:4848/configagent

   The Configuration Agent Security Gateway appears.

3   In the User ID field, enter an application server user name.

4   In the Password field, enter the corresponding password.

5   Click Login.

   The Configuration Agent appears.

▼ **To Modify the Alert Notification Fields**

1   **Ensure that the database is running.**

2   **In the Configuration Agent, click the Alert Management Configuration tab.**

3   **Select the Enabled check box to the right of the Alert Notification Persistence label.**

4   **If you want to enable journaling, then select the Enabled check box to the right of the Alert Notification Journal label.**

5   **Select the database type from the Alert Notification Database Type drop-down list.**

6   **If you are using a database other than Derby, then set the JNDI name to the JNDI name of the JDBC resource that you created.**

7   **Click Save.**

8   **Restart the application server domain.**

Archiving Alerts

You can archive the alerts in Enterprise Manager's embedded database. The archive process writes the alerts to `.csv` files in the `JavaCAPS-install-dir/emanager/EventRepositoryDb` directory.

The `eventdb_archive.properties` file in the `JavaCAPS-install-dir/emanager/server/shared/classes` directory enables you to configure the archive process. The following table describes the properties.

TABLE 2 Alert Archive Properties

Property	Description
GROUP_MAX_COUNT	A group is a set of alerts that have the same values for the following fields: Environment, Physical Host, Logical Host, Server, Deployment, Component, and Message Code. This property specifies the maximum number of alerts that can be in a group. When the number is exceeded, the oldest rows exceeding this number are archived. If the value is 0, then the archive process ignores this property. **Note** – This property is used in conjunction with the MAX_AGE_OF_EVENTS property (see below).
MAX_TIME_DELTA_FOR_ARCHIVE	The maximum amount of time (in milliseconds) that can elapse between archive operations. If the value is 0, then the archive process ignores this property.
MAX_EVENT_COUNT_FOR_ARCHIVE	The archive process is run when this number of alerts is reached. If the value is 0, then the archive process ignores this property.
MAX_AGE_OF_EVENTS	When the archive process is run, alerts that exceed this age limit (in milliseconds) are archived, leaving the number of most recent alerts specified by the GROUP_MAX_COUNT property. If the value is 0, then the archive process ignores this property.
MAX_ROWCOUNTLIMIT_IN_ARCHIVE_FILE	The maximum number of records that can be stored in a .csv file. When this number is reached, the archive process creates a new .csv file.

If you change the value of one or more properties, then you must restart the Enterprise Manager server in order for the changes to take effect. See .

Reducing Duplicate Alerts

In certain situations, a large number of alerts can be generated in a short period of time. For example, a system goes down and messages are repeatedly attempted to be processed. You can use a property to reduce the number of alerts that appear. The property value is expressed in

milliseconds. The default value is 5000, which equals 5 seconds. If multiple instances of an alert arrive during this period of time, then only one instance of the alert will appear.

A string is added to the beginning of the alert details field. The string indicates the number of duplicate alerts that were processed. For example:

```
[3x] Collaboration CMap1_jcdFileToJMS1 is RUNNING
```

▼ To Reduce Duplicate Alerts

1 Open the `monitor.properties` file in the `JavaCAPS-install-dir/emanager/server/conf` directory.

2 Change the value of the `timeInCache` property to the desired number of milliseconds.

3 Save the `monitor.properties` file.

4 Restart the Enterprise Manager server.

About Enterprise Manager Topic and Queue Management

Enterprise Manager enables you to manage topics and queues from various JMS vendors. You can perform the following tasks:

- Monitor topics and queues
- Send and publish messages
- View message properties
- View and edit message payload

Note – Enterprise Manager provides a unified management environment for JMS IQ Manager, Java System Message Queue, Java Message Service Grid (JMS Grid), Oracle Advanced Queueing, and WebLogic JMS. However, the level of monitoring and management capabilities supported vary for the different message servers.

A *topic* conforms to the *publish-and-subscribe* (pub/sub) messaging domain, where one *publisher* broadcasts messages to potentially many *subscribers*. When the message server publishes a message on a topic, it ensures that all subscribers receive the message.

A *queue* conforms to the *point-to-point* (p2p, or PTP) messaging domain, where one *sender* delivers a message to exactly one *receiver*. When the message server sends a message to a queue, it ensures that the message is received once and only once, even though there might be many receivers "listening" to the queue. This is equivalent to the subscriber pooling in other queue implementations.

Except for this distinction between pub/sub and PTP, topics and queues are quite similar.

- Each topic or queue maintains a *sequence* of messages in progress.
- Each message has a timestamp called the *enqueue time*, which indicates when the message was published or sent.
- Messages that have been read and committed by their subscribers or receivers are subject to cleanup. After cleanup, the lowest sequence number is increased by the number of messages that were delivered and successfully committed.

Monitoring JMS IQ Manager

Enterprise Manager lets you perform the following management tasks for JMS IQ Manager:

Monitoring Topics and Queues for JMS IQ Manager

You can use Enterprise Manager to monitor message traffic in topics and queues.

▼ To Monitor Topics and Queues

1 **In the Explorer panel of Enterprise Manager, select the JMS IQ Manager node (for example, `IQ_Manager_18007`).**

2 **In the Details panel, click the Topics tab.**

The following table describes the columns in the Topics tab.

Column Name	Description
Topic Name	The name of the topic.
Min Sequence Number	The sequence number of the oldest message available for this topic. If no messages are available, this column shows the sequence number of the last message processed.
Max Sequence Number	The sequence number of the most recent message available for this topic. If no messages are available, this column shows the sequence number of the last message processed.
Available Count	The number of messages for this topic that are still unprocessed by at least one subscriber.

Column Name	Description
Number of Subscribers	The number of subscribers registered to consume messages for this topic (including durable subscribers that are currently disconnected).
Last Published Date/Time	The date and timestamp of the most recent message currently available in the topic. If no messages are available, this column shows the last publication date and time of the last message.

3   Click the Queues tab.

The following table describes the columns in the Queues tab.

Column Name	Description
Queue Name	The name of the queue.
Min Sequence Number	The sequence number of the oldest message available for this queue. If no messages are available, this column shows the sequence number of the last message processed.
Max Sequence Number	The sequence number of the most recent message available for this queue. If no messages are available, this column shows the sequence number of the last message processed.
Available Count	The number of unprocessed messages in the queue.
Number of Receivers	The number of receivers for this queue.
Last Published Date/Time	The date and timestamp of the most recent message currently available in the queue. If no messages are available, this column shows the last publication date and time of the last message.

4   When you select a topic or queue, the Messages tab in the lower portion of the Details panel displays information about the topic or queue.

The Messages tab includes a toolbar for working with messages.

5   If journaling is enabled, you can switch between displaying live and journaled messages by clicking the Show Live and Show Journaled icons in the toolbar. If journaling is not enabled, these buttons do not appear.

6   Topics also include a Summary tab and a Subscribers tab. The Subscribers tab displays information about durable subscribers. The toolbar lets you create a new durable subscriber and to unsubscribe an existing durable subscriber.

Sending and Publishing Messages for JMS IQ Manager

You can send and publish messages from Enterprise Manager. The messages can be text or binary.

▼ To Send and Publish Messages

1   Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2   In the Messages tab, click the Send/Publish icon.

The Send/Publish New Message dialog box appears.

3   To publish a text message, select the Text option and enter the text or specify the text file.

4   To publish a binary message, select the Binary option and specify the binary file.

5   Review the default values for the Time to Live, Priority, and Delivery Mode fields. If desired, change the default values.

The Time to Live field has a default value of 0, which specifies that the message does not expire.

6   Click Submit.

Viewing Message Properties for JMS IQ Manager

You can view the properties of a message. The properties include the message type, destination name, and expiration time.

▼ To View Message Properties

1   Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2   In the Messages tab, select the message and click the Properties icon.

The View Message Property dialog box appears. The following table describes the message properties.

Property Name	Description
Correlation ID	An identifier that is used to associate the message with a previous message or application-specific identifier.

Property Name	Description
Time Stamp	The date and time when the message was received.
Message Payload Size	The size of the message payload (in bytes).
Message Source File	If the message is persistent, then this property displays the fully qualified name of the database file in which the message is stored.
Type	The message type of the message, such as text or bytes.
Message Enqueue Time	The date and time when the message was received by its message destination.
Delivery Mode	Indicates whether the message is persistent or non-persistent.
Message Size	The size of the message including the JMS header (in bytes).
Sequence Number	The sequence number of the message.
Redelivery Flag	Indicates whether this message is set for redelivery.
Destination Name	The name of the topic or queue.
Message ID	The unique identification number for the message.
Priority	The priority of the message from 0 to 9. The lowest priority is 0. The highest priority is 9.
Expiration Time	The date and time when the message will expire.
Message Body Size	The size of the message body (in bytes).

3   When you are done, click Close.

Viewing and Editing Message Payload for JMS IQ Manager

A message contains two main components: the headers and the payload. The headers contain metadata about the message. The payload contains the actual content of the message.

Working with Text Messages

Enterprise Manager enables you to view and edit the payload of live text messages. In addition, you can view and republish the payload of journaled text messages.

▼ To View and Edit the Payload of Live Text Messages

1 Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2 In the Messages tab, select the message and click the View/Edit icon.

The Text Message Payload (Live) dialog box appears.

3 To display any carriage return and line feed characters in the message, select the Show Carriage Return/Line Feed check box.

4 If the message contains XML and you want to view the XML in browser format, click View XML.

5 To change the payload, do one of the following:

- Modify the text in the text area and click Change Payload.
- Select the From File option, select the text file, and click Change Payload.

6 To delete the message, click Delete.

7 To save the payload to a file, click Download Payload.

▼ To View and Republish the Payload of Journaled Text Messages

1 Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2 In the Messages tab, select the message and click the View/Edit icon.

The Text Message Payload (Journaled) dialog box appears.

3 To display any carriage return and line feed characters in the message, select the Show Carriage Return/Line Feed check box.

4 If the message contains XML and you want to view the XML in browser format, click View XML.

5 To republish the payload to a topic or queue, click Republish.

6 To save the payload to a file, click Download Payload.

Working with Byte Messages

Enterprise Manager enables you to view the payload of live byte messages. You cannot edit the payload.

▼ **To View the Payload of Live Byte Messages**

1 **Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.**

2 **In the Messages tab, select the message and click the View/Edit icon.**
The Bytes Message Payload (Live) dialog box appears.

3 **To delete the message, click Delete.**

4 **To save the payload to a file, click Download Payload.**

Monitoring Java System Message Queue

Enterprise Manager lets you perform the following management tasks for Java System Message Queue:

- "Monitoring Topics and Queues for Java System Message Queue" on page 38
- "Sending and Publishing Messages for Java System Message Queue" on page 39
- "Viewing Message Properties for Java System Message Queue" on page 40
- "Viewing and Editing Message Payload for Java System Message Queue" on page 41

Monitoring Topics and Queues for Java System Message Queue

You can use Enterprise Manager to monitor message traffic in topics and queues.

▼ **To Monitor Topics and Queues**

1 **In the Explorer panel of Enterprise Manager, select the Java System Message Queue node (for example, Sun_JMQ_7676).**
The following table describes the columns that appear for a topic.

Column Name	Description
Topic Name	The name of the topic.
Min Sequence Number	This column is not applicable to Java System Message Queue.
Max Sequence Number	This column is not applicable to Java System Message Queue.

Column Name	Description
Available Count	The number of messages for this topic that are still unprocessed by at least one subscriber.
Number of Subscribers	The number of subscribers registered to consume messages for this topic (including durable subscribers that are currently disconnected).
Last Published Date/Time	This column is not applicable to Java System Message Queue.

The following table describes the columns that appear for a queue.

Column Name	Description
Queue Name	The name of the queue.
Min Sequence Number	This column is not applicable to Java System Message Queue.
Max Sequence Number	This column is not applicable to Java System Message Queue.
Available Count	The number of unprocessed messages in the queue.
Number of Receivers	The number of receivers for this queue.
Last Published Date/Time	This column is not applicable to Java System Message Queue.

2   The Messages tab in the lower portion of the Details panel displays information about any messages in the topic or queue.

The Messages tab includes a toolbar for working with messages.

3   Topics also include a Summary tab and a Subscribers tab. The Subscribers tab displays information about durable subscribers. The toolbar enables you to create a new durable subscriber and to unsubscribe an existing durable subscriber.

Sending and Publishing Messages for Java System Message Queue

You can send and publish messages from Enterprise Manager. The messages can be text or binary.

▼ To Send and Publish Messages

1   Select the topic or queue as described in "Monitoring Topics and Queues for Java System Message Queue" on page 38.

2 **In the Messages tab, click the Send/Publish icon.**

The Send/Publish New Message dialog box appears.

3 **To publish a text message, select the Text option and enter the text or specify the text file.**

4 **To publish a binary message, select the Binary option and specify the binary file.**

5 **Review the default values for the Time to Live, Priority, and Delivery Mode fields, and change the default values if needed.**

The Time to Live field has a default value of 0, which specifies that the message does not expire.

6 **Click Submit.**

Viewing Message Properties for Java System Message Queue

You can view the properties of a message. The properties include the message type, destination name, and expiration time.

▼ To View Message Properties

1 **Select the topic or queue as described in "Monitoring Topics and Queues for Java System Message Queue" on page 38.**

2 **In the Messages tab, select the message and click the Properties icon.**

The View Message Property dialog box appears. The following table describes the message properties.

Property Name	Description
Correlation ID	An identifier that is used to associate the message with a previous message or application-specific identifier.
Time Stamp	The date and time when the message was received.
Message Payload Size	This property is not applicable to Java System Message Queue.
Message Source File	This property is not applicable to Java System Message Queue.
Type	The message type of the message, such as text or bytes.
Message Enqueue Time	The date and time when the message was received by its message destination.

Property Name	Description
Delivery Mode	Indicates whether the message is persistent or nonpersistent.
Message Size	This property is not applicable to Java System Message Queue.
Sequence Number	The sequence number of the message.
Redelivery Flag	Indicates whether this message is set for redelivery.
Destination Name	The name of the topic or queue.
Message ID	The unique identification number for the message.
Priority	The priority of the message from 0 to 9. The lowest priority is 0. The highest priority is 9.
Expiration Time	The date and time when the message will expire.

3   When you are done, click Close.

Viewing and Editing Message Payload for Java System Message Queue

A message contains two main components: the headers and the payload. The headers contain metadata about the message. The payload contains the actual content of the message.

Working with Text Messages

Enterprise Manager enables you to view and edit the payload of live text messages.

▼ To View and Edit the Payload of Live Text Messages

1   Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2   In the Messages tab, select the message and click the View/Edit icon.

The Text Message Payload (Live) dialog box appears.

3   To display any carriage return and line feed characters in the message, select the Show Carriage Return/Line Feed check box.

4   If the message contains XML and you want to view the XML in browser format, click View XML.

5   To change the payload, do one of the following:

■ Modify the text in the text area and click Change Payload.

- Select the From File option, select the text file, and click Change Payload.

6   To delete the message, click Delete.

7   To save the payload to a file, click Download Payload.

Working with Byte Messages

Enterprise Manager enables you to view the payload of live byte messages. You cannot edit the payload.

▼ To View the Payload of Live Byte Messages

1   Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2   In the Messages tab, select the message and click the View/Edit icon.

The Bytes Message Payload (Live) dialog box appears.

3   To delete the message, click Delete.

4   To save the payload to a file, click Download Payload.

Monitoring Oracle Advanced Queueing

Enterprise Manager lets you perform the following management tasks for Oracle Advanced Queueing:

- "Monitoring Topics and Queues for Oracle Advanced Queueing" on page 42
- "Sending and Publishing Messages for Advanced Queueing" on page 44
- "Viewing Message Properties" on page 45
- "Viewing Message Payload for Advanced Queueing" on page 46

Monitoring Topics and Queues for Oracle Advanced Queueing

You can use Enterprise Manager to monitor message traffic in topics and queues.

▼ To Monitor Topics and Queues

1 **In the Explorer panel of Enterprise Manager, select the Advanced Queue node.**

The name of the Advanced Queue node begins with OracleAQ appended by the name you gave to the module when you created it (for example, OracleAQ_CAPS).

2 **In the Details panel, click the Topics tab.**

The following table describes the columns in the Topics tab.

Column Name	Description
Topic Name	The name of the topic.
Min Sequence Number	This is not available in Oracle Advanced Queueing.
Max Sequence Number	This is not available in Oracle Advanced Queueing.
Available Count	The number of messages for this topic that are still unprocessed by at least one subscriber.
Number of Subscribers	The number of subscribers registered to consume messages for this topic (including durable subscribers that are currently disconnected).
Last Published Date/Time	This is not available in Oracle Advanced Queueing.

3 **Click the Queues tab.**

The following table describes the columns in the Queues tab.

Column Name	Description
Queue Name	The name of the queue.
Min Sequence Number	This is not applicable to Oracle Advanced Queueing.
Max Sequence Number	This is not applicable to Oracle Advanced Queueing.
Available Count	The number of unprocessed messages in the queue.
Number of Receivers	This is not applicable to Oracle Advanced Queueing.
Last Published Date/Time	This is not applicable to Oracle Advanced Queueing.

4 **When you select a topic or queue, the Messages tab in the lower portion of the Details panel displays information about the topic or queue.**

The Messages tab includes a toolbar for working with messages.

5   Topics also include a Summary tab and a Subscribers tab. The Subscribers tab displays information about durable subscribers. The toolbar lets you create a new durable subscriber and to unsubscribe an existing durable subscriber.

Sending and Publishing Messages for Advanced Queueing

You can send and publish messages from Enterprise Manager. The messages can be text or binary.

Note – The following limitations apply to Oracle Advanced Queueing messages:

- JMS TextMessage payloads cannot exceed 4000 bytes.
- JMS BytesMessage payloads cannot exceed 2000 bytes.
- JMS ObjectMessage, StreamMessage, and MapMessage data serialized by Java cannot exceed 2000 bytes.
- For all other Oracle JMS ADT messages, the corresponding Oracle database ADT cannot contain LOB attributes.

▼ To Send and Publish Messages

1   Select the topic or queue as described in .

2   In the Messages tab, click the Send/Publish icon.
    The Send/Publish New Message dialog box appears.

3   If you want to publish a text message, then select the Text option and enter the text or specify the text file.

4   If you want to publish a binary message, then select the Binary option and specify the binary file.

5   Review the default values for the Time to Live, Priority, and Delivery Mode fields. If desired, change the default values.
    The Time to Live field has a default value of 0, which specifies that the message does not expire.

6   Click Submit.

Viewing Message Properties

You can view the properties of a message. The properties include the message type, destination name, and expiration time.

▼ To View Message Properties

1 Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2 In the Messages tab, select the message and click the Properties icon.

The View Message Property dialog box appears. The following table describes the message properties.

Property Name	Description
Correlation ID	An identifier that is used to associate the message with a previous message or application-specific identifier.
Type	The message type of the message, such as text or bytes.
Message Enqueue Time	The date and time when the message was received by its message destination.
Sequence Number	The sequence number of the message.
Redelivery Flag	Indicates whether this message is set for redelivery.
Message ID	The unique identification number for the message.
Expiration Time	The date and time when the message will expire.
Time Stamp	The date and time when the message was received.
Message Payload Size	The size of the message payload (in bytes).
Message Source File	If the message is persistent, then this property displays the fully qualified name of the database file in which the message is stored.
Message Size	The size of the message including the JMS header (in bytes).
Delivery Mode	Indicates whether the message is persistent or nonpersistent.
Destination Name	The name of the topic or queue.
Priority	The priority of the message from 0 to 9. The lowest priority is 0. The highest priority is 9.
Message.UserProperty Properties	
JMS_OracleDelay	The time in seconds to delay message delivery.

Property Name	Description
JMS_OracleConnectionID	
JMSXRcvTimestamp	The time the message was delivered to the consumer.
JMS_OracleTimestamp	
JMS_OracleHeaderOnly	
JMSXDeliveryCount	The number of message delivery attempts.
JMS_OracleExcpQ	The message identifier of the message in the source if the message is propagated from one destination to another.
JMSXGroupID	The identity of the message group to which the message belongs.
JMSXGroupSeq	The sequence number of the message within the identified group.
JMSXAppID	The identity of the application sending the message.
JMS_OracleDeliveryMode	The delivery mode of the message (persistent or non-persistent).
JMSXState	The message state, set by the provider.
JMS_OracleOriginalMessageID	The message identifier of the message in the source if the message is propagated from one destination to another.
JMSXUserID	The identity of the user sending the message.

3 When you are done, click Close.

Viewing Message Payload for Advanced Queueing

A message contains two main components: the headers and the payload. The headers contain metadata about the message. The payload contains the actual content of the message.

▼ To View the Payload of Text and Byte Messages

1 Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2 In the Messages tab, select the message and click the View/Edit icon.
The Message Payload (Live) dialog box appears.

3 To display any carriage return and line feed characters in the message (for text messages only), select the Show Carriage Return/Line Feed check box.

4 If the message contains XML and you want to view the XML in browser format, click View XML.

5   To delete the message, click Delete.

6   To save the payload to a file, click Download Payload.

Monitoring WebLogic Server JMS

Enterprise Manager lets you perform the following management tasks for WebLogic Server JMS:

- "Monitoring Topics and Queues for WebLogic Server JMS" on page 47
- "Sending and Publishing Messages for WebLogic Server JMS" on page 48
- "Viewing Message Properties for WebLogic Server JMS" on page 49
- "Viewing Message Payload for WebLogic Server" on page 50

Monitoring Topics and Queues for WebLogic Server JMS

You can use Enterprise Manager to monitor message traffic in topics and queues.

▼ To Monitor Topics and Queues

1   In the Explorer panel of Enterprise Manager, select the WebLogic JMS node.

The name of the WebLogic JMS node begins with WebLogicMQ appended by the name you gave to the module when you created it (for example, WebLogicAQ_CAPS).

2   In the Details panel, click the Topics tab.

The following table describes the columns in the Topics tab.

Column Name	Description
Topic Name	The name of the topic.
Min Sequence Number	This is not applicable to WebLogic JMS Server.
Max Sequence Number	This is not applicable to WebLogic JMS Server.
Available Count	The number of messages for this topic that are still unprocessed by at least one subscriber.
Number of Subscribers	The number of subscribers registered to consume messages for this topic (including durable subscribers that are currently disconnected).
Last Published Date/Time	This is not applicable to WebLogic JMS Server.

3   Click the Queues tab.

The following table describes the columns in the Queues tab.

Column Name	Description
Queue Name	The name of the queue.
Min Sequence Number	This is not applicable to WebLogic JMS Server.
Max Sequence Number	This is not applicable to WebLogic JMS Server.
Available Count	The number of unprocessed messages in the queue.
Number of Receivers	The number of receivers for this queue.
Last Published Date/Time	This is not applicable to WebLogic JMS Server.

4   When you select a topic or queue, the Messages tab in the lower portion of the Details panel displays information about the topic or queue.

The Messages tab includes a toolbar for you to work with messages.

5   Topics also include a Summary tab and a Subscribers tab. The Subscribers tab displays information about durable subscribers. The toolbar enables you to create a new durable subscriber and to unsubscribe an existing durable subscriber.

Sending and Publishing Messages for WebLogic Server JMS

You can send and publish messages from Enterprise Manager. The messages can be text or binary.

▼ To Send and Publish Messages

1   Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2   In the Messages tab, click the Send/Publish icon.

The Send/Publish New Message dialog box appears.

3   If you want to publish a text message, then select the Text option and enter the text or specify the text file.

4   If you want to publish a binary message, then select the Binary option and specify the binary file.

5 **Review the default values for the Time to Live, Priority, and Delivery Mode fields. If desired, change the default values.**

The Time to Live field has a default value of 0, which specifies that the message does not expire.

6 **Click Submit.**

Viewing Message Properties for WebLogic Server JMS

You can view the properties of a message. The properties include the message type, destination name, and expiration time.

▼ To View Message Properties

1 **Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.**

2 **In the Messages tab, select the message and click the Properties icon.**

The View Message Property dialog box appears. The following table describes the message properties.

Property Name	Description
Correlation ID	An identifier that is used to associate the message with a previous message or application-specific identifier.
Time Stamp	The date and time when the message was received.
Message Payload Size	The size of the message payload (in bytes).
Message Source File	If the message is persistent, then this property displays the fully qualified name of the database file in which the message is stored.
Type	The message type of the message, such as text or bytes.
Message Enqueue Time	The date and time when the message was received by its message destination.
Delivery Mode	Indicates whether the message is persistent or nonpersistent.
Message Size	The size of the message including the JMS header (in bytes).
Sequence Number	The sequence number of the message.
Redelivery Flag	Indicates whether this message is set for redelivery.
Destination Name	The name of the topic or queue.
Message ID	The unique identification number for the message.

Property Name	Description
Priority	The priority of the message from 0 to 9. The lowest priority is 0. The highest priority is 9.
Expiration Time	The date and time when the message will expire.
Message.UserProperty. JMSXDeliveryCount	The number of message delivery attempts.

3   When you are done, click Close.

Viewing Message Payload for WebLogic Server

A message contains two main components: the headers and the payload. The headers contain metadata about the message. The payload contains the actual content of the message.

▼ To View the Payload of Text and Byte Messages

1   Select the topic or queue as described in "Monitoring Topics and Queues for JMS IQ Manager" on page 33.

2   In the Messages tab, select the message and click the View/Edit icon.

The Text Message Payload (Live) dialog box appears.

3   To display any carriage return and line feed characters in the message (for text messages only), select the Show Carriage Return/Line Feed check box.

4   If the message contains XML and you want to view the XML in browser format, click View XML.

5   To delete the message, click Delete.

6   To save the payload to a file, click Download Payload.

Monitoring Java Message Service Grid

You can use Enterprise Manager to manage Java Message Service Grid (JMS Grid) at runtime.

Note – Enterprise Manager provides a unified management environment for JMS IQ Manager, Java System Message Queue, and Java Message Service Grid (JMS Grid). However, the level of monitoring and management capabilities supported vary for the different message servers.

If the Project node in the left panel represents an application that uses JMS Grid destinations, then the Project node contains a subnode for each destination (for example, `Queue1` and `Queue2`).

Monitoring Queues

You can use many of Enterprise Manager's queue management options on the queues utilized by an application deployed in a server. This section describes these options and their level of support.

The top right panel displays information about the selected queue.

TABLE 3   Queue Tab - Columns

Column Name	Description
Queue Name	The name of the queue.
Min Sequence Number	JMS Grid does not use sequence numbers, so this column always displays the value zero (0).
Max Sequence Number	JMS Grid does not use sequence numbers, so this column always displays the value zero (0).
Available Count	The number of unprocessed messages in the queue.
Number of Receivers	The number of receivers for this queue.
Last Published Date/Time	The date and timestamp of the most recent message currently available in the queue. If no messages are available, this column shows the last publication date and time of the last message.

You can list the messages in a queue in the bottom right panel. The following table describes the columns in the Messages tab.

TABLE 4   Message Tab Columns

Property Name	Description
Sequence Number	The values in this column are hash values generated from the message ID and do not have meaning for JMS Grid.
Message ID	The unique identification number for the message.
Status	Indicates whether the message is unread.
Message Size	The size of the message including the JMS header (in bytes).
Delivery Mode	Indicates whether the message is persistent or nonpersistent.

TABLE 4   Message Tab Columns   *(Continued)*

Property Name	Description
Priority	The priority of the message from 0 to 9, with 9 as the highest priority.
Sent On	The day, date, and time when the message was received.

The bottom right panel includes the following buttons:

- The Send a Message button enables you to publish a new message. The message can only be of type text. You can specify the time to live, priority, and delivery mode.

- The View/Edit button enables you to view message content. However, you cannot edit message content in this release.

- The Properties button enables you to view message properties. However, some properties might not be available in this release.

- The Select All button enables you to select all of the messages. The Select None button enables you to deselect all of the messages.

- The Delete button enables you to delete the selected messages.

- The Show Journaled button is not used for JMS Grid.

The paging feature is not supported in this release. However, if you refresh the view, the list changes as messages are consumed and new messages are received.

Monitoring Topics

Enterprise Manager allows you to see an application's topics in the left panel in a similar way to that illustrated for queues. The top right panel displays information about the selected topic.

TABLE 5   Topics Tab - Columns

Column Name	Description
Topic Name	The name of the topic.
Min Sequence Number	JMS Grid does not use sequence numbers, so this column always displays the value zero (0).
Max Sequence Number	JMS Grid does not use sequence numbers, so this column always displays the value zero (0).
Available Count	The number of unprocessed messages in this topic. This value represents the number of messages which have not been consumed by any subscriber to the topic.
Current Subscribers	The number of subscribers who are actively consuming from the topic.

TABLE 5 Topics Tab - Columns   *(Continued)*

Column Name	Description
Last Published Date/Time	The date and timestamp of the most recent message currently available in the topic. If no messages are available, this column shows the last publication date and time of the last message.

You can list the messages in a topic in the bottom right panel just as for queues. The column meanings for topics are the same as for queues. The messages might not be displayed in the order in which they were sent, as shown in the Sent On column.

This panel also has several buttons, whose functions are the same as for topics.

Monitoring Application Servers, Collaborations, and Alerts (Command Line)

The Enterprise Manager command-line client enables you to monitor application servers, Collaborations, and alerts. The Enterprise Manager command-line client is located in the `JavaCAPS-install-dir/emanager/em-client` directory.

The Enterprise Manager command-line client provides two monitoring services:

- The runtime service enables you to monitor application servers and Collaborations.
- The alert service enables you to monitor alerts.

The computer on which you run the command-line client must have Java 1.4.2 or later installed. In addition, the path variable must include an entry for the Java installation's `bin` directory.

Note – Do not include quotation marks in the value of the `JAVA_HOME` variable.

If you are running UNIX, then use the `em-cmdline-client.sh` script.

If you are running Windows, then use the `em-cmdline-client.bat` script.

Enterprise Manager Command-Line Client Syntax

The syntax of the Enterprise Manager command-line client is:

```
em-cmdline-client -l hostname -p port -u username -w password -s service
-m method -Pparameter=value
```

The following table describes the arguments.

TABLE 6   Enterprise Manager Command-Line Client Arguments

Argument	Description
-h, --help	Displays help about the command-line client.
-l, --host	Enables you to specify the hostname of the computer where Enterprise Manager is running.
-p, --port	Enables you to specify the base port number of Enterprise Manager.
-u, --userid	Enables you to specify an Enterprise Manager user name.
-w, --password	Enables you to specify the password for the Enterprise Manager user name.
-s, --service	Enables you to specify the service that you want to use. The runtime service is called `RuntimeService51x`. The alert service is called `AlertService51x`.
-m, --method	Enables you to specify the method that you want to call.
-P	Enables you to specify a parameter name and value for a method. Some methods do not require parameters.
-n, --signatures	Displays the signatures of the available methods.
-t, --timeout	Enables you to specify an HTTP request timeout value for the command (in milliseconds).
-v, --validate	Checks for the required number of parameters.

You use the following arguments to connect to the Enterprise Manager server: `-l`, `-p`, `-u`, and `-w`.

Monitoring Application Servers and Collaborations (Command Line)

You can monitor application servers and Collaborations by using the runtime service of the Enterprise Manager command-line client.

Before you begin, ensure that the Enterprise Manager server is running.

Set the `-s` argument to `RuntimeService51x`. Set the `-m` argument to the desired method. For each parameter, set the `-P` argument to the name and value.

Note – The commands are shown on multiple lines for readability. You must enter the commands on a single line.

Listing the Available Methods For the Runtime Service

You can display a list of the available methods for the runtime service by using the -n argument. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s RuntimeService51x -n

 Note: the order of the parameters is important.
 Available methods and parameters:

-m getState -Pcomponent=<component> -PcomponentType=<componentType>
-m startComponent -Pcomponent=<component> -PcomponentType=<componentType>
-m getComponentsList
-m stopComponent -Pcomponent=<component> -PcomponentType=<componentType>
-m getStatus -Pcomponent=<component> -PcomponentType=<componentType>
```

Displaying the List of Components

The methods of the runtime service require you to specify the component path and component type. The getComponentsList method enables you to obtain this information. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s RuntimeService51x
-m getComponentsList

e51x|Servers|myserver:4848
is51x

e51x|Servers|myserver:4848|IQ_Manager_18007
stcms

e51x|Servers|myserver:4848|Sun_JMQ_7676
jmq

e51x|Servers|myserver:4848|Project1|Deployment1|CMap1|Service1
jce.JavaCollaborationDefinition

e51x|Servers|myserver:4848|Project1|Deployment1|CMap1|Service2
jce.JavaCollaborationDefinition

e51x|Servers|myserver:4848|Project1|Deployment1|CMap1|Topic1
messageService.Topic
```

Displaying the Current State

The getState method enables you to display the current state of an application server or Collaboration, as well as a JMS IQ Manager. You must specify the following parameters: the component path and the component type. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s RuntimeService51x
-m getState
-Pcomponent="e51x|Servers|myserver:4848"
```

```
-PcomponentType=is51x
```

Up

Viewing Basic Information

The getStatus method enables you to view basic information for an application server or Collaboration. You must specify the following parameters: the component path and the component type. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s RuntimeService51x
-m getStatus
-Pcomponent="e51x|Servers|myserver:4848"
-PcomponentType=is51x

HostAndPort = myserver:4848
Component = e51x|Servers|myserver:4848
System = e51x
RestartRequired = true
```

Starting and Stopping Collaborations

The startComponent method enables you to start a Collaboration. You must specify the following parameters: the component path and the component type. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s RuntimeService51x
-m startComponent
-Pcomponent="e51x|Servers|myserver:4848|Project1|Deployment1|CMap1|Service1"
-PcomponentType=jce.JavaCollaborationDefinition
```

The stopComponent method enables you to stop an application server domain, an application server instance, or a Collaboration. You must specify the following parameters: the component path and the component type. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s RuntimeService51x
-m stopComponent
-Pcomponent="e51x|Servers|myserver:4848|Project1|Deployment1|CMap1|Service1"
-PcomponentType=jce.JavaCollaborationDefinition
```

Note – You cannot stop a message server with the stopComponent method.

The command line does not provide feedback to indicate that the method succeeded. However, you can verify whether the component is up or down by using the getState method.

Monitoring Alerts (Command Line)

You can monitor alerts by using the alert service of the Enterprise Manager command-line client.

Before you begin, ensure that the Enterprise Manager server is running.

Set the `-s` argument to `AlertService51x`. Set the `-m` argument to the desired method.

Note – The commands are shown on multiple lines for readability. You must enter the commands on a single line.

Listing the Available Methods For the Alert Service

You can display a list of the available methods for the alert service by using the `-n` argument. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x -n

Note: the order of the parameters is important.
Available methods and parameters:

-m deleteAlerts -Pfilter=<filter>
-m getAllAlerts
-m observeAlerts -Pfilter=<filter>
-m resolveAlerts -Pfilter=<filter>
-m resolveAllAlerts
-m deleteAllAlerts
-m observeAllAlerts
-m getAlertQueryFields
-m getAlerts -Pfilter=<filter>
-m resetAlerts -Pfilter=<filter>
-m resetAllAlerts
```

Listing the Query Fields

The `getAlertQueryFields` method enables you to list the filters that you can use for the other methods. For example:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x
-m getAlertQueryFields

from
to
id
environmentName
physicalHostName
logicalHostName
serverName
```

```
componentProjectPathName
deploymentName
componentName
severity
type
observationalState
operationalState
messageCode
details
```

Viewing Alerts

The getAlerts method enables you to display all of the alerts for the specified components. You can display a subset of the alerts by including one or more filters. The following example specifies two filters:

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x
-m getAlerts
-Pfilter=componentProjectPathName=Project1;environmentName=Environment1

ID:10
Date:Wed Jun 04 15:56:58 PDT 2008
EnvironmentName:Environment1
LogicalHostName:LogicalHost1
ServerName:server
ComponentProjectPathName:Project1
DeploymentName:Deployment1
ComponentName:Service1
PhysicalHostName:myserver:4848
Severity:INFO
Type:COLLABORATION
ObservationalState:Unobserved
OperationalState:Running
MessageCode:COL-00001
Details: Collaboration jcdB is RUNNING

ID:9
Date:Wed Jun 04 15:56:57 PDT 2008
EnvironmentName:Environment1
LogicalHostName:LogicalHost1
ServerName:server
ComponentProjectPathName:Project1
DeploymentName:Deployment1
ComponentName:Service1
PhysicalHostName:myserver:4848
Severity:INFO
Type:COLLABORATION
ObservationalState:Unobserved
OperationalState:Running
MessageCode:COL-00001
Details: Collaboration jcdA is RUNNING
```

The getAllAlerts method enables you to display all of the alerts.

Changing the Status of Alerts

The initial status of an alert is Unobserved. You can change the status to Observed or Resolved. Observed means that you looked at and acknowledged the alert. Resolved means that you fixed the problem that caused the alert.

The observeAlerts method enables you to change the status of an alert to Observed.

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x
-m observeAlerts
-Pfilter=componentProjectPathName=Project1;environmentName=Environment1
```

The observeAllAlerts method enables you to change the status of all alerts to Observed.

The resolveAlerts method enables you to change the status of an alert to Resolved.

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x
-m resolveAlerts
-Pfilter=componentProjectPathName=Project1;environmentName=Environment1
```

The resolveAllAlerts method enables you to change the status of all alerts to Resolved.

The resetAlerts method enables you to change the status of an alert to the initial value (Unobserved).

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x
-m resetAlerts
-Pfilter=componentProjectPathName=Project1;environmentName=Environment1
```

The resetAllAlerts method enables you to change the status of all alerts to the initial value (Unobserved).

Deleting Alerts

The deleteAlerts method enables you to delete alerts.

```
em-cmdline-client -l entmgrhost -p 15000 -u Administrator -w STC
-s AlertService51x
-m deleteAlerts
-Pfilter=componentProjectPathName=Project1;environmentName=Environment1
```

The deleteAllAlerts method enables you to delete all alerts.

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