

# Oracle® Enterprise Manager

System Monitoring Plug-in for Oracle Unified Directory User's Guide

Release 1.0

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The System Monitoring Plug-In for Oracle Unified Directory extends Oracle Enterprise Manager Grid Control to add support for monitoring Oracle Unified Directory instances.

This User's Guide includes installation, configuration and uninstallation information, and a detailed analysis of the metrics that can be monitored using the system monitoring plug-in.

The guide covers the following topics:

- [Section 1, "Before You Install"](#)
- [Section 2, "Installing the System Monitoring Plug-In for Oracle Unified Directory"](#)
- [Section 3, "Viewing Performance Metrics for an Oracle Unified Directory Instance"](#)
- [Section 4, "Uninstalling the System Monitoring Plug-In for Oracle Unified Directory"](#)
- [Section 5, "Limitations of this Release"](#)
- [Section 6, "Documentation Accessibility"](#)

## 1 Before You Install

Oracle Unified Directory can function in one of three modes:

- As an LDAP directory server, used to contain data.
- As an LDAP proxy server, where the server acts as an interface between the client and the directory server that contains the data.
- As a replication gateway between Oracle Unified Directory and Oracle Directory Server Enterprise Edition.

The System Monitoring Plug-In for Oracle Unified Directory is provided as an archive that includes three separate plug-ins - one for each Oracle Unified Directory installation mode.

You must install the plug-in that corresponds to the type of Oracle Unified Directory instance that you want to monitor.

This section covers the following topics:

- [Section 1.1, "Release Information"](#)
- [Section 1.2, "Installation Prerequisites"](#)
- [Section 1.3, "Setting credentials in Oracle Enterprise Manager"](#)

## 1.1 Release Information

The System Monitoring Plug-In for Oracle Unified Directory enables you to monitor directory server, proxy server, and replication gateway instances of Oracle Unified Directory 11gR1 (11.1.1.5.0).

The plug-ins support Oracle Enterprise Manager Grid Control release 11gR1.

## 1.2 Installation Prerequisites

Before you install the System Monitoring Plug-In for Oracle Unified Directory, you must do the following:

- Install the Oracle Enterprise Manager Agent. Make sure that the agent can communicate with your Oracle Enterprise Manager Server and can upload data. For example, Agent Availability must be UP, Last Load Time should show a recent date/timestamp, and Last Load Time should be periodically updated. For information about installing and configuring the Enterprise Manager Agent, see the *Oracle® Enterprise Manager Grid Control Basic Installation Guide*.
- Install and configure an Oracle Unified Directory instance. For more information, see the *Installation Guide for Oracle Unified Directory*.

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**Note:** It is recommended that the Oracle Enterprise Manager Agent and the Oracle Unified Directory instances be installed on the same host.

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Before you install the System Monitoring Plug-In for Oracle Unified Directory, you must have the following information:

- The fully qualified domain name of the host on which the Oracle Unified Directory instance that you want to monitor is located.
- The administration port of the Oracle Unified Directory instance.
- The Oracle Unified Directory username and corresponding password, for example, cn=Directory Manager, and a secure password. The username and password are required to allow the agent access to the instance information. This directory user must have read permission on the cn=Monitor branch.

## 1.3 Setting credentials in Oracle Enterprise Manager

Before you start using the system monitoring plug-in, you must set the Enterprise Manager credentials for the user as which the agent runs. You can either set default credentials (credentials are the same for all agents) or you can set different credentials for each agent (target credentials). Target credentials override default credentials. For more information refer to the Oracle Enterprise Manager Grid Control documentation.

### 1.3.1 To Set Oracle Enterprise Manager Credentials

1. Log in to the Enterprise Manager Grid Control Console, using the username and password of the Super Administrator.
2. Select **Preferences** at the top of the Oracle Enterprise Manager home page.
3. Select **Preferred Credentials** in the left hand pane.
4. Click the icon under Set Credentials for the agent.

5. The Agent Preferred Credentials page is displayed. Enter the credentials as follows:

In the **Host Username** column, enter the agent username.

In the **Host Password** column, enter the agent password.

6. Click **Apply** to save your preferred credentials.

## 2 Installing the System Monitoring Plug-In for Oracle Unified Directory

To install the System Monitoring Plug-In follow these steps:

- Download the plug-in archive and save the file (see [Downloading the System Monitoring Plug-In Archive](#)).
- Import the appropriate plug-in into Enterprise Manager, depending on the type of Oracle Unified Directory server you want to monitor (see [To Import the Plug-In Archive](#)).
- Deploy the plug-in (see [To Deploy the Plug-In](#)).
- Create a target instance of the plug-in on the agent (see [To Create a Target Instance](#)).

### 2.1 Downloading the System Monitoring Plug-In Archive

The Oracle Unified Directory Management Plug-in Archive (MPA) is provided as a single jar file, *EMOUDPlugin1.0.jar*. Download the plug-in archive from the Oracle Technology Network (OTN, <http://www.oracle.com/technetwork/oem/extensions/index.html>) and save the plug-in file (*EMOUDPlugin1.0.jar*) to the machine on which your browser is running.

### 2.2 To Import the Plug-In Archive

When you have downloaded the plug-in archive, you can import it into Enterprise Manger, as follows:

1. Log in to the Enterprise Manager Grid Control Console, using the username and password of the Super Administrator.
2. Click Setup at the top of the Grid Control home page.
3. Click Management Plug-ins on the left hand navigation bar.
4. Click Import. The Import Management Plug-ins page is displayed.
5. In the Select Management Plug-in Archive section, click Browse to locate the Oracle Unified Directory Management Plug-in Archive file.
6. Click List Archive to display the Management Plug-ins that are contained within the archive.

This plug-in archive includes three separate management plug-ins:

- *oracle\_oud\_directory*, which monitors directory server instances
- *oracle\_oud\_proxy*, which monitors proxy server instances
- *oracle\_oud\_gateway*, which monitors replication gateway server instances

7. Select the Management Plug-in that corresponds to your server type and click OK.

At this point, the Management Plug-in has been extracted from the archive file and imported into the Management Repository. The Management Plug-in is now ready to be deployed to Management Agents within your Enterprise Manager environment.

## 2.3 To Deploy the Plug-In

You must deploy the System Monitoring Plug-In for Oracle Unified Directory to one or more agents so that the agent is aware of the existence of the plug-in. You can then configure your Oracle Unified Directory instance as one of the targets for the agent and the agent can start to monitor that target.

Deploy the plug-in as follows:

1. On the Enterprise Manager Setup page, select the plug-in that you imported in the previous section and click the **Deploy** icon.
2. On the Select Targets page, click **Add Agents**.
3. Click **Go** to display a list of the available agents.
4. Select the agents into which you want to deploy the plug-in and click **Select**.
5. Click **Next**.

The Deploy Management Plug-in: Review page briefly describes the deployment process.

6. Click **Finish**. The Deploying Management Plug-in screen is displayed with a status that indicates "partially deployed". Wait until this window is refreshed.
7. On the Setup page, the informational message "Deploy operation completed" is displayed.

You can see the number of agents that have been deployed in the **Deployed Agents** column.

You can now create a target instance.

## 2.4 To Create a Target Instance

Create a target instance of the System Monitoring Plug-in for Oracle Unified Directory on one or more agents. You must create one target instance for each Oracle Unified Directory instance.

1. On the Setup page, select **Agents**.

On the Agents page, the list of agents to which you deployed the plug-in is displayed.

2. Click the agent name in the Name column.
3. On the agent name page, select the appropriate plug-in from the **Add** list.

The list of plug-ins provided corresponds to the plug-ins that were deployed in the previous section.

If you select a target instance type that does not correspond to the plug-in type that you have selected, an alert is displayed in the Alerts section of the Home tab for that target instance. The alert message includes information about the plug-in type that you must use for this specific instance.

In the event that you use a plug-in that does not correspond to the server instance type, the All Metrics page displays a generic subset of monitoring data.

4. Click **Go**.

5. On the Add Oracle Unified Directory Instance properties page, enter the following values:

- In the **Name** field, specify the target instance name. Define the name as a meaningful identifier, for example, `hostname_instance`.

The target instance name can be any string including letters, numbers, and special characters.

- In the **Directory Server Host** field, enter the fully qualified domain name of the target server instance. For replicated servers, you must provide the same host name that was used when replication was configured.

- In the **Directory Server Port** field, enter the administration port of the target server instance.

- In the **Directory Server Username and Password** field, enter a username and password that will be used by the agent to bind to the server instance.

The user must have read access to the `cn=Monitor` tree.

- The **Trust All** field is set to `true` by default. This implies that all the certificates that are presented by the server (or servers, in the case of replication) will be accepted automatically. Change this setting if you want to specify different behavior.

- (Optional) If you have changed the default setting for the **Trust All** field, enter a path in the **Trust Store Path** field

The agent will use the trust store located in this path to validate the certificates of the administration connector that are presented by the server(s). This path must be readable by the agent (and thus located in a file system that is accessible by the agent). The trust store must contain the public keys of the administration connector certificates. It must be in JKS format and must *not* be password protected.

- Click **OK**.

### 3 Viewing Performance Metrics for an Oracle Unified Directory Instance

The System Monitoring Plug-in for Oracle Unified Directory collects and displays information and performance metrics for a target Oracle Unified Directory instance. The available monitoring information depends on the type of Oracle Unified Directory instance, as described in the following table:

**Table 1 Monitoring Data Available Through the System Monitoring Plug-In**

Information	Directory	Proxy	Replication GW
General Information	Yes	Yes	Yes
JVM Resources	Yes	Yes	Yes
Connections	Yes	Yes	-

**Table 1 (Cont.) Monitoring Data Available Through the System Monitoring Plug-In**

<b>Information</b>	<b>Directory</b>	<b>Proxy</b>	<b>Replication GW</b>
Administration Connector	Yes	Yes	Yes
Connection Handlers	Yes	Yes	-
Operations	Yes	Yes	Yes
Replication Information	Yes	-	Yes
Backends / Databases	Yes	-	-
Internal Resources / Caches / Workqueues	Yes	Yes	-
Global Index Catalog	-	Yes	-
Distribution / Partitions	-	Yes	-
Data Sources / Connection Pools	-	Yes	-

Monitoring information is displayed on three different pages in the Enterprise Manager Grid Control console:

- The **Home** tab presents high level information on the health and performance of the server.
- The **Reports** tab enables you to select specific reports according to the performance metrics that you want to monitor.
- The **All Metrics** page provides a complete list of the monitored metrics for the target instance.

The information that is available on each of these pages depends on the Oracle Unified Directory instance type.

Performance information is provided in terms of averages and rates, depending on the information type. Data is represented in both text and graphical form.

Numerical information and comparative data indicates the most recent sampled data. By default, the Enterprise Manager Agent gathers a new sample of data every five minutes. Line graphs are constructed by points, with each point representing one hour on the system.

Alerts are generated, based on specific thresholds that you can configure on the **Metrics and Policy Settings** page.

The remainder of this section covers the following topics:

- [Section 3.1, "Using the All Metrics Page"](#)
- [Section 3.2, "Setting Metric Thresholds"](#)
- [Section 3.3, "Performance Metrics for a Directory Server Instance"](#)
- [Section 3.4, "Performance Metrics for a Proxy Server Instance"](#)
- [Section 3.5, "Performance Metrics for a Replication Gateway Instance"](#)

### **3.1 Using the All Metrics Page**

The reports that are generated for the different target instance types display only a subset of the monitored metrics. The **All Metrics** page provides access to *all* of the monitored metrics for the target instance.

For example, the Operations Report for a directory server instance provides information about the add, delete, modify, modify DN, search, and bind operations performed on the server. The All Metrics page also provides information about the abandon and compare operations, which are not included in the report.

To display the **All Metrics** page, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.  
The Hosts page is displayed.
2. Click **All Targets** in the top menu bar.
3. Select the target instance name.  
The target instance Home tab is displayed.
4. At the bottom of the Home tab, under the Related Links menu, click **All Metrics**.  
The All Metrics page is displayed.

The following image shows the All Metrics page for a directory server target instance.

Collected From Target **Sep 8, 2011 12:48:27 P**

Expand All   Collapse All		Metrics	Thresholds	Collection Schedule	Upload Interval	Last Upload
▼	Example_DS					
▶	<a href="#">Administration Connector Extended Operations</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:57	
▶	<a href="#">Administration Connector General Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:46	
▶	<a href="#">Administration Connector Read Operations</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:46	
▶	<a href="#">Administration Connector Write Operations</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:46	
▶	<a href="#">Backends information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:35	
▶	<a href="#">Connection Handlers Configuration</a>	Not Applicable	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:57	
▶	<a href="#">Connection Handlers Extended Operations</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:53	
▶	<a href="#">Connection Handlers General Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:57	
▶	<a href="#">Connection Handlers Read Operations</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:57	
▶	<a href="#">Connection Handlers Write Operations</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:57	
▶	<a href="#">Connections information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:27	
▶	<a href="#">EntryCaches information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:35	
▶	<a href="#">General Information</a>	Not Applicable	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:35	
▶	<a href="#">Naming Contexts Configuration</a>	Not Applicable	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:35	
▶	<a href="#">Operations Aggregation</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:27	
▶	<a href="#">Operations Extended Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:20	
▶	<a href="#">Operations Read Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:27	
▶	<a href="#">Operations Write Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:27	
▶	<a href="#">Replication Configuration</a>	Not Applicable	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:20	
▶	<a href="#">Replication Domain Aggregation</a>	None	Every 5 Minutes	Every Collection	-	
▶	<a href="#">Replication Domain Assured Information</a>	None	Every 5 Minutes	Every Collection	-	
▶	<a href="#">Replication Domain Information</a>	None	Every 5 Minutes	Every Collection	-	
▶	<a href="#">Replication Server Aggregation</a>	None	Every 5 Minutes	Every Collection	-	
▶	<a href="#">Replication Server Information</a>	None	Every 5 Minutes	Every Collection	-	
▶	<a href="#">Response</a>	All	Every 1 Minute	Every Collection	Sep 8, 2011 12:47:55	
▶	<a href="#">Server Resource Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:53	
▶	<a href="#">Server Role</a>	All	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:35	
▶	<a href="#">System Resource Information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:47:53	
▶	<a href="#">WorkQueue information</a>	None	Every 5 Minutes	Every Collection	Sep 8, 2011 12:48:27	

Metrics are organized in logical groups. To display the list of metrics that relate to a particular area of the server, expand the corresponding group by clicking the icon next to the group header. For example, click the icon next to **Operations Read Information** to display the available metrics that relate to read operations, as shown in the following image extract.

▶ Operations Aggregation	None	Every 5 Minutes
▶ Operations Extended Information	None	Every 5 Minutes
▼ Operations Read Information	None	Every 5 Minutes
Abandon Operations (since startup)	Not Set	
Abandon Operations per sec	Not Set	
Abandon Operations per sec (since startup)	Not Set	
Average Elapsed Time per Abandon	Not Set	
Average Elapsed Time per Abandon (since startup)	Not Set	
Average Elapsed Time per Bind	Not Set	
Average Elapsed Time per Bind (since startup)	Not Set	
Average Elapsed Time per Compare	Not Set	
Average Elapsed Time per Compare (since startup)	Not Set	
Average Elapsed Time per Operation (ms)	Not Set	
Average Elapsed Time per Operation (since startup) (ms)	Not Set	
Average Elapsed Time per Search	Not Set	
Average Elapsed Time per Search (since startup)	Not Set	
Average Elapsed Time per Unbind	Not Set	
Average Elapsed Time per Unbind (since startup)	Not Set	
Bind Operations (since startup)	Not Set	
Bind Operations per sec	Not Set	
Bind Operations per sec (since startup)	Not Set	
Compare Operations (since startup)	Not Set	
Compare Operations per sec	Not Set	
Compare Operations per sec (since startup)	Not Set	
Elapsed Time for Abandon Operations (since startup)	Not Set	
Elapsed Time for Bind Operations (since startup)	Not Set	
Elapsed Time for Compare Operations (since startup)	Not Set	
Elapsed Time for Search Operations (since startup)	Not Set	
Elapsed Time for Unbind Operations (since startup)	Not Set	
Read Operations (since startup)	Not Set	
Read Operations per sec	Not Set	
Read Operations per sec (since startup)	Not Set	
Search Operations (since startup)	Not Set	
Search Operations per sec	Not Set	

To display details of the metric, click on the metric name. For example, to display information about all abandon operations since server startup, click **Abandon Operations (since startup)**. A page dedicated to this metric is displayed, as shown in the following image.

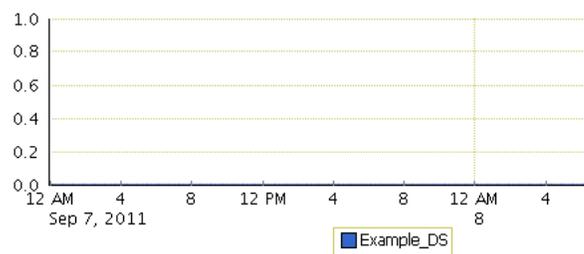
### Abandon Operations (since startup): Last 24 hours

Last Updated **Sep 8, 2011**  
View Data [Last 24 hours](#)

#### Statistics

Last Known Value **0**  
Average Value **0**  
High Value **0**  
Low Value **0**  
Warning Threshold **Not Defined**  
Critical Threshold **Not Defined**  
Occurrences Before Alert **1**  
Corrective Action **None**

#### Metric Value



#### Alert History

Severity	Timestamp	Message	Co
(No alerts)			

The All Metrics page also enables you to specify how you want to view a particular metric. Use the **View Data** field to select a specific time period for which to display the monitored data. Time periods for seven days or more also display the minimum, maximum and average values of a metric during that period.

## 3.2 Setting Metric Thresholds

Metric thresholds enable you to specify when alerts should be generated for a specific monitored metric. For example, if you want to receive an alert when the number of read operations per second exceeds a certain maximum, you can configure a threshold for this metric.

To configure a metric threshold, perform the following steps:

1. On the Home tab for the target instance, select **Metrics and Policy Settings** from the Related Links item at the bottom of the page.  
By default, the list of metrics for which thresholds have been defined is displayed.
2. From the View list, select **All metrics**.
3. Scroll down to locate the metric for which you want to set a threshold.
4. Enter a value in the **Warning Threshold** column to specify the point at which you should receive a warning alert.
5. Enter a value in the **Critical Threshold** column to specify the point at which you should receive a critical alert.
6. To change the collection schedule for that metric:
  - Click the existing value in the Collection Schedule column.
  - Edit the collection settings, as required.
7. To specify any corrective behavior that should be taken if the metric reaches the warning threshold or critical threshold:
  - Click the **Edit** icon.
  - On the Monitored Objects pane, click **Edit**.
  - On the Corrective Actions pane, click **Add** next to the threshold for which you want to specify the corrective action.
  - Follow the steps in the **Add Corrective Action** wizard.
8. On the Metrics and Policy Settings page, click **OK** to save your changes.

## 3.3 Performance Metrics for a Directory Server Instance

The following sections outline the information that is available for a directory server instance, on each tab in the console.

### 3.3.1 Directory Server Instance - Home Tab

The **Home** tab provides basic information about the server instance. To navigate to the **Home** tab, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.  
The Hosts page is displayed.
2. Click **All Targets** in the top menu bar.
3. Select the target instance name.  
The target instance Home tab is displayed.

The following table outlines the metrics that are available on the **Home** tab for a directory server target instance. Each metric is displayed as a line graph, covering the past

seven days. By clicking on the graphs you can access the individual report for that metric.

**Table 2 Metrics available on the Home tab for a Directory Server Instance**

<b>Metric</b>	<b>Explanation</b>
Status	The status of the monitored server instance, either <b>Up</b> or <b>Down</b> .
Availability	The availability of the server over the past 24 hours, expressed as a percentage.
Host	The name of the physical host on which the monitored instance is running.
Current Connections	The number of concurrent open connections.
Operations per Second	The throughput of this server instance in terms of LDAP operations per second.
Average Elapsed Time	The average time (in ms) taken to complete an LDAP operation (etime).
Heap Size	The current JVM heap size, in Mbytes.

In addition, the Home tab displays any alerts that might have been generated by the monitored server instance.

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**Note:** If the plug-in type that you have selected does not correspond to the server instance type that you want to monitor (that is, directory, proxy, or replication gateway, an alert to this effect is displayed on the Home tab.

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### 3.3.2 Directory Server Instance - Reports Tab

The Reports tab provides a number of specific reports. Every report includes the following information:

- The throughput of this server instance, in terms of LDAP operations per second
- The average elapsed time of the LDAP operations (etime).
- The number of connections established per second.

In addition, the report includes specific information, depending on the type of report that you select.

To navigate to the Reports tab, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.  
The Hosts page is displayed.
2. Click **All Targets** in the top menu bar.
3. Select the target instance name.  
The target instance Home tab is displayed.
4. Select the **Reports** tab.
5. Select the required report from the **View Report** list.

The following reports are provided:

- [General Information Report](#)

- [JVM Resources Report](#)
- [Connections Report](#)
- [Administration Connector Report](#)
- [Connection Handlers Report](#)
- [Operations Report](#)
- [Bind Operations Report](#)
- [Search Operations Report](#)
- [Write Operations Report](#)
- [Local Replication Report](#)
- [Global Replication Report](#)
- [Backend Information Report](#)
- [Internal Resources Report](#)

### 3.3.2.1 General Information Report

The General Information Report includes the following basic information about the server instance:

<b>Metric</b>	<b>Explanation</b>
Host	The name of the host on which the server instance is running.
Administration Port	The administration port of the server instance.
Full Version	The version of the Oracle Unified Directory server.
Start Time	The date and time at which the server was started.
Vendor Name	The name of the server vendor (Oracle Corporation).
Install Path	The installation path of the monitored server instance.
Instance Path	The instance path of the monitored server instance.
Status Information	The current status of the server, either <b>up</b> or <b>down</b> .
Server Role	The role of the server in the topology, for example, directory, proxy, or replication gateway.
Replication Enabled	<code>true</code> if a replication server is locally configured, <code>false</code> otherwise
Connection Handlers	A tabular display of the configured connection handlers, including the following information: <ul style="list-style-type: none"> <li>■ The name of the connection handler.</li> <li>■ The type of connection handler.</li> <li>■ The port on which the handler is listening.</li> <li>■ Whether the handler is enabled.</li> <li>■ Whether SSL is enabled for the handler.</li> </ul>

<b>Metric</b>	<b>Explanation</b>
Naming Contexts	A tabular display of the naming contexts (suffixes) that are configured on the server instance, including the following information: <ul style="list-style-type: none"> <li>■ The base DN.</li> <li>■ The number of entries in the naming context.</li> <li>■ Whether the naming context is replicated.</li> </ul>
Entry Count	The number of entries that currently exist in each configured naming context, expressed as a bar graph.

### 3.3.2.2 JVM Resources Report

The JVM Resources Report summarizes all information related to the JVM. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Java Version	The version of the JVM that is used by the monitored server instance.
Java Home	The installation path of the Java binary that is used by the monitored server instance.
Java Architecture	The architecture of the JVM (32-bit or 64-bit).
CPU Usage	A line graph showing the CPU usage over the past seven days.
Max Allowed Memory	The maximum memory allowed for this JVM, in Mbytes.
Total Memory	The total memory allocated to this JVM, in Mbytes.
Used Memory	The current memory used by this JVM, in Mbytes.
Free Memory	The available memory for this JVM, in Mbytes.
Heap Usage	A line graph indicating the used memory in heap, and the heap size, over the past seven days.
Non Heap Usage	A line graph indicating non-heap memory usage over the past seven days.

### 3.3.2.3 Connections Report

The Connections Report summarizes all information related to connections to the monitored server instance. The Connections Report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations Per Second	The number of operations that the server has processed per second, presented in text format and as a line graph over the past seven days.
Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process an operation, presented in text format and as a line graph over the past seven days.
Connections per Second	The number of connections that are established per second, presented in text format and as a line graph over the past seven days.

<b>Metric</b>	<b>Explanation</b>
Current Connections	The number of concurrent connections to the server instance, presented in text format and as a line graph over the past seven days.
Connections per Second since Start	The average number of connections established per second, since the server was started, presented in text format and as a line graph

#### 3.3.2.4 Administration Connector Report

The Administration Connector Report summarizes the information related to connections made through the administration port of the monitored server instance. For information about the administration connector, see "Managing Administration Traffic to the Server" in the *Oracle Fusion Middleware Administration Guide for Oracle Unified Directory*. The Administration Connector Report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations Per Second	The number of administrative operations that the server has processed per second, presented in text format, as a line graph over the past seven days, and as a bar chart that identifies each operation type.
Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process administrative operations, presented in text format, as a line graph over the past seven days, and as a bar chart that identifies each operation type.
Connections per Second	The number of connections over the administration connector that are established per second, presented in text format and as a line graph over the past seven days.
Bind and Search Operations per Second	The number of administrative bind and search operations that the server has processed per second, presented in text format, as a line graph over the past seven days, and as a bar chart.
Write Operations per Second	The number of administrative write operations that the server has processed per second, presented in text format, as a line graph over the past seven days, and as a bar chart that identifies each operation type (add, delete, modify, and modify DN).
Bind and Search Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process administrative bind and search operations, presented in text format, as a line graph over the past seven days, and as a bar chart.
Write Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process administrative write operations, presented in text format, as a line graph over the past seven days, and as a bar chart that identifies each operation type (add, delete, modify, and modify DN).

#### 3.3.2.5 Connection Handlers Report

The Connection Handlers Report summarizes operations data for each enabled connection handler (with the exception of the administration connector, which has its own report). The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The number of operations that the server has processed per second, presented in text format, and as a line graph over the past seven days.
Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process an operation, presented in text format and as a line graph over the past seven days.
Connections per Second	The number of connections that are established per second, presented in text format and as a line graph over the past seven days.
Current Connections by Connection Handler	The number of connections that are currently being handled by each connection handler, presented in text format and as a line graph.
Connections per Second by Connection Handler	The number of connections that are established per second, over each connection handler, presented in text format and as a line graph over the past seven days.
Read Operations per Second by Connection Handler	The number of LDAP read operations that are handled per second by each connection handler, presented as a line graph over the past seven days.
Write Operations per Second by Connection Handler	The number of LDAP write operations (add, delete, modify, and modify DN) that are handled per second by each connection handler, presented as a line graph over the past seven days.
Read Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process read operations, per connection handler, presented as a line graph that identifies each operation type.
Write Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process write operations, per connection handler, presented as a line graph.

### 3.3.2.6 Operations Report

The Operations Report summarizes the metrics related to LDAP operations performed on the server (bind, search, modify, and so forth). The LDAP Operations Report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form, as a bar chart, and as a line graph
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form, as a bar chart, and as a line graph
Connections per Second	The number of connections that are established per second, presented as a bar chart
Connections per Second since Start	The average number of administration connections established per second, since the server was started
Bind and Search Operations Per Second	The number of bind and search operations that the server has processed per second, presented in text format, as a line graph over the past seven days, and as a bar chart.
Bind and Search Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process bind and search operations, presented in text format, as a line graph over the past seven days, and as a bar chart.

<b>Metric</b>	<b>Explanation</b>
Write Operations per Second	The number of write operations that the server has processed per second, presented in text format, as a line graph over the past seven days, and as a bar chart.
Write Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process write operations, presented in text format, as a line graph over the past seven days, and as a bar chart.

The line graphs and bar charts that display the same information types are aligned, enabling you to correlate server behavior over time.

### 3.3.2.7 Bind Operations Report

The Bind Operations Report summarizes the metrics related to bind operations performed on the server. The Bind Operations Report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph.
Connections per Second	The number of connections that are established per second, presented in text form and as a line graph.
Binds per Second	The average number of bind operations established per second, presented in text form and as a line graph.
Bind Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process bind operations, presented in text form and as a line graph.

### 3.3.2.8 Search Operations Report

The Search Operations Report summarizes the metrics related to search operations performed on the server. The Write Operations Report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph.
Connections per Second	The number of connections that are established per second, presented as a line graph.
Searches per Second	The average number of search operations established per second, presented in text form and as a line graph.
Search Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process search operations, presented in text form and as a line graph.

### 3.3.2.9 Write Operations Report

The Write Operations Report summarizes the metrics related to write operations (add, modify, modify DN, and delete) that are performed on the server. The Write Operations Report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph.
Connections per Second	The number of connections that are established per second, presented as a line graph.
Writes per Second	The average number of bind operations established per second, presented in text form and as a line graph
Write Average Elapsed Time per Operation	The average elapsed time (etime) in milliseconds, that the server has taken to process write operations, presented in text form and as a line graph.

### 3.3.2.10 Local Replication Report

The Local Replication Report displays information about the local replication server and the configured replication domains. The following information is provided:

<b>Metric</b>	<b>Explanation</b>
Local Replication Server: Missing Changes	The number of changes that are still missing on this server (and that have been applied to at least one other server in the topology).
Local Replication Server: Age of Oldest Missing Change	The age (in seconds) of the oldest missing change that has not yet arrived on this server.
Local Replication Domain: Missing Changes	The number of changes that have yet to be replayed on this server for the specified replication domain.
Local Replication Domain: Age of Oldest Missing Change	The age (in seconds) of the oldest missing change that has yet to be replayed for the specified replication domain.
Local Replication Domain: Received Updates per Second	The average number of replication updates received per second for this replication domain.
Local Replication Domain: Sent Updates per Second	The average number of replication updates sent per second for this replication domain.

### 3.3.2.11 Global Replication Report

The Global Replication Report provides a summary of all servers in a replicated topology, as well as the overall replication status across the topology. The following information is provided:

For each replication domain in the topology:

<b>Metric</b>	<b>Explanation</b>
Host Name	The name of the host on which the directory server instance is running.
Admin Port	The administration port of the directory server instance.
Base DN	The base DN that is being replicated.
Entries	The number of entries in that base DN.
Replication Status	<p>The status of the replication domain on this directory server. The status can be one of the following:</p> <p><b>Replication Ongoing.</b> The connection to a replication server is established with the correct data set. Replication is working. If assured mode is used, then acknowledgements from this directory server are sent.</p> <p><b>Degraded.</b> The connection to a replication server is established with the correct data set. Replication is working in degraded mode as the directory server has numerous changes that are pending in the replication server queue. If assured mode is used, then acknowledgements from this directory server are not expected.</p> <p><b>Being Initialized.</b> The connection to a replication server is established and a new data set is received from this connection (online import), to initialize the local back end.</p> <p><b>Requires Initialization.</b> The connection to a replication server is established with a data set that is different from the rest of the topology. Replication is not working. Either the other directory servers of the topology should be initialized with a compatible data set, or this server should be initialized with another data set that is compatible with the other servers.</p> <p><b>Not Connected.</b> The directory server is not connected to any replication server.</p>
Missing Changes	The number of changes that are still missing on this server (and that have been applied to at least one other server in the topology).
Oldest Missing Change	The age (in seconds) of the oldest missing change that has not yet arrived on this server.
Received Updates per Second	The average number of replication updates received by this server per second.
Sent Updates per Second	The average number of replication updates sent by this server per second.
Untrusted Changes per Second	The average number of changes per second that were made on an untrusted server, and not yet replicated to the topology.

For each replication server in the topology:

<b>Metric</b>	<b>Explanation</b>
Host Name	The name of the host on which the replication server instance is running.
Replication Port	The replication port of the replication server instance.
Base DN	The base DN that is being replicated.
Missing Changes	The number of changes that still need to be replayed on any server in the topology.

<b>Metric</b>	<b>Explanation</b>
Oldest Missing Change	The age (in seconds) of the oldest missing change from any server in the topology.

For the entire topology:

<b>Metric</b>	<b>Explanation</b>
Missing Changes	The number of changes that still need to be replayed on any server in the topology.
Age of Oldest Missing Change	The age (in seconds) of the oldest missing change from any server in the topology.

### 3.3.2.12 Backend Information Report

The Backend Information Report summarizes the metrics related to each backend that is configured on the monitored server instance. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form, as a bar chart, and as a line graph.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form, as a bar chart, and as a line graph.
Connections per Second	The number of connections that are established per second, presented as a line graph.
Berkeley DB JE Version	The version of the Berkeley DB JE.
Number of Backends	The total number of configured backends.
Total Entry Count	The total number of entries across all configured backends.
Entry Count per Backend	The number of entries in each configured backend, expressed as a horizontal bar chart for each backend.
DB Cache Size	The average size of the database cache, in MBytes, per configured backend, expressed as a line graph over the past seven days.
DB Cache Misses	The number of database cache misses for each configured backend, expressed as a line graph over the past seven days. A cache miss refers to a failed attempt to read from or write to the data in the cache, which results in a main memory access with much longer latency.
Free Disk Space	The free disk space, in MBytes for each configured backend per configured backend, expressed as a line graph over the past seven days.

### 3.3.2.13 Internal Resources Report

The Internal Resources Report summarizes the metrics related to the directory server itself. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph. The line graph includes the number of operations completed per second since server startup.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph. The line graph includes the average etime since server startup.
Connections per Second	The number of connections that are established per second, presented in text form and as a line graph. The line graph includes the average number of connections per second since server startup.
Current Request Backlog	The number of requests that have yet to be handled by the server.
Request Backlog Peak	The maximum number of requests in the backlog queue at any one time since server startup.
Rejected Requests	The number of requests that have been rejected as a result of a full queue, since server startup.
Configured Capacity	The maximum number of queued operations that can be in the work queue at any given time. If the work queue is already full and additional requests are received by the server, then the server front end, and possibly the client, will be blocked until the work queue has available capacity.
Request Backlog	The average request backlog over the past seven days, shown as a line graph.
Entry Cache Hits	The number of successful entry cache lookups. That is, the number of times the server could process a search request by obtaining data from the cache rather than by going to disk.
Entry Cache Tries	The number of entry cache lookups since the server was started. That is, the number of search operations performed against the server since server startup.
Cached Entries	The total number of entries in the cache.
Cache Hit Ratio	The number of successful entry cache lookups as a ratio of the total number of entry cache tries.
Entry Cache Hits and Tries per Second	The number of entry cache hits and entry cache tries per second, shown as two line graphs over a period of seven days.

### 3.4 Performance Metrics for a Proxy Server Instance

The following sections outline the information that is available for a proxy server instance, on each tab in the console.

#### 3.4.1 Proxy Server Instance - Home Tab

The Home tab provides basic information about the proxy server instance. To navigate to the Home tab, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.  
The Hosts page is displayed.
2. Click **All Targets** in the top menu bar.
3. Select the target instance name.  
The target instance Home tab is displayed.

The following table outlines the metrics that are available on the Home tab for a proxy server target instance. Note that these metrics exclude the administration connector, which has its own report. Each metric is displayed as a line graph, covering the preceding seven days. By clicking on the graphs you can access the individual report for that metric.

**Table 3 Metrics available on the Home tab for a Proxy Server Instance**

<b>Metric</b>	<b>Explanation</b>
Status	The status of the monitored server instance, either <b>Up</b> or <b>Down</b> .
Availability	The availability of the server over the past 24 hours, expressed as a percentage.
Host	The name of the physical host on which the monitored instance is running.
Current Connections	The number of concurrent open connections.
Operations per Second	The throughput of this server instance in terms of LDAP operations per second.
Average Elapsed Time	The average time (in ms) taken to complete an LDAP operation (etime).
Heap Size	The current JVM heap size, in Mbytes.

In addition, the Home tab displays any alerts that might have been generated by the monitored server instance.

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**Note:** If the plug-in type that you have selected does not correspond to the server instance type that you want to monitor (that is, directory, proxy, or replication gateway, an alert to this effect is displayed on the Home tab.

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### 3.4.2 Proxy Server Instance - Reports Tab

The Reports tab provides a number of specific reports. Every report includes the following information:

- The throughput of this server instance, in terms of LDAP operations per second
- The average elapsed time of the LDAP operations (etime).
- The number of connections established per second.

In addition, the report includes specific information, depending on the type of report that you select.

To navigate to the Reports tab, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.  
The Hosts page is displayed.
2. Click **All Targets** in the top menu bar.
3. Select the target instance name.  
The target instance Home tab is displayed.
4. Select the **Reports** tab.
5. Select the required report from the **View Report** list.

In most cases, the reports provided for a proxy server instance are the same as those provided for a directory server instance. In these cases, this document simply points you to the corresponding directory server report.

The following reports are provided:

- [General Information Report](#)
- [JVM Resources Report](#) (see [JVM Resources Report](#))
- [Connections Report](#) (see [Connections Report](#))
- [Administration Connector Report](#) (see [Administration Connector Report](#))
- [Connection Handlers Report](#) (see [Connection Handlers Report](#))
- [Operations Report](#) (see [Operations Report](#))
- [Bind Operations Report](#) (see [Bind Operations Report](#))
- [Search Operations Report](#) (see [Search Operations Report](#))
- [Write Operations Report](#) (see [Write Operations Report](#))
- [Global Index Catalog Report](#)
- [Data Sources Report](#)
- [Internal Resources Report](#)

The following sections outline the report contents for those reports that are specific to a proxy server instance.

### 3.4.2.1 General Information Report

The General Information Report includes the following basic information about the proxy server instance:

Metric	Explanation
Host	The name of the host on which the server instance is running.
Administration Port	The administration port of the server instance.
Full Version	The version of the Oracle Unified Directory server.
Start Time	The date and time at which the server was started.
Vendor Name	The name of the server vendor (Oracle Corporation).
Install Path	The installation path of the monitored server instance.
Instance Path	The instance path of the monitored server instance.
Status Information	The current status of the server, either <b>up</b> or <b>down</b> .
Server Role	The role of the proxy server in the topology, for example, load balancer, distributor, or both.
Connection Handlers	A tabular display of the configured connection handlers, including the following information: <ul style="list-style-type: none"> <li>■ The name of the connection handler.</li> <li>■ The type of connection handler.</li> <li>■ The port on which the handler is listening.</li> <li>■ Whether the handler is enabled.</li> <li>■ Whether SSL is enabled for the handler.</li> </ul>

<b>Metric</b>	<b>Explanation</b>
Naming Contexts	<p>A tabular display of the naming contexts (suffixes) that are configured on the server instance, including the following information:</p> <ul style="list-style-type: none"> <li>■ The base DN.</li> <li>■ The role of the server that is configured for this naming context (load balancer, distributor or both).</li> <li>■ The network groups with which this naming context is associated.</li> <li>■ The load balancing or distribution algorithm that is configured for this naming context.</li> </ul>
Remote Data Sources	<p>A tabular display of the remote data sources that are configured for this proxy instance, including the following information:</p> <ul style="list-style-type: none"> <li>■ The name of the data source.</li> <li>■ The host on which the data source is running.</li> <li>■ The LDAP port through which the data source is accessed.</li> <li>■ The secure port (if applicable).</li> <li>■ The suffix that is configured on the data source and the role of the server with regard to that suffix.</li> <li>■ The status of the data source.</li> <li>■ The last date on which the server was successfully started.</li> <li>■ The last date on which the server was down.</li> </ul>

### 3.4.2.2 Global Index Catalog Report

The Global Index Catalog Report summarizes the metrics related to the global index catalogs and indexes that are configured on the server instance. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph. The line graph includes the number of operations completed per second since server startup.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph. The line graph includes the average etime since server startup.
Connections per Second	The number of connections that are established per second, presented in text form and as a line graph. The line graph includes the average number of connections per second since server startup.
Lookup Operations per Second	The average number of lookup operations performed per second, presented as a line graph.

<b>Metric</b>	<b>Explanation</b>
List of Global Index Catalogs and Indexes	<p>A tabular display of the Global Index Catalogs and indexes that are configured, including the following information:</p> <ul style="list-style-type: none"> <li>■ The name of the catalog.</li> <li>■ The list of indexes associated with that catalog.</li> <li>■ The name of the indexed attribute.</li> <li>■ The naming context for the catalog and the role of the server for this naming context.</li> <li>■ The whether the global index is replicated.</li> <li>■ The number of entries in the global index.</li> </ul>
Lookup per sec	The number of lookup operations per second, based on the latest data sample.

### 3.4.2.3 Data Sources Report

The Data Sources Report summarizes the metrics related to all of the data sources that have been configured for this proxy server instance. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph. The line graph includes the number of operations completed per second since server startup.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph. The line graph includes the average etime since server startup.
Connections per Second	The number of connections that are established per second, presented in text form and as a line graph. The line graph includes the average number of connections per second since server startup.
Read Operations per Second	The average number of read operations performed per second, presented as a line graph. A separate line is provided for each data source.
Write Operations per Second	The average number of write operations performed per second, presented as a line graph. A separate line is provided for each data source.
Connection Pool Usage	The number of connection pools used by each data source per day, presented as a line graph.
Silent Rebinds	The number of silent rebinds performed on each data source per day, presented as a line graph.

<b>Metric</b>	<b>Explanation</b>
List of Remote Data Sources	<p>A tabular display of all of the remote data sources to which this proxy instance is connected, including the following information:</p> <ul style="list-style-type: none"> <li>■ The name of the remote data source.</li> <li>■ The name of the server on which the data source is running.</li> <li>■ The LDAP port of the data source.</li> <li>■ The secure port of the data source.</li> <li>■ The suffix or workflow element that is configured on this remote data source.</li> <li>■ Whether the server is currently up or down.</li> <li>■ The last date and time that the server was successfully started.</li> <li>■ The last date and time that the server was down.</li> <li>■ The current number of connection pools in use, over the maximum number of connection pools.</li> <li>■ The average number of read operations per second.</li> <li>■ The average number of write operations per second.</li> <li>■ The average number of silent bind operations per second.</li> </ul>

#### 3.4.2.4 Internal Resources Report

The Internal Resources Report summarizes the metrics related to the proxy server itself. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Operations per Second	The latest sampled rate of LDAP operations per second, presented in text form and as a line graph. The line graph includes the number of operations completed per second since server startup.
Averaged Elapsed Time per Operation (etime)	The average elapsed time (etime) in milliseconds, that the server has taken to process LDAP operations, presented in text form and as a line graph. The line graph includes the average etime since server startup.
Connections per Second	The number of connections that are established per second, presented in text form and as a line graph. The line graph includes the average number of connections per second since server startup.
Global Index Shared Cache Space Usage	The average cache shared across all global indexes, in Mbytes, represented as a line graph over the past seven days.
Current Request Backlog	The number of requests that have yet to be handled by the proxy server instance.
Request Backlog Peak	The maximum number of requests in the backlog queue at any one time since server startup.
Rejected Requests	The number of requests that have been rejected as a result of a full queue, since server startup.
Configured Capacity	The maximum number of queued operations that can be in the work queue at any given time. If the work queue is already full and additional requests are received by the server, then the server front end, and possibly the client, will be blocked until the work queue has available capacity.
Request Backlog	The average request backlog over the past seven days, shown as a line graph.

## 3.5 Performance Metrics for a Replication Gateway Instance

The following sections outline the information that is available for a replication gateway instance.

### 3.5.1 Replication Gateway Instance - Home Tab

The Home tab provides basic information about the replication gateway instance. To navigate to the Home tab, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.

The Hosts page is displayed.

2. Click **All Targets** in the top menu bar.

3. Select the target instance name.

The target instance Home tab is displayed.

The following table outlines the metrics that are available on the Home tab for a replication gateway target instance. Each metric is displayed as a line graph, covering the preceding seven days. By clicking on the graphs you can access the individual report for that metric.

**Table 4 Metrics available on the Home tab for a Replication Gateway Instance**

Metric	Explanation
Status	The status of the monitored server instance, either <b>Up</b> or <b>Down</b> .
Availability	The availability of the server over the past 24 hours, expressed as a percentage.
Host	The name of the physical host on which the monitored instance is running.
Number of Updates Received From ODSEE	The average number of updates that have been received from the Oracle Directory Server Enterprise Edition servers per second, presented as a line graph over the past 24 hours.
Number of Updates Sent to OUD	The average number of updates that have been sent to the Oracle Unified Directory servers per second, presented as a line graph over the past 24 hours.
Number of Updates Received From OUD	The average number of updates that have been received from the Oracle Unified Directory servers per second, presented as a line graph over the past 24 hours.
Number of Updates Sent to ODSEE	The average number of updates that have been sent to the Oracle Directory Server Enterprise Edition servers per second, presented as a line graph over the past 24 hours.

In addition, the Home tab displays any alerts that might have been generated by the monitored server instance.

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**Note:** If the plug-in type that you have selected does not correspond to the server instance type that you want to monitor (that is, directory, proxy, or replication gateway, an alert to this effect is displayed on the Home tab.

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### 3.5.2 Replication Gateway Instance - Reports Tab

The Reports tab provides a number of specific reports. To navigate to the Reports tab, perform the following steps:

1. On the Oracle Enterprise Manager home page, select **Targets**.  
The Hosts page is displayed.
2. Click **All Targets** in the top menu bar.
3. Select the target instance name.  
The target instance Home tab is displayed.
4. Select the **Reports** tab.
5. Select the required report from the **View Report** list.

The following reports are provided for a replication gateway instance. The JVM Resources Report and the Administration Connector Report are identical to those provided for a directory server instance.

- [General Information Report](#)
- JVM Resources Report (see the Directory Server [JVM Resources Report](#))
- [Update Operations Report](#)
- Administration Connector Report (see Directory Server [Administration Connector Report](#))
- [OUD Replication Report](#)

#### 3.5.2.1 General Information Report

The General Information Report includes the following basic information about the server instance:

Metric	Explanation
Host	The name of the host on which the server instance is running
Administration Port	The administration port of the server instance
Full Version	The version of the Oracle Unified Directory server
Start Time	The date and time at which the server was started
Vendor Name	The name of the server vendor (Oracle Corporation)
Install Path	The installation path of the monitored server instance
Instance Path	The instance path of the monitored server instance
Status Information	The current status of the server - either Up or Down
Server Role	The role of the server in the topology, in this case, replication gateway
List of Replication Domains	The list of replication domains attached to this replication gateway instance

#### 3.5.2.2 Update Operations Report

The Update Operations Report summarizes the replication updates that have been made via this replication gateway. The report includes the following information:

<b>Metric</b>	<b>Explanation</b>
Number of Updates Received From ODSEE	The average number of updates that have been received from the Oracle Directory Server Enterprise Edition servers per second, presented as a line graph over the past seven days.
Number of Updates Sent to ODSEE	The average number of updates that have been sent to the Oracle Directory Server Enterprise Edition servers per second, presented as a line graph over the past seven days.
Number of Updates Sent to OUD	The average number of updates that have been sent to the Oracle Unified Directory servers per second, presented as a line graph over the past seven days.
Number of Updates Received From OUD	The average number of updates that have been received from the Oracle Unified Directory servers per second, presented as a line graph over the past seven days.

### 3.5.2.3 OUD Replication Report

The OUD Replication Report summarizes the status of replication for the Oracle Unified Directory topology. The report includes the following information:

For each replication domain in the topology:

<b>Metric</b>	<b>Explanation</b>
Host Name	The name of the host on which the directory server instance is running.
Admin Port	The administration port of the directory server instance.
Base DN	The base DN that is being replicated.
Entries	The number of entries in that base DN.
Replication Status	<p>The status of the replication domain on this directory server. The status can be one of the following:</p> <p><b>Replication Ongoing.</b> The connection to a replication server is established with the correct data set. Replication is working. If assured mode is used, then acknowledgements from this directory server are sent.</p> <p><b>Degraded.</b> The connection to a replication server is established with the correct data set. Replication is working in degraded mode as the directory server has numerous changes that are pending in the replication server queue. If assured mode is used, then acknowledgements from this directory server are not expected.</p> <p><b>Being Initialized.</b> The connection to a replication server is established and a new data set is received from this connection (online import), to initialize the local back end.</p> <p><b>Requires Initialization.</b> The connection to a replication server is established with a data set that is different from the rest of the topology. Replication is not working. Either the other directory servers of the topology should be initialized with a compatible data set, or this server should be initialized with another data set that is compatible with the other servers.</p> <p><b>Not Connected.</b> The directory server is not connected to any replication server.</p>
Missing Changes	The number of changes that are still missing on this server (and that have been applied to at least one other server in the topology).

<b>Metric</b>	<b>Explanation</b>
Oldest Missing Change	The age (in seconds) of the oldest missing change that has not yet arrived on this server.
Received Updates per Second	The average number of replication updates received by this server per second.
Sent Updates per Second	The average number of replication updates sent by this server per second.
Untrusted Changes per Second	The average number of changes per second that were made on an untrusted server, and not yet replicated to the topology.

For each replication server in the topology:

<b>Metric</b>	<b>Explanation</b>
Host Name	The name of the host on which the replication server instance is running.
Replication Port	The replication port of the replication server instance.
Base DN	The base DN that is being replicated.
Missing Changes	The number of changes that still need to be replayed on any server in the topology, displayed in text format and as a bar chart.
Oldest Missing Change	The age (in seconds) of the oldest missing change from any server in the topology, displayed in text format and as a bar chart.

## 4 Uninstalling the System Monitoring Plug-In for Oracle Unified Directory

To uninstall the system monitoring plug-in for Oracle Unified Directory, complete the following tasks:

- Remove all target instances of the plug-in
- Undeploy the plug-in
- Delete the plug-in

You must remove all target instances of the plug-in before you can undeploy the plug-in. For example, if you have three Oracle Unified Directory instances with two instances deployed to one agent and the third instance deployed to a second agent, you must perform the following tasks:

- Remove instance 1 (the target instance) on agent 1
- Remove instance 2 (the second target instance) on agent 1
- Remove instance 3 (the third target instance) on agent 2

You can then undeploy and delete the plug-in from the Oracle Enterprise Manager Grid Control.

### 4.1 To Remove Target Instances of the Plug-In

You can remove a target instance by following this procedure. Note that when you remove a target instance, all corresponding data (monitoring data that has already been collected) is deleted.

For each target instance of the plug-in that you want to remove, complete the following steps:

1. Select **Targets** on the navigation bar from the Enterprise Manager home page.

The Hosts page is displayed.

2. Select **All Targets** on the Hosts page.

The All Targets page displays the list of all targets in the Oracle Enterprise Manager Grid Control including hosts, agents, databases, directory servers and others.

The target instance name is displayed in the Name column.

3. Click the **Select** circle to select the target instance name.

4. Click **Remove**.

The following message is displayed: "You have chosen to remove *target\_instance\_name* (OUD Directory Server, OUD Proxy Server or OUD Replication Gateway). Do you wish to proceed?"

Click **Yes**. A confirmation message is displayed.

The target instance has now been removed. Repeat these steps to remove any additional target instances of the Oracle Unified Directory Plug-in.

When all target instances of the plug-in have been removed, you can undeploy and then delete the Plug-in from the Oracle Enterprise Manager Grid Control, as described in the following sections.

## 4.2 To Undeploy the Plug-In

Before you undeploy the Oracle Unified Directory Plug-in, ensure that you have removed all target instances of the plug-in. For more information, "[Section 4.1, "To Remove Target Instances of the Plug-In"](#)".

You can undeploy the System Monitoring Plug-in for Oracle Unified Directory as follows.

1. Select **Setup** to display the Oracle Enterprise Manager Setup page.
2. Select **Management Plug-ins** from the Overview of Setup panel to display the Management Plug-ins page.
3. Select the Oracle Unified Directory plug-in (*oracle\_oud\_directory*, *oracle\_oud\_proxy* or *oracle\_oud\_gateway*).

4. Click the **Undeploy** icon located in the same row as the plug-in.

The Undeploy Management Plug-in page is displayed.

5. Select each deployed agent for the System Monitoring plug-in for Oracle Unified Directory.

6. Click **OK**.

The Undeploying Management Plug-in window is displayed.

When the plug-ins have been undeployed, the Setup page is displayed, with the informational message: "Undeploy operation completed."

When all agents have been undeployed from the Oracle Unified Directory Plug-In, you can delete the plug-in from the Oracle Enterprise Manager Grid Control, as described in the following section.

### 4.3 To Delete the System Monitoring Plug-In for Oracle Unified Directory

When you delete the Oracle Unified Directory plug-in, you remove the plug-in from the Oracle Enterprise Manager Grid Control. To delete the plug-in perform the following steps:

1. From **Management Plug-ins**, click **Select** in the row corresponding to the Oracle Unified Directory plug-in (`oracle_oud_directory`, `oracle_oud_proxy` or `oracle_oud_gateway`).
2. Click **Delete**.  
A confirmation message similar to the following is displayed: "Are you sure you want to delete the following Management Plug-ins? `oracle_oud_directory:1.0`". Click **OK**.
3. The confirmation message: "One Management Plug-in was successfully deleted." is displayed.

You have successfully deleted the Oracle Unified Directory plug-in.

## 5 Limitations of this Release

The following limitations pertain to the JVM Resources Report that is generated for each of the three server types.

- The CPU Usage graph is available *only* if:
  - the target instance is running on the same host as the Manager Agent in which the instance is registered
  - the target instance and the Manager Agent are running with the same access rights
- The Non-Heap Usage graph is not accurate (the reported metric is incorrect).

## 6 Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at

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