

**Oracle® Enterprise Manager**

Management Connector for Ops Center Installation and  
Configuration Guide

Release 10.2.0.5.0

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# Preface

This *Connector Installation and Configuration* guide provides the information that you require to install and configure Management Connectors that integrate Enterprise Manager with other management tools and help desk systems.

## Audience

This guide is written for Oracle Database system administrators who want to install and configure Management Connectors to enable integration between Enterprise Manager and other systems.

You should already be familiar with Oracle Enterprise Manager.

## Documentation Accessibility

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For more information, see the following books in the Oracle Enterprise Manager documentation set:

- *Oracle Enterprise Manager Connectors Integration Guide*
- *Oracle Database 2 Day DBA*
- *Oracle Enterprise Manager Concepts*
- *Oracle Enterprise Manager Quick Installation Guide*
- *Oracle Enterprise Manager Grid Control Installation and Basic Configuration*
- *Oracle Enterprise Manager Metric Reference Manual*
- *Oracle Enterprise Manager Command Line Interface*
- *Extending Oracle Enterprise Manager*
- *Oracle Enterprise Manager Ops Center 2.5 Documentation Set*

You can view this documentation set at the following location:

<http://wikis.sun.com/display/OC2dot5/>

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<http://www.oracle.com/technology/documentation/oem.html>

Oracle Enterprise Manager also provides extensive online help. Click **Help** on any Oracle Enterprise Manager page to display the online Help system.

Printed documentation is available for sale in the Oracle Store at

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To download free release notes, installation documentation, white papers, or other collateral, please visit the Oracle Technology Network (OTN). You must register online before using OTN; registration is free and can be done at

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## Conventions

The following text conventions are used in this document:

<b>Convention</b>	<b>Meaning</b>
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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# Introduction to the Management Connector For Ops Center

The Management Connector for Ops Center enables you to view event information in the Enterprise Manager console from the lowest hardware levels all the way up to your critical business services. With the connector, Ops Center notifications are displayed as Oracle Enterprise Manager Grid Control alerts. The retrieved alerts are stored in the Enterprise Manager repository and displayed through the Enterprise Manager console. Beginning with Enterprise Manager 10g Release 5, you can retrieve Ops Center notifications and display them in Enterprise Manager as alerts in real time through Web services. In this release the data flow is one way, from Ops Center to the Oracle Enterprise Manager Grid Control.

Using a polling mechanism, the Ops Center Connector retrieves data through Web Services on HTTPS protocols. The polling interval is user-definable, but cannot be shorter than five (5) minutes. If an interval shorter than five minutes is defined, it defaults to five minutes.

The default *target\_type* defined in Enterprise Manager is *oc\_managed\_host*. The retrieved alerts are stored in the default target instance *generic\_oc\_managed\_host*. You can install and configure additional target instances based on your requirements.

## 1.1 Obtaining the Software

Follow these steps to download the Oracle Enterprise Manager Grid Control Connector For Ops Center software:

1. Download the *Ops\_Center\_Connector\_Bundle\_1.0.zip* connector bundle.
2. Unzip the file:

```
$ unzip Ops_Center_Connector_Bundle_1.0.zip
Archive:  Ops_Center_Connector_Bundle_1.0.zip
  inflating: OpsCenterConnector_1.0.jar
  inflating: README.txt
  inflating: SUNWxvmoc-notification-ws.pkg
  inflating: sun-xvmoc-notification-ws-2.5.0-0001.noarch.rpm
```

## 1.2 Installing the Connector and Configuring the Enterprise Controller

You must perform the following steps to configure the Ops Center Enterprise Controller:

1. Install and enable the Ops Center notification web service
2. Create an Ops Center user for the Connector

3. Create a Notification Profile for the Ops Center User
4. Capture the Web Service certificate file

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**Note:** Enterprise Manager Grid Control patch 9153712 is required for routing Ops Center Alerts to Grid Control Hosts.

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### 1.2.1 Install and Enable Ops Center Notification Web Service

To install and enable the Ops Center notification web service, follow these steps:

1. Copy the appropriate native package for your Enterprise Controller operating system.
2. While the Enterprise Controller is running, add the package:
  - Linux

```
# rpm -i sun-xvmoc-notification-ws-2.5.0-0001.noarch.rpm
```
  - Solaris

```
# pkgadd -d ./SUNWxvmoc-notification-ws.pkg
SUNWxvmoc-notification-ws
```

### 1.2.2 Create an Ops Center User For the Connector

After the package is installed on the Enterprise Controller, create an Ops Center user and assign a user role, and then create a notification profile for the connector.

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**Note:** The Ops Center user for the connector must be a UNIX<sup>®</sup> user on the Enterprise Controller.

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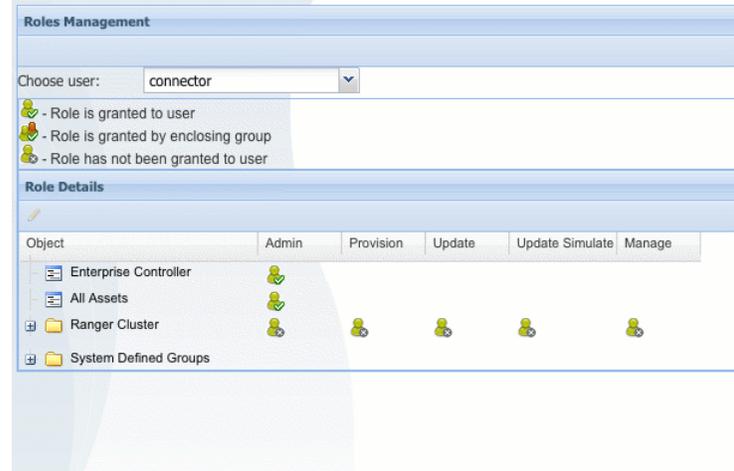
Roles enable the Enterprise Controller Admin user to control access and authorization to use the different functions of Ops Center. Roles can be granted for the Enterprise Controller, All Assets, or specific user-created groups. The All Assets role enables the user to perform any action and receive notifications on any asset or group.

1. Log into Ops Center as an Enterprise Controller admin user.
2. Click **Administration** in the Navigation panel, then click the **Users** tab.
3. On the Users page, click the **Add User** icon.
4. Enter a user name, then click **Add User**. The new user is created. New user information, such as the password, is pulled from the local authentication subsystem.
5. Click **Administration** in the Navigation panel, then click the **Roles** tab.
6. Select the user from the drop-down menu.
7. (Optional) To receive connectivity and security alerts, grant the Admin role to the Enterprise Controller.
  - a. In the center panel, highlight *Enterprise Controller*, then click the **Edit Roles** icon.
  - b. Select the check box for the Admin role, then click **Update Role Capabilities**.
8. In the center panel, highlight *All Assets*, then click the **Edit Roles** icon.

9. Select the check box for the Admin role, then click **Update Role Capabilities**.

The following graphic shows a connector user with the Ops Center Admin role for the Enterprise Controller and All Assets.

**Figure 1–1 Roles Management Example**



See *Roles and Authorizations* in the *Oracle Enterprise Manager Ops Center* documentation for more information about Ops Center roles and authorization levels.

### 1.2.3 Create a Notification Profile For the Ops Center User

Notification Profiles determine how notifications are sent to the designated user, the assets for which the user will receive notification, and the severity level.

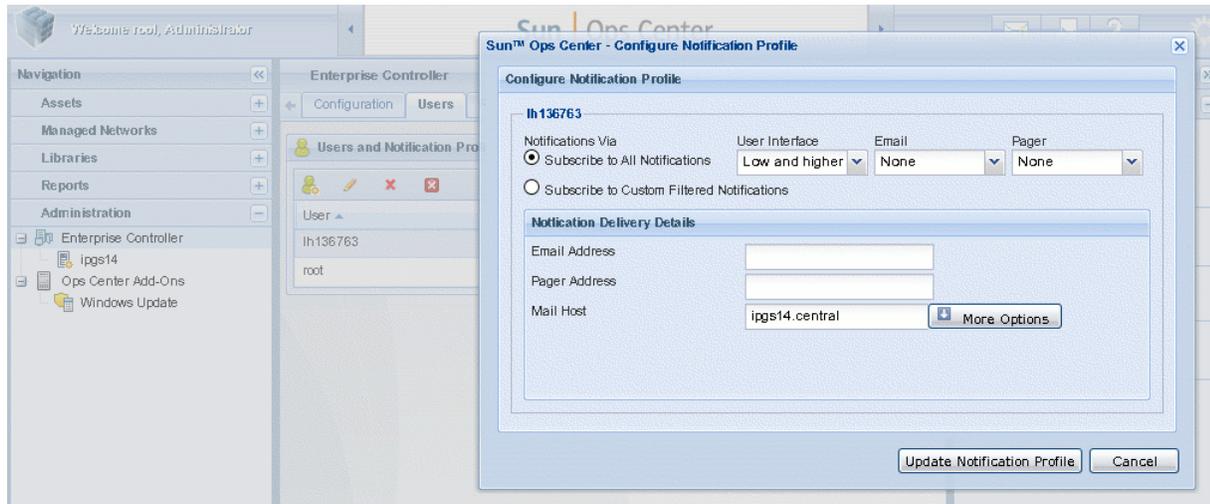
You can choose from the following notification levels:

- None – No notifications are sent
- Low and Higher – Low, medium, and high severity notifications are sent
- Medium and Higher – Medium and high severity notifications are sent
- High – High severity notifications are sent

Low and Medium notifications are displayed as Warning alerts, and High severity notifications are displayed as Critical alerts in Oracle Enterprise Manager. For the Ops Center Connector user to receive all alerts, create a Notification Profile that designates the Low and Higher notification level and subscribes to all notifications.

See *Configuring a Notification Profile* in the *Oracle Enterprise Manager Ops Center* documentation for more information.

1. Log into Ops Center as the Ops Center Enterprise Controller admin user.
2. Click **Administration** in the Navigation panel, then click the **Enterprise Controller**.
3. Click the **Users** tab in the center panel and select the user that you created in [Section 1.2.2, "Create an Ops Center User For the Connector"](#)
4. Click the **Configure Notification Profile** icon.
5. Select **Subscribe to All Notifications**.

**Figure 1–2 Subscribe to All Notifications**

6. From the Application drop-down list, select the **Low and higher** option for messages to be received through the BUI.
7. Click **Update Notification Profile**.
8. Stop and restart the Enterprise Controller.
 

```
# satadm stop -w
# satadm start -w
```
9. If you have one or more remote Proxy Controllers, stop and restart each Proxy Controller.
 

```
# proxyadm stop -w
# proxyadm start -w
```

## 1.2.4 Capture the Web Service Certificate File

An HTTPS protocol is required to establish a connection between Ops Center and Enterprise Manager. You can export the certificate through the command line, export and save the certificate to a file, or export the certificate from a browser. The method described below is to export the certificate from a browser. By using the browser, you are testing that the webservice is available and that the Ops Center user that you created earlier has access. This procedure describes how to export the Web Services certificate file. The contents of this file will be used in a later procedure to update the Oracle Enterprise Manager certificate file.

1. Launch a browser and navigate to the following URL for your Ops Center instance, replacing *<hostname>* with the host name of the Enterprise Controller:
 

```
https://<EnterpriseController>:443/soap/NotificationBridge?WSDL
```
2. Accept the Web Service certificate.
3. To export the certificate, click **View**, click **Details**, and then click **Export**. Depending on your browser, this might be done from the security icon in the lower right corner of your browser or from the encryption settings in your browser's *Advanced Preferences*.
4. Select X.509 (PEM) certificate and name the file *certdb.txt*.

5. Open the *certdb.txt* file in a text editor, such as Notepad, and copy the contents. You will update this *certdb.txt* file after you register the connector and templates.

#### 1.2.4.1 Example – Exporting the Certificate From the Command Line

Instead of exporting the certificate from a browser, you can use the `keytool cert export` tool to export the certificate from the command line. The following is an example of how to export the *cacao\_agent* certificate to a file in a text format. In this example, the certificate file is */var/tmp/cacao\_adm.cert*.

The keystore password is stored in the */var/tmp/cacao\_adm.cert* file.

The `keytool` is located in the following directory:

- Linux OS – */usr/java/jdk1.6.0\_14/bin/keytool*
- Solaris OS – */usr/jdk/jdk1.6.0\_14/bin/keytool*

1. As root, run the following command on the Enterprise Controller:

- Linux OS

The password for the following command is the contents of the */etc/opt/sun/cacao2/instances/default/security/password* file.

```
# keytool -export -rfc -keystore
/opt/sun/cacao2/instances/default/security/jsse/keystore
-file /var/tmp/cacao_adm.cert -alias cacao_agent
```

- Solaris OS

The password for the following command is the contents of the */etc/cacao/instances/default/security/password* file.

```
# keytool -export -rfc -keystore
/etc/cacao/instances/default/security/jsse/keystore -file
/var/tmp/cacao_adm.cert -alias cacao_agent
```

2. Enter the keystore password.



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# Configuring Oracle Enterprise Manager Grid Control

The following chapter discusses the procedures required to configure Oracle Enterprise Manager Grid Control for use with Ops Center.

## 2.1 Register the Connector and Templates

You must extract and register the connector then register following webservice templates with Oracle Enterprise Manager Grid Control:

- Incoming transform template for get new alerts
- Outgoing transform template for get new alerts
- Incoming transform template for get updated alerts
- Outgoing transform template for get updated alerts
- Generic outgoing template for update alerts
- Outgoing transform template for get updated alerts

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**Note:** For environments with multiple Oracle Management Servers, the *emctl extract\_jar* command must be run on all OMS instances (Step 1). The registration steps (2-6) may be run once from any of the Oracle Management Servers.

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To register the Ops Center Connector and templates, or re-register a previously removed connector, follow these steps:

1. Run the following *emctl* command to extract the Ops Center Connector descriptors, templates and transform files from the *connector.jar*

The command extracts the connector files to the `$ORACLE_HOME/sysman/connector/Ops_Center_Connector/` folder.

---

---

**Note:** The *emctl* commands which follow will be run by the user who owns the oracle installation (generally *oracle*). Before you begin, verify that the `$ORACLE_HOME/bin` directory is in this user's `PATH` variable.

---

---

Command syntax for *extract\_jar*:

```
% emctl extract_jar connector [-jar <jarfile>] [-ctname <connectorName>]
```

In the following command example the *connector.jar* is referenced from the current working directory:

```
% emctl extract_jar connector -jar ./OpsCenterConnector_1.0.jar -cname 'Ops Center Connector'
```

## 2. Register the Connector

Command syntax for *register\_connector*:

```
% emctl register_connector connector [-dd <connectorType.xml>] [-cs <connect string>] [-s <server>] [-p <port>] [-sn <database sn>] [-repos_user <repos username>] [-repos_pwd <repos password>]
```

---

---

**Note:** The remaining Seven emctl connector registration examples will prompt you for connection string information and sysman credentials. For many environments the connect string will have the following format: *//localhost:1521/emrep*

---

---

An example which interactively prompts for connect string, user and password is seen below:

```
% emctl register_connector connector -dd ${ORACLE_HOME}/sysman/connector/Ops_Center_Connector/OpsCenterConnector.xml
```

## 3. Register the incoming and outgoing transform templates for the get new alerts webservice method:

Command syntax for *register\_template* (next six registration commands):

```
% emctl register_template connector [-t <template.xml>] [-cs <connect string>] [-s <server>] [-p <port>] [-sn <database sn>] [-repos_user <repos username>] [-repos_pwd <repos password>] [-ctname <connectorTypeName>] [-cname <connectorName>] [-iname <internalName>] [-tname <templateName>] [-ttype <templateType>] [-d <description>]
```

```
% emctl register_template connector -t $OMS_HOME/sysman/connector/Ops_Center_Connector/getNewAlerts_response.xml -ctname 'Ops Center Connector' -cname 'Ops Center Connector' -tname 'Get New Alerts Response' -iname getNewAlerts -ttype 1 -d 'this transforms the get new alerts response'
```

```
% emctl register_template connector -t $OMS_HOME/sysman/connector/Ops_Center_Connector/getNewAlerts_request.xml -ctname 'Ops Center Connector' -cname 'Ops Center Connector' -tname 'Get New Alerts' -iname getNewAlerts -ttype 2 -d 'this transforms the generic get new alerts request'
```

## 4. Register the incoming and outgoing templates for get updated alerts:

```
% emctl register_template connector -t $OMS_HOME/sysman/connector/Ops_Center_Connector/getUpdatedAlerts_response.xml -ctname 'Ops Center Connector' -cname 'Ops Center Connector' -tname 'Get Updated Alerts Response' -iname
```

```
getUpdatedAlerts -ttype 1 -d 'this transforms the get updated
alerts response'
```

```
% emctl register_template connector -t $OMS_
HOME/sysman/connector/Ops_Center_Connector/getUpdatedAlerts_
request.xml -ctname 'Ops Center Connector' -cname 'Ops
Center Connector' -tname 'Get Updated Alerts' -iname
getUpdatedAlerts -ttype 2 -d 'this transforms the generic get
updated alerts request'
```

##### 5. Register the generic outgoing template for update alerts

```
% emctl register_template connector -t $OMS_
HOME/sysman/connector/Ops_Center_Connector/updateAlerts_
request.xml -ctname 'Ops Center Connector' -cname 'Ops Center
Connector' -tname 'Update Alerts' -iname 'updatedAlerts'
-ttype 3 -d 'this is the generic template for Update Alerts'
```

##### 6. Register the outgoing template for update alerts:

```
% emctl register_template connector -t $OMS_
HOME/sysman/connector/Ops_Center_Connector/updateAlerts_
request.xml -ctname 'Ops Center Connector' -cname 'Ops Center
Connector' -tname 'Update Alerts' -iname 'updatedAlerts'
-ttype 2 -d 'this transforms the updateAlerts request'
```

## 2.2 Update the certdb.txt File

Append `$OMS_HOME/sysman/connector/certdb.txt` file with the contents of the web service certificate file that you captured earlier. See [Section 1.2.4, "Capture the Web Service Certificate File"](#).

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**Note:** If you have a multi-OMS environment, update the `certdb.txt` file on each OMS.

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To update the `certdb.txt` file, as root, navigate to the following directory:

```
# ${OMS_HOME}/sysman/connector
```

- If there is a `certdb.txt` file, paste the text of the exported certificate file into the `certdb.txt` file.
- If there is not a `certdb.txt` file, open a text editor and use the exported certificate file to create a file.

## 2.3 Configuring the Oracle Enterprise Manager Grid Control Connector

When you access the Enterprise Manager console as a Super Administrator, the Ops Center Connector is displayed in the Management Connector Setup page as shown in Step 2.

1. As an Enterprise Manager Super Administration, click **Setup** in the upper right corner of the Enterprise Manager console.
2. Click the **Management Connectors** link in the left pane. The Management Connectors page appears. For the Ops Center Connector row, the Configured column should be blank, as shown below.

**Note:** A check mark in the Configured column indicates that the Connector is already configured.

Figure 2-1 Management Connectors Page

ORACLE Enterprise Manager 10g  
Grid Control

Home Targets Deployments Alerts Compliance Jobs Reports

Enterprise Manager Configuration | Management Services and Repository | Agents

Overview of Setup  
Roles  
Administrators  
Notification Methods  
E-mail Customization  
Patching Setup  
Blackouts  
Registration Passwords  
Management Pack Access  
Monitoring Templates  
Corrective Action Library  
Management Plug-ins  
**Management Connectors**  
Data Exchange

**Management Connectors**

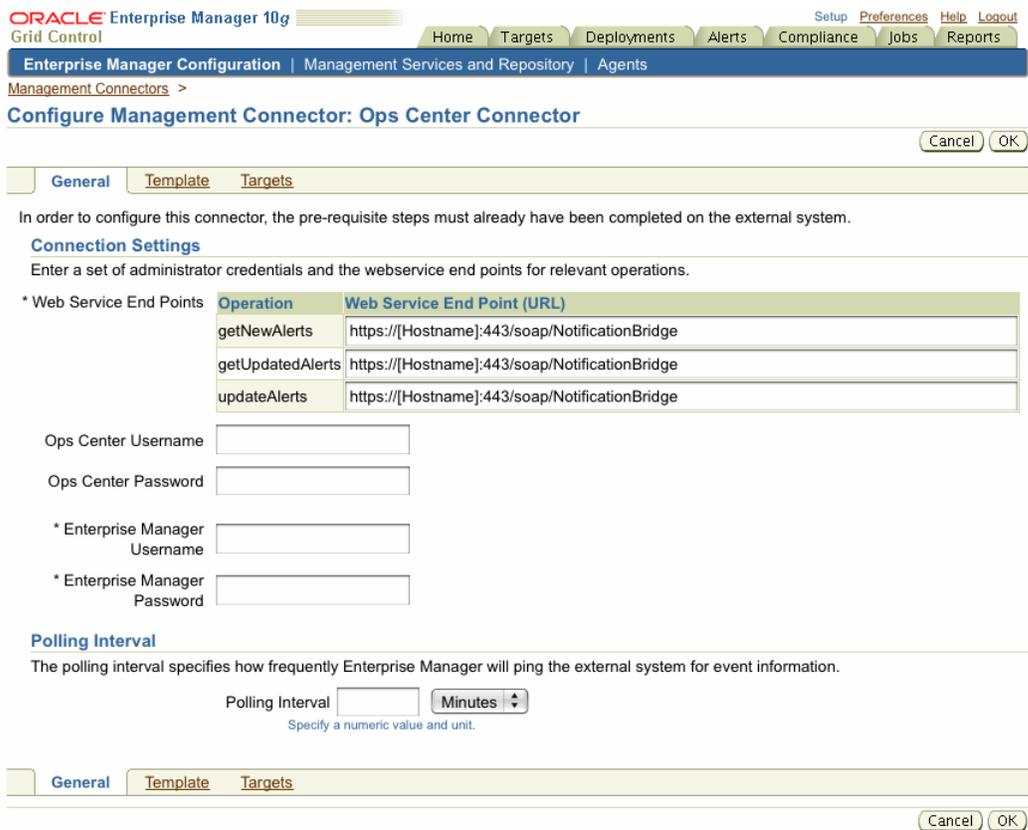
A Management Connector is a component that integrates different enterprise frameworks into the Enterprise Manager Console. This page lists the available connectors. In order to use them on your system, they must be configured. Page Refreshed Feb 18, 2010 8:08:19 PM

Delete Previous 1-3 of 3 Next

Select	Name	Version	Description	Configured	Configure
<input type="radio"/>	Ops Center Connector	10.2.0.5.0	Integrates Ops Center notifications as Enterprise Manager Alerts	<input checked="" type="checkbox"/>	
<input type="radio"/>	Microsoft Operations Manager Connector	10.2.0.5.0	Microsoft Operations Manager Integration with Enterprise Manager	<input type="checkbox"/>	
<input type="radio"/>	Remedy Connector	10.2.0.5.0	Remedy integration with EM	<input type="checkbox"/>	

3. Click the **Configure** icon for the Ops Center Connector. The General tab of the Configure Management Connector page appears as seen below.

**Figure 2–2 General Tab of Configure Management Connector**



4. Provide the following required settings. See [Section 2.3.1, "General Settings"](#) for details. You must choose *HTTPS* as the protocol to establish a connection between Ops Center and Enterprise Manager.
  - a. Replace the *[Hostname]*, including the brackets, in each of the three endpoint URLs with the Ops Center Enterprise Controller host name or IP address. The following is an example of a valid Web Service End Point
 

```
https://myhostname:443/soap/NotificationBridge
```
  - b. Add the Ops Center and Oracle Enterprise Manager credentials:
    - Ops Center – The Ops Center user created for connector use and the associated password
    - Oracle Enterprise Manager – The Oracle Enterprise Manager sysman user and the associated password
  - c. Enter a polling time of at least five (5) minutes
  - d. Click **OK** to save the configuration
5. Optional: Go to the Targets tab and specify the details for creating additional target instances. See [Section 2.4, "Managing and Creating Targets"](#) for details.
6. Click **OK**.

The Management Connectors page reappears. The Ops Center Connector row contains a check mark in the Configured column

Figure 2-3 Management Connectors Page With Configured Column Checked

The screenshot shows the Oracle Enterprise Manager 10g Grid Control interface. The main content area is titled "Management Connectors" and contains a table with the following data:

Select	Name	Version	Description	Configured	Configure
<input checked="" type="checkbox"/>	Ops Center Connector	10.2.0.5.0	Integrates Ops Center notifications as Enterprise Manager Alerts	✓	
<input type="checkbox"/>	Microsoft Operations Manager Connector	10.2.0.5.0	Microsoft Operations Manager Integration with Enterprise Manager		
<input type="checkbox"/>	Remedy Connector	10.2.0.5.0	Remedy integration with EM		

### 2.3.1 General Settings

This section provides the communication details required for configuring the connector.

- Web Service End Points — Web Service End Point (URL) for each of the three Operations (getNewAlerts, getNewAlerts and updateAlerts). Only the host name will be updated for your environment.
- Ops Center Username — Ops Center user created for connector use.
- Ops Center Password — The above users password.
- Enterprise Manager Username — Enter the user name to be used to insert alerts; for example, SYSMAN. The user must have full privileges on the Ops Center Managed Host target. Administrator privileges are recommended; for instance, you should be a super user such as SYSMAN.
- Enterprise Manager Password — Enter a password for the user name you specified.
- Polling Interval — Enter the time interval between event collections. The polling interval should not be shorter than 5 minutes. If you define an interval shorter than 5 minutes, it defaults to 5 minutes.

### 2.3.2 Default Connector Target

When you register the connector, a default connector target named *generic\_ops\_center\_managed\_host* is created. This default connector target is displayed in the Grid Control Console as *Ops Center Managed Host*. It is associated with any alerts received from Ops Center which cannot be matched to any other Enterprise Manager targets.

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**Note:** Do not remove the default *generic\_ops\_center\_managed\_host* connector target. If the default target is removed, alerts which cannot be mapped to any other target will generate an error message, which is logged in the *eocs.log* file.

---



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## 2.4 Managing and Creating Targets

In addition to the default connector target, you can create new Ops Center Managed Host targets. These targets can receive alerts from associated connectors.

This section discusses the following topics:

- [Connector Target Alert Association \(Alert Routing\)](#)
- [Create Connector Targets \(Optional\)](#)
- [Response Status of Targets](#)

### 2.4.1 Connector Target Alert Association (Alert Routing)

The alerts created by the Ops Center Management Connector can be associated with either Enterprise Manager Grid Control Hosts or Ops Center Managed Hosts. Matching Grid Control Hosts have the highest precedence. If both a matching Ops Center Managed Host and a Grid Control Host alert is associated with the Enterprise Manager host, and if no matching target of either type exists, the alert is associated with the default connector target *generic\_ops\_center\_managed\_host*.

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**Note:** Enterprise Manager Grid Control patch 9153712 is required for routing Ops Center Alerts to Grid Control Hosts.

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An alert is assigned to respective targets based on the asset name in Ops Center which generated the alert. If you have assets managed only in Ops Center, connector targets may optionally be created to avoid generated alerts being associated with the default connector host. The Ops Center Management Connector also supports routing alerts to a specially named connector target, *ops\_center\_server*. To keep alerts about the Ops Center Server and Connectivity issues from being associated with the default target, *generic\_ops\_center\_managed\_host*, create a connector target named *ops\_center\_server*.

### 2.4.2 Create Connector Targets (Optional)

In the Configure Management Connector page, click the *Targets* tab to create specific target instances.

You can optionally create additional Ops Center Managed Host and associate external alerts with these target instances.

To add a new target, follow these steps:

1. As an Enterprise Manager Super Administration, click **Setup** in the upper right corner of the Enterprise Manager console.

2. Click the **Management Connectors** link in the left pane.

The Management Connectors page appears.

3. Click the **Configure** icon for the Ops Center Connector.

The General tab of the Configure Management Connector page appears.

4. Specify the target name you would like to use for the created Ops Center Managed Host
5. In the HOSTNAME column, specify the asset name of the Ops Center target from which you would like to receive alerts.
6. Click **OK**.

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**Note:** If you want to create more target instances, click **Add Rows** to add additional rows and then specify the target information. To remove a target, check the *Select* check box corresponding to the target, click **Remove**, then click **OK**.

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### 2.4.3 Response Status of Targets

In Enterprise Manager, the response status of targets typically indicates whether an application is running. However, the response status will always be Pending for targets managed by Ops Center. For current detailed information of managed assets, use the Ops Center user interface.

## 2.5 Uninstalling the Ops Center Connector

To uninstall the Ops Center Connector from Oracle Enterprise Manager:

1. Select the Ops Center Connector in the Management Connectors page.
2. Click **Delete**. If you remove this connector at some point and then want to subsequently re-register it, see [Section 2.1, "Register the Connector and Templates"](#).

To remove the Notification Bridge from Ops Center:

1. As root, log in to the Enterprise Controller.
2. Use the *pkgrm* command to remove the notification package.

```
# pkgrm ./SUNWxvmoc-notification-ws.pkg SUNWxvmoc-notification-ws
```
3. Stop and restart the Enterprise Controller.

```
# sataadm stop -w
# sataadm start -w
```

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## Ops Center Notifications

Ops Center monitors the health of your operating systems and hardware. Create and configure the Ops Center Notification Profile to alert specific users to receive an notification when a threshold or parameter is crossed.

This chapter discusses the following topics:

- [OS Monitoring Notifications](#)
- [Hardware Monitoring Notifications](#)
- [Receiving Ops Center Notifications in Enterprise Manager](#)
- [Alert Timestamp Definitions](#)

### 3.1 OS Monitoring Notifications

Ops Center enables you to monitor the health of your Solaris, Linux, and Windows operating systems, including the following:

- Connectivity
- File system status
- Monitoring variables
- CPU usage
- Memory usage
- Network usage

When a pre-defined threshold or variable is crossed, a notification is sent. You can edit the thresholds and variables that control how OS monitoring takes place. See *Monitoring an OS in the Oracle Enterprise Manager Ops Center 2.5* documentation for the procedures to change thresholds and health states.

### 3.2 Hardware Monitoring Notifications

Ops Center enables you to monitor the following parameters on Sun hardware:

- Hardware health status
- Manage and monitor the power states of a system and power systems on and off
- Power usage for ILOM based servers and chassis
- Monitor hardware variables and connectivity, including M-series servers

### 3.3 Receiving Ops Center Notifications in Enterprise Manager

The Management Connector enables you to forward Ops Center OS and hardware monitoring notifications to Enterprise Manager, thereby enabling better correlation of IT problems across the technology stack.

After the notifications are forwarded to Enterprise Manager, they are associated with the appropriate targets, depending on the mapping option(s) that you selected. The connector tracks the alerts forwarded from Ops Center and automatically updates information in Enterprise Manager. The alerts are cleared from the Oracle Enterprise Manager Grid Control seven (7) days after the alert is sent.

The Ops Center notification severity appear as the following Alert severity in Enterprise Manager:

Ops Center Notification Severity	Enterprise Manager Alert Severity
Low	Warning
Medium	Warning
High	Critical

You can specify how alerts are triggered, and which alerts are triggered by configuring the monitoring parameters and the user's Notifications Profile in Ops Center.

### 3.4 Alert Timestamp Definitions

The date and time for an Ops Center generated alert that appears in the Grid Control console might differ from the those that are generated by Enterprise Manager. In most cases, the timestamp reflects the date and time that Grid Control received the alert from Ops Center.

If an Ops Center Notification was sent to Grid Control, the timestamp displayed in each field is defined as follows:

**Table 3–1 Alert Timestamp Definitions**

Field Name	Description of the Date and Time
Message	The date and time that the alert was triggered in Ops Center
Alert Triggered	The date and time that Grid Control received the alert from Ops Center
Last Checked	The date and time that Grid Control received the alert from Ops Center
Last Collected Timestamp	The date and time that Grid Control received the alert from Ops Center

**Note:** The actual date and time that the alert was identified by Ops Center appears in the alarm text.