

Oracle® Enterprise Manager Ops Center

Discovering and Managing Hardware

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This guide provides an end-to-end example for how to use Oracle Enterprise Manager Ops Center.

Introduction

Oracle Enterprise Manager Ops Center can manage and monitor a variety of data center assets, including server hardware, chassis, racks, network equipment, operating systems, virtualization software, and clustering software. Discovering and managing your assets is a prerequisite for almost every action in the software. You can discover assets using a discovery profile, which specifies the discovery targets, protocols, and credentials for accessing and managing them.

The following sections are covered in this document:

- [Discovering Existing Hardware](#)
- [Discovering New Hardware](#)

This guide explains how to discover existing hardware using a discovery profile created for a configured service processor of one of the following types:

- Embedded Lights-Out Manager (ELOM)
- Advanced Lights-Out Manager (ALOM)
- Integrated Lights-Out Manager (iLOM)
- eXtendend Service Control Facility (XSCF)

You must include a combination of Telnet, Intelligent Platform Management Interface (IPMI), or SSH credentials in the discovery profile, to allow the discovery job to access the servers. This information is covered in [Creating Credentials](#).

Additionally, you can discover new hardware by declaring servers for Operating System (OS) provisioning and declaring servers for service processor configuration. You can find information about these topics in [Discovering New Hardware](#).

See [Related Articles and Resources](#) for links to related information and articles about discovering and managing other assets.

What You Will Need

You will need the following:

- Access to a system running Oracle Enterprise Manager Ops Center.

- *Ops Center Admin* role to discover assets, and *Ops Center Security Admin* role to create credentials in Oracle Enterprise Manager Ops Center.
- One or more hardware assets and the admin credentials needed to access the service processors.
- A server with a configured ELOM, ALOM, ILOM, or XSCF service processor.

Discovering Existing Hardware

You can discover existing hardware with configured service processors using a discovery profile. A discovery profile is a combination of an asset type, a set of host names or IP addresses, and a set of credentials.

This guide exemplifies the discovery of servers with ELOM, ALOM, ILOM, and XSCF service processors following three steps:

1. See [Creating Credentials](#) to determine the set of credentials you need to generate for your type of server.
2. See [Creating a Discovery Profile](#) to generate a profile for your type of server including the proper set of credentials. You can also include a range of IP addresses in the discovery profile.
3. Conclude with [Adding the Hardware Using the Discovery Profile](#). You can include the IP address of the service processor in this step.

Creating Credentials

You must use a set of credentials to discover assets. You can create a new set of credentials or use existing credentials to connect with assets. Based on the choice of server type during the creation of a discovery profile, Oracle Enterprise Manager Ops Center displays only those protocols that are relevant to the asset.

[Table 1](#) lists the required credentials for each type of server that you can create before generating a discovery profile. Alternatively, you can create the credentials using the discovery profile wizard.

Table 1 Server Types and Required Credentials

Service Processor	Required Credentials	Server Examples
ELOM	IPMI, SSH	Sun Fire X4150
ALOM	Telnet or SSH	Sun Fire T2000
ILOM	IPMI, SSH	Sun Fire X4150, Oracle SPARC T-Series, Oracle SPARC M5-32
XSCF	SSH or Telnet	Oracle M-Series, Fujitsu M10

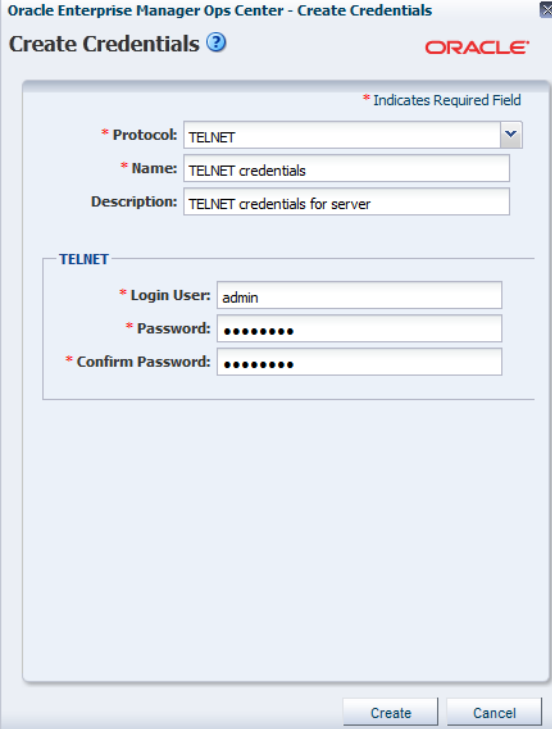
Before continuing with the creation of a discovery profile, identify the credentials that you need for your server and follow the instructions to create them:

- [Creating Telnet Credentials](#)
- [Creating SSH Credentials](#)
- [Creating IPMI Credentials](#)

Creating Telnet Credentials

To create Telnet credentials, perform the following steps:

1. Click Plan Management on the Navigation pane, then click **Credentials**.
2. Click **Create Credentials** on the Actions pane. The Create Credentials wizard appears.



The screenshot shows the 'Create Credentials' wizard in Oracle Enterprise Manager Ops Center. The window title is 'Oracle Enterprise Manager Ops Center - Create Credentials'. The wizard is titled 'Create Credentials' and features the Oracle logo. A legend indicates that an asterisk (*) denotes a required field. The form contains the following fields:

- * Protocol:** A dropdown menu with 'TELNET' selected.
- * Name:** A text input field containing 'TELNET credentials'.
- Description:** A text input field containing 'TELNET credentials for server'.
- TELNET:** A section header for the Telnet-specific fields.
 - * Login User:** A text input field containing 'admin'.
 - * Password:** A password input field with masked characters (dots).
 - * Confirm Password:** A password input field with masked characters (dots).

At the bottom of the wizard, there are two buttons: 'Create' and 'Cancel'.

3. Select Telnet from the drop-down list in the Protocol field.
4. Enter a name for the discovery credentials in the Name field.
5. Enter a description in the Description field.
6. Enter the user name in the Login User field.
7. Enter a password for the user in the Password field. Retype the same password in the Confirm Password field.
8. Click **Create**. The system creates the credentials for Telnet.

Creating SSH Credentials

To create SSH credentials, perform the following steps:

1. Click Plan Management on the Navigation pane, then click **Credentials**.
2. Click **Create Credentials** on the Actions pane. The Create Credentials wizard appears.

3. Select SSH from the drop-down list in the Protocol field.
4. Enter a name for the credentials in the Name field.
5. Enter a description in the Description field.
6. Enter a user name to login, in the Login User field.
7. Type a password in the Password field. Retype the same password in the Confirm Password field.

Note: If a non-privileged user logs in, Oracle Enterprise Manager Ops Center runs the “su” command to elevate the user to a root/privileged user. The privileged role of the user role and password must be entered in the respective fields.

8. Change the SSH port number as needed. The default port number is 22.
9. Click **Create**. The system creates the credentials for SSH.

Creating IPMI Credentials

To create IPMI credentials, perform the following steps:

1. Click Plan Management on the Navigation pane, then click **Credentials**.
2. Click **Create Credentials** on the Actions pane. The Create Credentials wizard appears.

3. Select IPMI from the drop-down list in the Protocol field.
4. Enter a name for the discovery credential in the Name field.
5. Enter a description in the Description field.
6. Enter the user name in the Login User field.
7. Enter a password for the user in the Password field. Retype the same password in the Confirm Password field.
8. Click **Create**. The system creates the credentials for IPMI.

Creating a Discovery Profile

The asset discovery job requires a discovery profile. Discovery profiles simplify managing multiple sets of discovery criteria and offer persistent storage of access credentials. You can provide discovery information, such as the discovery credentials during profile creation or when you run a discovery job using the profile.

- [Creating a Discovery Profile for an ELOM Service Processor](#)
- [Creating a Discovery Profile for an ALOM Service Processor](#)
- [Creating a Discovery Profile for an ILOM Service Processor](#)
- [Creating a Discovery Profile for an XSCF Service Processor](#)

Creating a Discovery Profile for an ELOM Service Processor

Perform the following steps to create a discovery profile for a ELOM service processor:

1. Click Plan Management on the Navigation pane.
2. Under Profiles and Policies, click **Discovery**.
3. Click **Create Profile** in the Actions pane.

4. Enter a name and description for the discovery profile.
5. In the Asset Type, under Server Hardware, select ELOM Service Processor. Click **Next**.

Identify Profile * Indicates Required Field

* Name: X4150 Server

Description: Discovery profile for a X4150 server (ELOM)

Asset Type:

- Operating Systems
- Server Hardware
 - ILOM Service Processor
 - ELOM Service Processor**
 - ALOM Service Processor
 - XSCF Service Processor
 - RSC Service Processor
 - V20z, V40z Service Processor
 - Other IPMI Service Processor
- Oracle Engineered Systems
- Oracle VM
- Storage
- Networking
- Datacenter Infrastructure
- Cluster Products

6. Click **Next**. In this example, tag information is not used.
7. Click **Next**. You can add the IP address or IP ranges when you discover the asset.
8. In the Discovery Credentials wizard, click the **Select** button for SSH. The wizard to select SSH credentials appears.

Discovery

Use system's default credentials

SSH: New Select Clear

IPMI: New Select Clear

9. Select the SSH credentials that you have created, then click **OK**.
10. Repeat the same operation for the IPMI credentials.
11. Review the summary information, then click **Finish**. Oracle Enterprise Manager Ops Center creates the discovery profile.

Creating a Discovery Profile for an ALOM Service Processor

Perform the following steps to create a discovery profile for an ALOM service processor:

1. Click Plan Management on the Navigation pane.
2. Under Profiles and Policies, click **Discovery**.
3. Click **Create Profile** in the Actions pane.
4. Enter a name and description for the discovery profile.
5. In the Asset Type, under Server Hardware, select ALOM Service Processor. Click **Next**.

Identify Profile * Indicates Required Field

* **Name:** T2000 Server

Description: Discovery profile for a T2000 server (ALOM)

Asset Type:

- Operating Systems
- Server Hardware
 - ILOM Service Processor
 - ELOM Service Processor
 - ALOM Service Processor**
 - XSCF Service Processor
 - RSC Service Processor
 - V20z, V40z Service Processor
 - Other IPMI Service Processor
- Oracle Engineered Systems
- Oracle VM
- Storage
- Networking
- Datacenter Infrastructure
- Cluster Products

6. Click **Next**. In this example, tag information is not used.
7. Click **Next**. You can add the IP address or IP ranges when you discover the asset.
8. In the Discovery Credentials wizard, click the **Select** button against Telnet. The SSH protocol is not used in this example discovery profile, only the Telnet credentials for the service processor are used instead. The wizard to select Telnet credentials appears.

Discovery

Use system's default credentials

SSH: New Select Clear

TELNET: New Select Clear

9. Select the Telnet credentials that you have created, then click **OK**.
10. You can repeat the operation to add SSH credentials to the discovery profile.
11. Review the summary information, then click **Finish**. Oracle Enterprise Manager Ops Center creates the discovery profile.

Creating a Discovery Profile for an ILOM Service Processor

Perform the following steps to create a discovery profile for an ILOM service processor:

1. Click Plan Management on the Navigation pane.
2. Under Profiles and Policies, click **Discovery**.
3. Click **Create Profile** in the Actions pane.
4. Enter a name and description for the discovery profile.
5. In the Asset Type, under Server Hardware, select ILOM Service Processor. Click **Next**.

Identify Profile * Indicates Required Field

* **Name:** T5-8 Server

Description: Discovery profile for a T5-8 server (ILOM)

Asset Type:

- Operating Systems
- Server Hardware
 - ILOM Service Processor**
 - ELOM Service Processor
 - ALOM Service Processor
 - XSCF Service Processor
 - RSC Service Processor
 - V20z, V40z Service Processor
 - Other IPMI Service Processor
- Oracle Engineered Systems
- Oracle VM
- Storage
- Networking
- Datacenter Infrastructure
- Cluster Products

6. Click **Next**. In this example, tag information is not used.
7. Click **Next**. You can add the IP address or IP ranges when you discover the asset.
8. In the Discovery Credentials wizard, click the **Select** button for SSH. The wizard to select SSH credentials appears.

Discovery

Use system's default credentials

SSH: New Select Clear

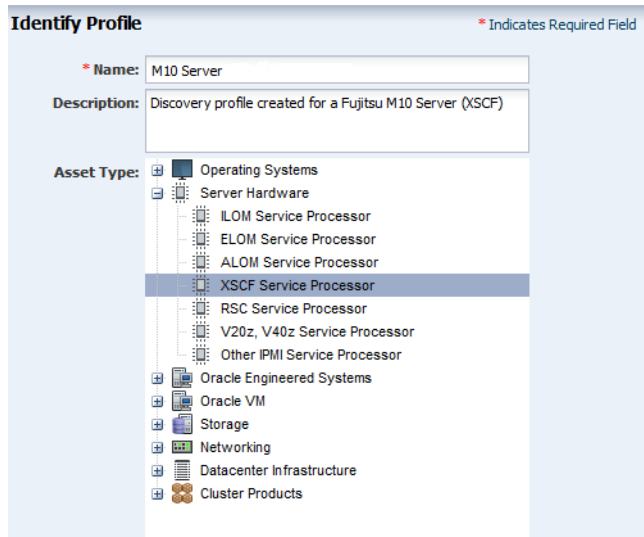
IPMI: New Select Clear

9. Select the SSH credentials that you have created, then click **OK**.
10. Repeat the operation for the IPMI credentials.
11. Review the summary information, then click **Finish**. Oracle Enterprise Manager Ops Center creates the discovery profile.

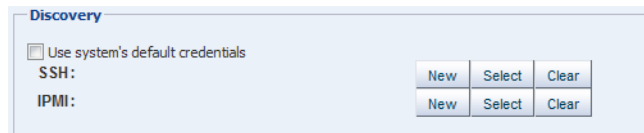
Creating a Discovery Profile for an XSCF Service Processor

Perform the following steps to create a discovery profile for an XSCF service processor:

1. Click **Plan Management** on the Navigation pane.
2. Under Profiles and Policies, click **Discovery**.
3. Click **Create Profile** in the Actions pane.
4. Enter a name and description for the discovery profile.
5. In the Asset Type, under Server Hardware, select XSCF Service Processor. Click **Next**.



6. Click **Next**. In this example, tag information is not used.
7. Click **Next**. You can add the IP address or IP ranges when you discover the asset.
8. In the Discovery Credentials wizard, click the **Select** button for SSH. The wizard to select SSH credentials appears.



9. Select the SSH credentials that you have created, then click **OK**.
10. You can repeat the operation to add TELNET credentials to the discovery profile.
11. Review the summary information, then click **Finish**. Oracle Enterprise Manager Ops Center creates the discovery profile.

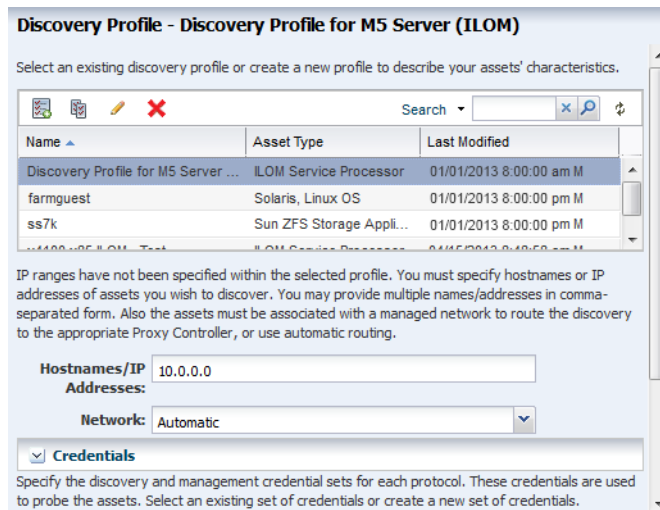
Adding the Hardware Using the Discovery Profile

After you have created the discovery profile, you can run an Add Assets job using the profile to discover and manage the server.

1. Click **All Assets** in the Assets section of the Navigation pane.
2. Click **Add Assets** in the Actions pane.
3. Select *Add and Manage Various Types of Assets via Discovery Probes*, then click **Next**.

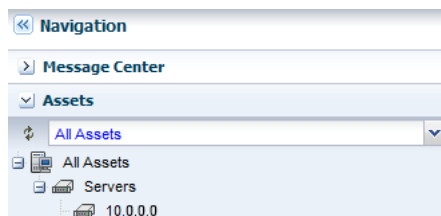


4. Select the discovery profile.



5. Enter the host name or IP address of the service processor, then click **Add Now** to launch the discovery. The system launches the discovery job. This might take a few minutes to complete.

After the discovery job completes successfully, the service processor is visible in the Navigation pane under Servers as shown in the following figure.



Discovering New Hardware

You can discover new hardware that does not have a configured service processor or operating system.

The following tasks are covered in this section:

- [Declaring Servers for OS Provisioning](#)
- [Declaring Servers for Service Processor Configuration](#)

Declaring Servers for OS Provisioning

The *Manually declare a server to be a target of OS provisioning* option enables you to declare one or more bare metal systems in preparation for OS provisioning, even if the systems have no configured service processors.

You can declare a single server by entering the server information directly into the wizard, or declare multiple servers using a discovery file containing the information for all of the servers.

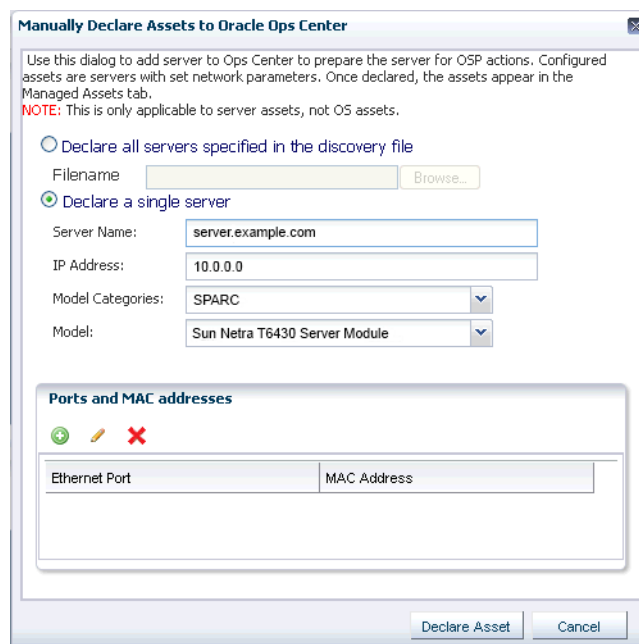
This option also allows Oracle Enterprise Manager Ops Center to configure a virtual server for OS provisioning. The asset does not need to have a service processor connected to the discovery network. Oracle Enterprise Manager Ops Center uses the OS interface for net boot provisioning.

To declare a single server for OS Provisioning, perform the following steps:

1. Click **All Assets** in the Assets section of the Navigation pane.
2. Click **Add Assets** in the Actions pane.
3. Select *Manually Declare a Server to be a Target of OS Provisioning*, then click **Next**.



4. Select **Declare a Single Server** and enter the server information in the respective fields.



- **Server Name:** The name of the server that should appear in the UI.
- **IP Address:** Specify an IP address to route the discovery to the correct Proxy Controller. You do not need to use the actual IP address of a server. You can use an IP address that is on the same subunit as the server to be discovered.
- **Model Category:** Select the category in which the asset model appears.
- **Model:** The model of the asset.
- **MAC Address and Port combination:** Used to connect to the server once it is available on the network. Click the **Add** or **Edit** icons to add or edit a MAC Address/Port combination, then select the combination.

Enter a logical port name for each network interface. One of these logical port names must be GB_0. Available logical port names are GB_0 through GB_11. You can also use "mgmt" as a management port. These logical port names are mapped to network interfaces after the asset has been provisioned, according to the MAC addresses that you specify. If the server has only one network interface, use GB_0.

Enter the MAC addresses of the network interfaces on the server that you want to declare.

5. Click **Declare Asset**. The system discovers the new hardware which is now ready for the OS to be provisioned on it.

Declaring Servers for Service Processor Configuration

The *Declare an unconfigured hardware asset* option lets you declare one or more bare metal systems in preparation for service processor configuration.

The assets being declared do not need to be physically connected to the network at the time of the discovery, because the assets produced by an asset declaration are skeletal representations of the real assets. These assets can then be targeted with service processor configuration jobs. Once the real assets are connected to the network, provisioned, and discovered, they will be correlated with the declared version into complete assets.

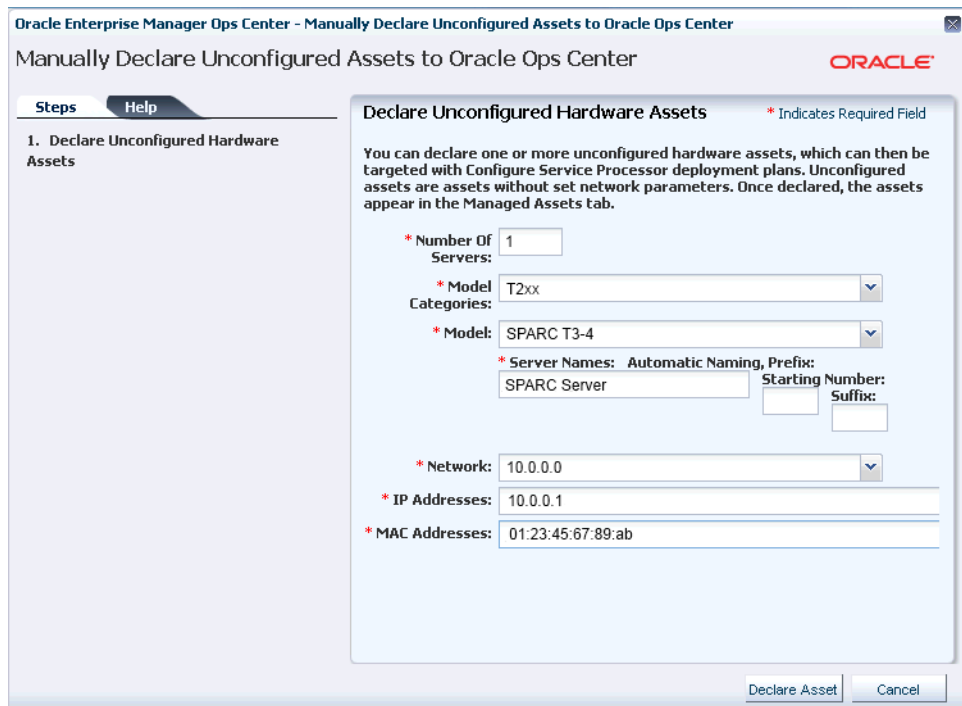
The service processors need to be connected to the discovery network, and need to have temporary IP addresses assigned. The job searches a range of IP addresses for the entered MAC addresses and represents the result as servers. The discovered service processors can subsequently be configured, assigned to permanent IP addresses and administrative passwords.

To declare unconfigured assets for service processor configuration, perform the following steps:

1. Click **All Assets** in the Assets section of the Navigation pane.
2. Click **Add Assets** in the Actions pane.
3. Select *Declare an Unconfigured Hardware Asset*, then click **Next**.



4. Enter data for the servers to be declared in the respective fields.



- Number of Servers: The total number of servers to be discovered.
- Model Categories: The model category of the servers.
- Model: The specific model of the servers.
- Server Names: The names of the servers, including:
 - Prefix: A prefix that appears before each server name. This field is required.
 - Starting Number: The number of the first server. The number will be increased by one for each additional server. This field is required.
 - Suffix: A suffix that appears after each server name.
- Network: The network on which the server or servers will be added.
- IP addresses: The IP addresses to be used for the servers.
- MAC Addresses: The MAC Addresses of the servers.

5. Click **Declare Asset**. The system discovers the new hardware prepares it for the OS to be provisioned on it.

What's Next?

After you have added the hardware, you can discover and manage the operating system on the hardware.

Related Articles and Resources

The following chapters in the *Oracle Enterprise Manager Ops Center Feature Reference Guide* contain more information:

- See *Asset Management* for more information about discovery and management procedures for different types of servers.
- See *Hardware* for information about managing and monitoring hardware assets.
- See *Operating System Provisioning* for information about provisioning operating systems to hardware assets.

See the *Command Line Interface Guide* for information about discovering assets using the CLI.

The following resources contain more examples and information about discovering different types of assets:

- See *Discovering and Managing an Oracle SPARC T5 server*, *Discovering and Managing an Oracle SPARC M5 and M6 Servers*, and *Discovering and Managing a Fujitsu M10 Server* for more examples on how to discover a new server in Oracle Enterprise Manager Ops Center.
- Visit the *Deploy How To library* at http://docs.oracle.com/cd/E40871_01/nav/deplohowto.htm and the *Operate How To library* at http://docs.oracle.com/cd/E40871_01/nav/operatehowto.htm for more Oracle Enterprise Manager Ops Center deployment and operational guides.

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