Oracle® Enterprise Manager Ops Center

Quick Start Guide

12*c* Release 1 (12.1.1.0.0)

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This guide describes how to perform a simple software deployment.

Introduction

Oracle Enterprise Manager Ops Center is an enterprise-level datacenter automation software tool. This guide walks you through how to quickly install and configure the software for a basic monitoring setup. After you configure the software, you can add assets, view the operating system analytics, monitor assets, and view alerts and incidents.

This configuration is not practical for larger datacenters, but it does get you started with the software. You can update or change the configuration at any time to add remote Proxy Controllers for a larger scale deployment and to enable other features, such as OS provisioning and updates.

The following topics are covered in this guide:

- Get Ready
- Install and Configure the Software
- Add Assets
- View Analytics
- Monitor Assets
- Where to Go From Here

For an overview of the software and features, see the *Oracle Enterprise Manager Ops Center Concepts Guide*.

Get Ready

Many configurations are possible, but we have simplified it for a quick start. This guide describes how to install and configure an Enterprise Controller with a colocated Proxy Controller that uses a local database.

You will configure the Enterprise Controller to run in disconnected mode. You can change the connection mode to connect the Enterprise Controller to the Internet after you configure the software. The Internet connection, either directly or through an HTTP proxy, provides the most efficient and direct method of obtaining operating system and software updates. You can also view service requests and configure automated service requests when you are in connected mode.

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A lightweight utility, called the OCDoctor, verifies that your system meets the requirements to successfully install and run the software.

What You Will Need

You need the following for a simple installation and configuration:

1. A system to run the software:

    ■ SPARC or x86 platform that is running a supported Oracle Solaris or Linux OS, such as Oracle Solaris 11, Oracle Solaris 10 9/10, or Oracle Linux 5.5.

    ■ 87 GB of disk space.

    ■ 6 GB Swap Space.

    ■ 6 GB Memory.

    ■ Root access.

2. One or more systems to monitor:

    ■ Root access to a SPARC or x86 platform that is running a recent operating system version, such as Oracle Solaris 10 or 11, or Oracle Linux 5.5.

    ■ A newer Oracle Sun server (at least 2006).

    ■ Enable the SSH services on the OS and know the port number (the default is 22).

3. OCDoctor utility to test for requirements.

    ■ See Run the OCDoctor to Identify Prerequisites for where to download the file.

4. The Oracle Enterprise Manager Ops Center 12*c* software.

    ■ See Get the Software for where to download the software bundle.

5. An e-mail address for a My Oracle Support (MOS) user account. This is needed for the service request, automated service request, provisioning, and update features.

6. (Optional) An Internet connection.

Run the OCDoctor to Identify Prerequisites

The OCDoctor quickly identifies potential issues before you download and install the software. In some cases, it provides a fix. New versions of the OCDoctor are released regularly. Be sure to get the latest version.

To check the computer compatibility before downloading the software:

1. Go to http://java.net/projects/oc-doctor/downloads and download the OCDoctor-LATEST.zip file to the /var/tmp/OC directory on the system.

2. Unzip the file and run the utility with the --ec-prereq option.

    The utility checks for conditions and returns an OK or Warning.

    For example:

```
# ./OCDoctor.sh --ec-prereq
Ops Center Doctor version 4.0.5 (Aug 11 2011 [Build 402])
========= Checking Enterprise Controller Requirements ... ====================
OK: Size of Main Memory: 8192 MB
OK: Size of swap space: 8197 MB
OK: Found enough disk space on /var/opt/sun/xvm (114G)
```

```
OK: Installed Solaris Package Cluster: SUNWCall
OK: Solaris 10 found
OK: Solaris 10 u9 found
<Output omitted>
```

3. If you receive any warnings, fix them before installing the software.

    For example, a warning appears when you use NIS and you have a `groupip 60` in your NIS group. To temporarily bypass, comment out the NIS entries during the installation.

    ```
    passwd:     files # nis
    ```

    ```
    group:      files # nis
    ```

Get the Software

Platform-specific software bundles are located on the Oracle Technology Network.

1. Make a `/var/tmp/OC` directory on your system.

2. Go to the Oracle Technology Network `http://www.oracle.com/technetwork/indexes/downloads/index.html`. Scroll down to find the link to the Oracle Enterprise Manager Ops Center Downloads site. Read and accept the license at the top of the page.

3. Download the Enterprise Controller for your OS platform and save the bundle on the directory you created in step 1.

    for Solaris Operating System 10 (SPARC)
    ⬇ Enterprise Controller and all supported Agent and Proxy Controllers
    ⬇ Proxy Controllers

    for Solaris Operating System 10 (x86)
    ⬇ Enterprise Controller and all supported Agent and Proxy Controllers
    ⬇ Proxy Controllers

    for Red Hat Enterprise Linux 5.0 - 5.5 x86 (32 and 64 bit) & Oracle Linux 5.3 - 5.5 x86 (32 and 64 bit)
    ⬇ Enterprise Controller and all supported Agent and Proxy Controllers
    ⬇ Proxy Controllers

4. Unzip the bundle.

Install and Configure the Software

The software is easy to install, just launch the script. Once installed, open the application in a browser and answer the configuration questions about how you want to run the software, then you are ready to start adding assets to monitor.

You are prompted to provide a My Oracle Support (MOS) account during setup. The MOS account is required to fully enable all capabilities. The account is not required for installation or basic monitoring. You can provide a MOS account in the UI after the installation is complete to enable other features.

Install the Software

1. Go to the `/var/tmp/OC/xvmoc_full_bundle` directory and run the install script.

    ```
    # ./install
    ```

2. The Oracle Configuration Manager installation starts. Enter a MOS e-mail address to associate with Oracle Enterprise Manager Ops Center.

```
# cd xvmoc_full_bundle
# ls
install          Linux_i686        SunOS_i386          xvmoc_update_bundle
license          ocasmp            SunOS_sparc
# ./install

Proceeding with Oracle Configuration Manager installation and configuration.

Oracle Enterprise Manager Ops Center installation will follow.
Provide your email address to be informed of security issues, install and
initiate Oracle Configuration Manager. Easier for you if you use your My
Oracle Support Email address/User Name.
Visit http://www.oracle.com/support/policies.html for details.
Email address/User Name: []
```

3. The installer takes about 15 minutes to run and updates as the steps are completed, as shown below. When all items are completed, you are prompted to configure the software.

```
Ops Center Enterprise Controller Installer
(version 12.1.0.0 on SunOS)

1. Check for installation prerequisites. [Completed]
2. Configure file systems. [Completed]
3. Install prerequisite packages. [Not Completed]
4. Install Agent components. [Not Completed]
5. Create Deployable Proxy Bundles. [Not Completed]
6. Install application packages. [Not Completed]
7. Run postinstall tasks. [Not Completed]
8. Install Expect. [Not Completed]
9. Install IPMI tool. [Not Completed]
10. Set database credentials. [Not Completed]
11. Install and configure Oracle Database. [Not Completed]
12. Install Service container components. [Not Completed]
13. Install Core Channel components. [Not Completed]
14. Install Proxy Core components. [Not Completed]
........................
19. Initialize and start services. [Not Completed]
(2 of 19 Completed)

Executing current step: Install prerequisite packages...
```

Configure the Software

A simple deployment configures the Proxy Controller on the Enterprise Controller system. This configuration does not set up the image and update libraries or DHCP services that are required for provisioning and updating your operating systems.

In this procedure, the Enterprise Controller is configured to run in disconnected mode, which means that it is not connected to the Internet.

1. To log into the software, go to https://<system name>:9443.

2. Enter the system's root user name and password. Select Ops Center local as the default database source. Click Log In.
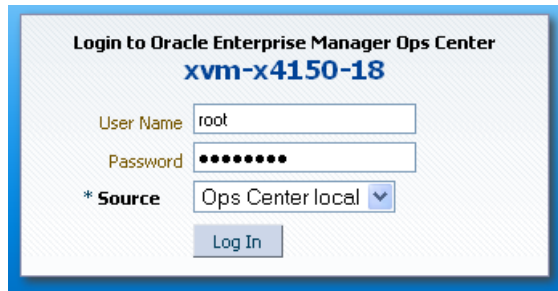
3. If the Prerequisite Checklist appears, your system might not meet the minimum requirements.

- If the checklist indicates system changes are required, cancel the configuration and make the suggested changes.

- To continue, click Next.

4. Click Next to accept the following default values on the Enterprise Controller Setup page:

- **EC Name** – The default is the system that the Enterprise Controller is installed on. This name appears in the UI masthead. You can change the name for better identification.

- **Administrative User** – Set the currently logged in User as the Administrative User. This is the only user that the software recognizes until you add other users. The Administrative User has the Enterprise Controller Admin and All Assets Admin roles.

- **Colocated Proxy** – Installs the Proxy Controller on the same system as the Enterprise Controller.

Enterprise Controller Setup * Indicates Required Field

Specify the name of the Enterprise Controller, the user with administrative privileges for Ops Center, and how to deploy Proxy Controllers for your data center. The name of the EC will be shown in the masthead of the application.

* EC Name: `xvm-x4600-3`

Administrative User

⊙ Set the currently logged in user as the Administrative User.

○ Set the following user as the Administrative User.

User Name: [   ]

Password: [   ]

Proxy Controllers

⊙ **Co-located Proxy**: The Proxy Controller will be installed on the same system as the Enterprise Controller. Not recommended for managing more than 250 systems.

○ **Remote Proxies**: One or more Proxy Controllers will be distributed across multiple network subnets. Recommended for performance and scalability of a data center with more than 250 managed systems.

○ **Manual Setup**: Installs no Proxy Controllers. You can install Proxy Controllers manually or through the user interface later. Warning: You cannot perform any asset operations in Ops Center without setting up a proxy.

The Proxy Controller configuration job is launched. Close the window when the configuration is complete.

5. Verify that the Proxy Controller you installed and configured is online, then click Next.

Proxy Controller Status

This table shows Proxy Controllers registered with this Ops Center, including the current status. A Proxy must be online to be able to perform jobs such as discovery. If Proxy registration/startup is still ocurring the status will update automatically. If the Proxy startup failed you can click Back to retry the Proxy deployment.

For enabled Proxies you may perform a remote connectivity check. A job will be sent to the specified Proxy, which will attempt to connect to a system in the Proxy's subnet using various discovery protocols and will report the status. You will be prompted for the remote system to check when you launch the operation.

Proxy Controller Status

Hostname ▲	Status	IP/Subnet Mask	Connectivity
xvm-x4600-3	ONLINE	10.79.204.76/255.255.255.0	Check

6. On the Connection Mode page, select the Disconnected mode option, then click Next.

Connection Mode

Choose the Enterprise Controller connection mode. You must select Connected Mode to automatically file Service Requests and to download the latest firmware and software updates.

○ **Connected Mode:** The Enterprise Controller will be connected to the Internet and the Oracle Data Center. My Oracle Support account credentials are required.

Extra Services: ☑ Automated Service Requests (ASR)

     ✓ Assisted Service Requests

     ✓ Automatic download of latest Firmware Updates

     ✓ Automatic download of latest Oracle Linux components

     ✓ Automatic download of latest Oracle Solaris 8 components

     ✓ Automatic download of latest Oracle Solaris 9 components

     ✓ Automatic download of latest Oracle Solaris 10 components

◉ **Disconnected Mode:** The Enterprise Controller will not be connected to the Internet. You can still perform OS provisioning, firmware updates and software updates by manually uploading the images and by specifying the paths to the software update bundles.

7. On the Create Software Libraries page, accept the default locations for the libraries, then click Next to configure the Update libraries.

Create Software Libraries   * Indicates Required Field

Enter the URL location for the following component libraries. The Enterprise Controller creates the libraries locally or connects to NAS libraries in the specified locations.

Software Library: `file:///var/opt/sun/xvm/locallib/swlib0`

* Linux and Oracle Solaris 8-10 Software Update Library: `file:///var/opt/sun/xvm/locallib/swlib2`

Example of local library URL: file://var/opt/sun /xvm/locallib/swlib0

Example of NAS library URL: nfs://192.168.1.1/fso

The Software Libraries store firmware images, ISO images, and flash archives. The Linux and Oracle Solaris 8-10 Software Update Library and the Oracle Solaris 11 Software Update Library store the OS images. The Oracle Solaris 11 Software Update Library is only created when you install the Enterprise Controller on an Oracle Solaris 11 operating system.

8. The Linux/Oracle Solaris 8-10 Software Bundle page appears, click Next to skip this step.

9. To perform OS provisioning, you must configure DHCP on the Proxy Controller. Click Next to skip this step.

Configure DHCP for OS Provisioning

DHCP configuration is only needed for OS provisioning, click Next to skip this step. Specify DHCP type and the corresponding Network Interfaces to enable DHCP on proxy controllers.

DHCP Configuration

Proxy Controller ▲	DHCP	DHCP Type	Network Interfaces
xvm-x4600-3 (10.79.204.76)	Disabled		

DHCP Configuration - xvm-x4600-3 (10.79.204.76)

DHCP Type: ISC

Available Network Interfaces
e1000g0

Selected Network Interfaces

Configure DHCP   Cancel Changes

10. Click Finish.

Summary

Click Finish to complete the configuration and launch the user interface.

EC Name: xvm-x4600-3

Administrative User: root

Proxy Controllers:

Hostname/IP	IP/Subnet Mask	Status	Maintenance	Tunnel Port
xvm-x4600-3	10.79.204.76/255.255.255.0	ONLINE	No	N/A

Connection Mode: Disconnected

Libraries for

Software: file:///var/opt/sun/xvm/locallib/swlib0

Linux and Oracle Solaris 8,9,10 Software Update: file:///var/opt/sun/xvm/locallib/swlib2

11. If you are going to manage Oracle Solaris 11 operating systems, upgrade the Oracle Solaris 11 Agent Controller. See the *Oracle Enterprise Manager Ops Center Administration Guide* for how to upgrade the Agent Controller from the UI.

Congratulations! You completed the installation and configuration. You can now add your systems to the UI and begin monitoring them.

Add Assets

Discovery profiles define the assets that you want to begin managing. The profiles are based on the type of asset, such as Oracle Solaris operating systems and server hardware with ILOM service processors.

You need at least two Discovery profiles, one for server hardware and another for operating systems. You can add the IP ranges and discovery credentials when you create the profile or when you use the profile to add assets. In this procedure, the profile does not contain IP addresses or credentials. The details to add specific assets are supplied when you apply the plan to the targets.

Create at least two Discovery profiles, the first to define the hardware and the other to define the operating system. Generally, the discovery order does not matter, but a good practice is to discover the chassis first, then blades, and finally the operating system.

Create Discovery Profiles

1. In Plan Management, scroll down to Profiles and Policies, then click Discovery.
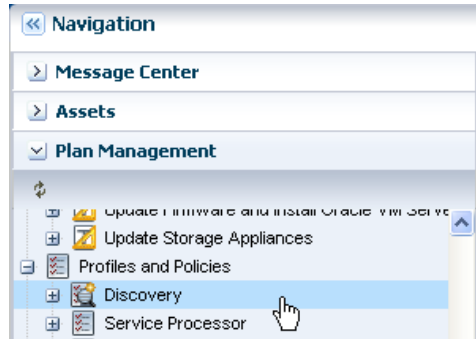
2. Click Create Profile in the Actions pane.

3. Enter a name for the discovery profile. Select the asset type, either the Server Hardware or the Operating Systems. Expand the asset type to further define the type. This example is for a system with an ILOM service processor. Click Next.
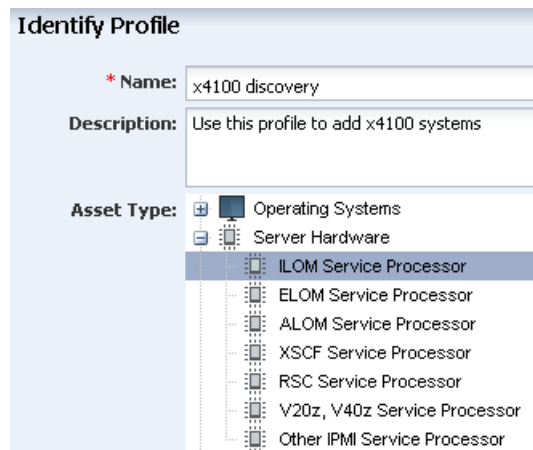
4. On the Tags page, click Next to skip adding tags in this procedure.

5. On the IP Ranges page, click Next to skip this step. This information is added later.

6. On the Discovery Credentials page, click Next to skip this step. This information is added later.

7. Click Finish to create the profile. The new profile appears in the center pane.

   Repeat this procedure until you have at least one service processor-specific hardware discovery profile and one OS-specific operating system discovery profile.

Add Hardware

Use the hardware discovery profile that you created earlier to add the hardware to the UI.

1. Open Assets in the Navigation pane, then click Add Assets in the Actions pane.
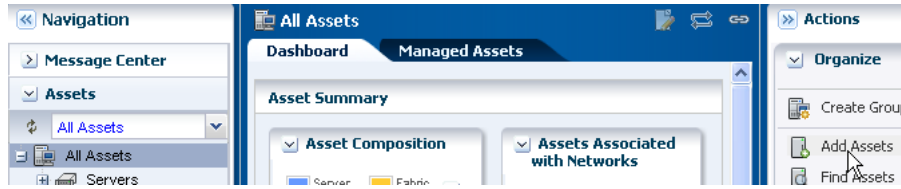
2. In Add Assets, select the first option to add and manage various types of assets. Click Next.
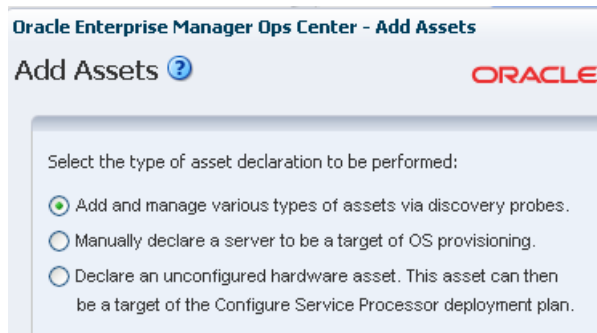
3. Select the Discovery Profile that you created earlier. When you select the profile, the page expands to include fields for the host name or IP address and discovery credentials.

   a. Enter the name or IP address of the service processor. You can use a comma delimited list to add more names or IP addresses.

   b. Select Automatic from the Network list.

   c. The credentials that you created earlier appear at the bottom of the page. To change them, click New and complete the Create Credentials page.

   d. Click Add Now.
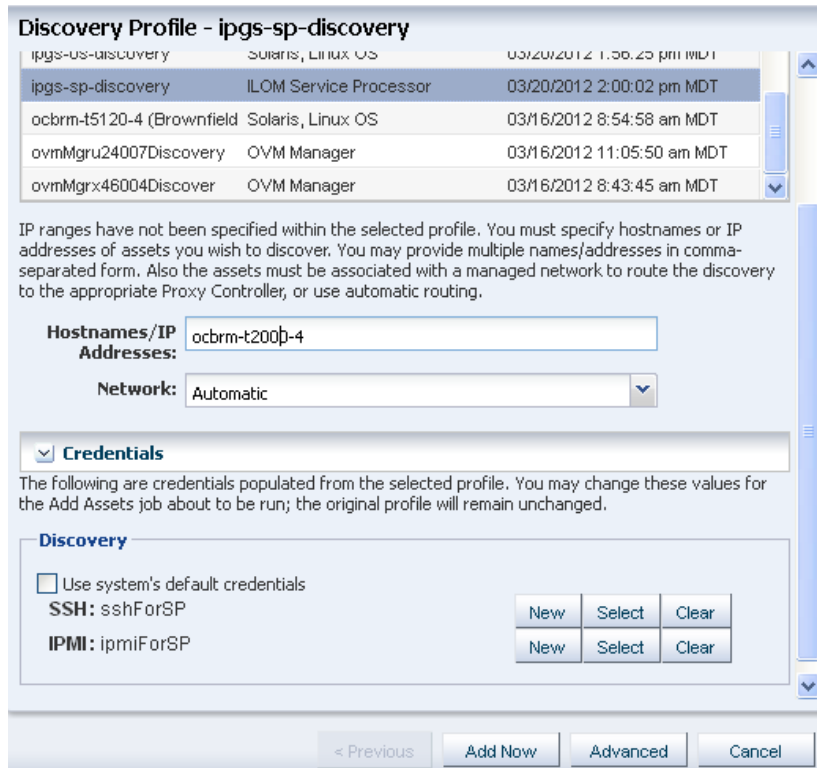
A job is launched to discover and manage the asset. You can use the same profile to discover other systems with ILOM service processors.

Add Operating System

Use the OS discovery profile that you created earlier to add the operating system to the UI.

1. Open Assets in the Navigation pane, then click Add Assets in the Actions pane.
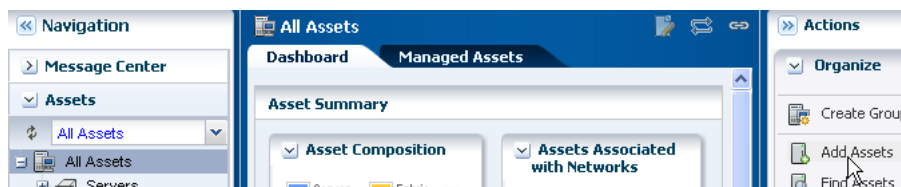
2. Select the first option to add and manage various types of assets. Click Next.
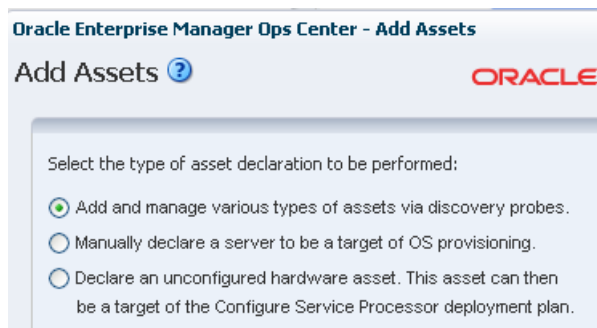
3. Select the OS discovery profile that you created. Click Next.

4. Click Next to skip adding tags in this procedure.

5. Do not specify IP addresses now. Click Next

6. Define the discovery credentials and management option.

   ■   To use previously defined credentials, click Select and choose from the list.

   ■   To create a new set of credentials, click New to launch a pop-up wizard.

Discovery Credentials

Optionally specify the discovery and/or management credential sets for each protocol. These credentials are used to probe the assets. Select an existing set of credentials or create a new set of credentials.

Discovery

SSH: New   Select

Management

After discovery, an asset must be managed for full data to be reported and actions to be available. Specify whether to manage the assets using Agent Deployment or Agentless.

⊙ Deploy Agent Controller. Required for software update and virtualization support.

○ Manage without Agent Controller. A Proxy Controller periodically probes the asset using SSH.

a. For new credentials, enter a name and description that identifies the credential. Enter the root user name and password for the system, then click OK to return to the Discovery Credentials page.

Create Profile - Discovery **Create Credentials** ⑦   ORACLE   ORAC

Steps   Help   * Indicates Required Field

1. Identify Profile   s for each protocol. These
2. Tags   * **Name:**   S10 Credentials   redentials or create a new se
3. IP Ranges   **Description:**   Oracle Solaris 10 credentials
4. **Discovery Credentials**
5. Summary   New   Select

                          SSH

                          * **Login User:**   user name   ported and actions to be avail
                          * **Password:**   ••••••••   r Agentless.
                          * **Confirm Password:**   ••••••••   irtualization support.

                          Privileged Role: ally probes the asset using SS

                          Role Password:

                          Confirm Password:

                          * **SSH Port:**   22

b. In the Management section of the Discovery Credentials page, select Deploy Agent Controller to install the Agent Controller on the asset.

Discovery Credentials

Optionally specify the discovery and/or management credential sets for each protocol. These credentials are used to probe the assets. Select an existing set of credentials or create a new set of credentials.

Discovery

SSH: New   Select

Management

After discovery, an asset must be managed for full data to be reported and actions to be available. Specify whether to manage the assets using Agent Deployment or Agentless.

◉ Deploy Agent Controller. Required for software update and virtualization support.

○ Manage without Agent Controller. A Proxy Controller periodically probes the asset using SSH.

A job is launched to discover and manage the asset. When the job completes successfully, expand Servers in Assets to see the hardware and associated OS.

View Analytics

The Analytics feature provides details on operating system and zone performance. The charts, reports, and utilization data provide details of an individual operating system. You can use the information to improve performance and diagnose issues.

The most robust data is available when the operating system is agent managed. The Summary provides an overview of CPU, memory, network, and I/O utilization, as shown in Figure 1. Next to the graph is a table of the top five processes, or consumers, for each type of utilization. You can drill down to view greater details about one of the top five processes, or you can click the Processes tab to view details or to kill a process.

Figure 1   OS Analytics Summary Page

Services

The Services tab provides a view of Oracle Solaris 10 and 11 Service Management Facility (SMF) services. The Oracle Solaris SMF feature defines the relationships between applications, or services. SMF is a method of managing services by providing a framework for startup scripts, `init` run levels, and configuration files. Each service is identified by a Fault Managed Resource Identifier (FMRI).

The Services tab contains SMF service instances, state, dependencies, and severity information. You can drill down to see specific service details, including the configuration, dependencies, and the processes that are in the service contract.

You can perform the following actions in the Services tab:

- View a list of services currently installed and their states
- View a list of dependencies and dependents for FMRI
- View the relationship between services and processes
- View details about why a service is not available
- Obtain logs for debugging
- Clear faults for FMRI

- Invoke the disable, enable, and restart actions on FMRI
- Read configuration files

Services information is available for agent managed and agentlessly managed Oracle Solaris 10 and 11 operating systems, including global and non-global zones.

Thresholds

The Thresholds tab contains information about all of the monitored attributes for the selected operating system. Monitored attributes include per-instance attributes, such as File System Usage for each file-system on the asset. Figure 2 shows a partial list of the monitored attributes available for display.

Figure 2   CPU Usage
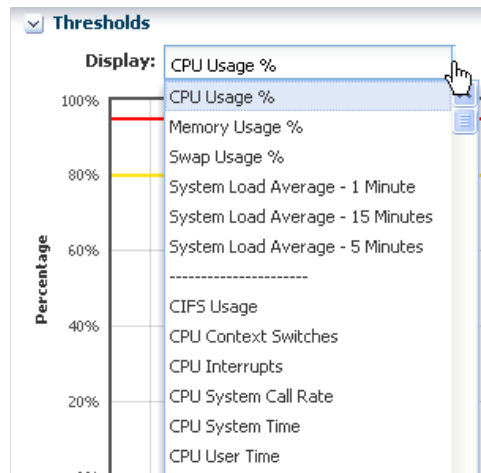
Charts for the historical data of those attributes show the alert monitor threshold levels, when configured, for that attribute. Figure 3 shows the chart for the System Load Average - 15 minutes. The time frame selected is Live. Beneath the chart are the severity levels for this monitored attribute (SystemLoad.average15MinutePerCpuCore), the operator, and the threshold values. Instead of editing the thresholds in the Monitoring tab, you can change the values on this page. You can either add values in the New Value column or click Suggest Thresholds to auto populate the fields with suggested values. Click Apply Thresholds to change the existing thresholds.

> **Note:**   When the threshold monitor is modified, the asset is removed from the default monitoring profile and a custom profile created.

Figure 3   Thresholds
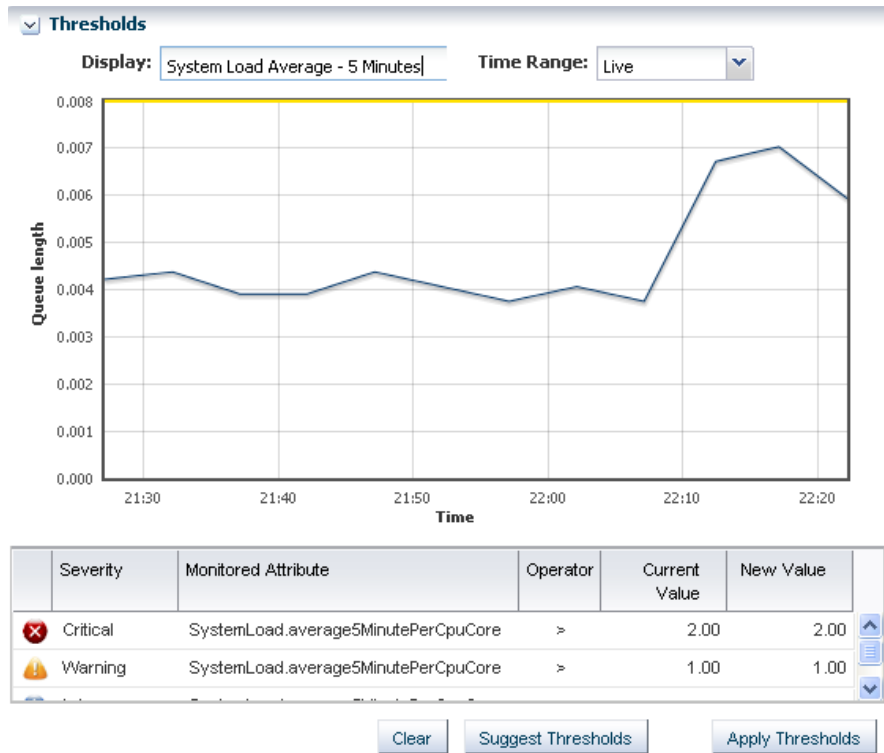
Metrics

The Metrics tab provides you with specific details about various operating system elements, such as the percentage of memory used, and view graphs. When monitoring thresholds are enabled for an element, you can reset the thresholds.

Click the Metrics tab to see OS-specific components. The following list are the types of component details available for an agent-managed Oracle Solaris OS:

- Load
- File Systems
- Networks
- Users
- Buffer Activity
- Disk Usage
- Paging Activity
- Message Activity
- Tables Status
- TTY Activity
- Kernel Memory
- DNLC
- IPC Message Queue

- IPC Shared Memory

- IPC Semaphore Usage

- CPU Detail

- File Access

- Disk Errors

- Memory Utilization

Expand a component to view the available elements. Click an element to view the details. In Figure 4, the Load component is expanded and the elements, such as percentage of memory used, CPU utilization percentage, CPU core count, and system uptime options are available in the Load list. Memory Used % is selected and the details and a graph are visible.

Figure 4   Component Navigation
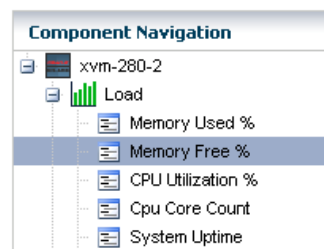
The type of resource determines the available details. Figure 5 is an example of the details and graph for the Memory Used % element. This example shows a system in trouble. The Details shows the last known value memory usage at 95.59111 percent and the established monitoring parameters. A warning incident is generated at 80 percent and a critical incident is generated when the used memory reaches 95 percent.

View the bar graph to see how the memory usage has trended over the selected time period. The yellow and red horizontal lines indicate the warning and critical thresholds.

Figure 5 Memory Used % Details and Graph
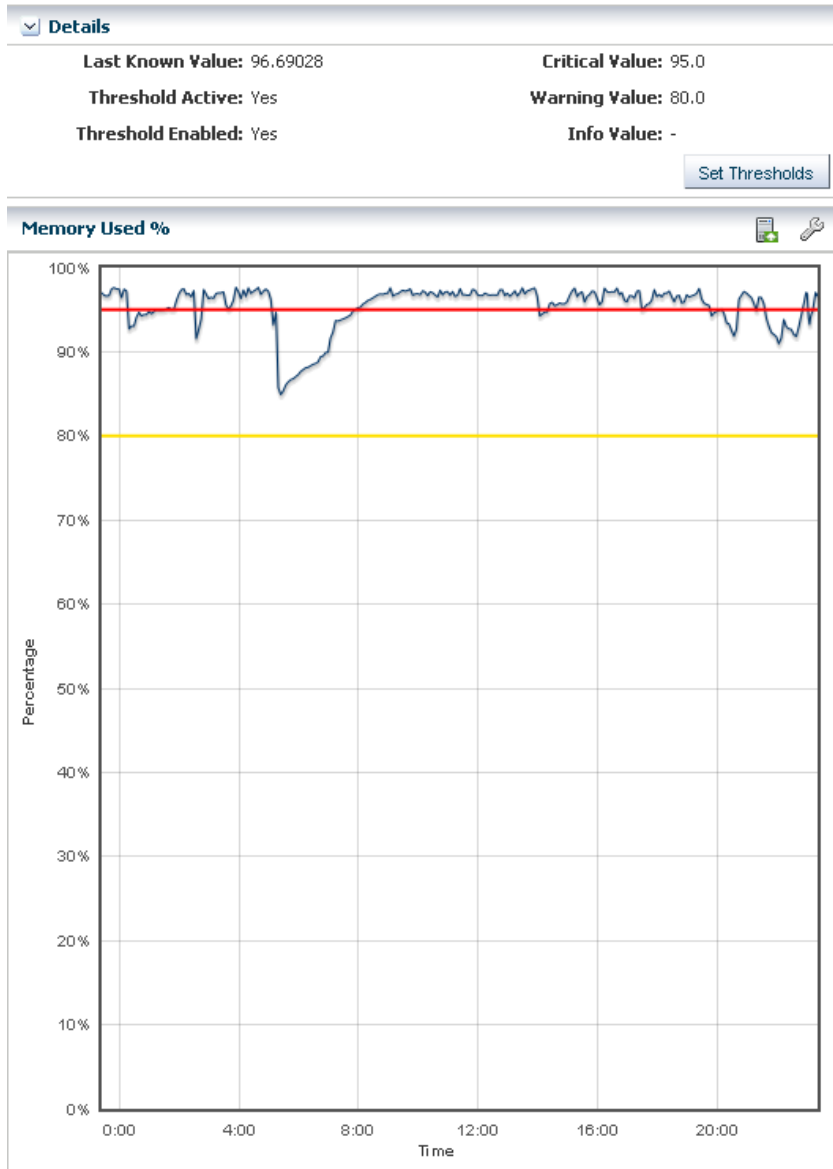
The wrench icon appears above the graph. For this graph, click the icon to change the graph style to line, bar, or area. You can change the definition of the X axis from 1 day to 1 hour, 5 days, 3 weeks, 6 weeks, or 6 months. The export icon enables you to export the graph to file in CSV or XML format.

You have the opportunity to reset the threshold values for the monitoring rule from this page, or to view recommended threshold values based on past performance. When you click the Set Thresholds button, you can modify the monitoring rule for this operating system. Doing this creates a custom set of monitoring rules for the asset. See Monitoring Rules and Policies for more information about editing individual monitoring rule parameters and creating a custom monitoring policy.

Monitor Assets

The software has a set of default monitoring rules for many types of assets. When you discover and manage an asset, such as an operating system, the software begins monitoring the status based on the default rules.

How Monitoring Works

Many assets have a default monitoring profile. Different types of monitoring profiles are available, depending on the asset type. Some profiles contain individual monitoring rules, thresholds and alert levels. These alert levels are editable for Critical, Warning, and Informational incident notification. Some profiles, such as system-defined rules, are not editable but you can disable them. You can customize the alerts and monitoring profiles for each asset or group of assets.

To view or edit the default monitoring rules for an asset, click a managed asset from the Assets tree in the Navigation pane, then click the Monitoring tab in the center pane.

The icons at the top of the center pane enable you to add, edit, enable, disable, or delete rules.

When an asset first meets or exceeds a monitoring threshold or state, an alert and an incident are generated. Subsequent alerts are aggregated under the existing incident.

How to Create an Alert and Incident

An easy way to generate an alert and incident is to shutdown a monitored system. The shutdown generates a critical status alert. The System Down incident appears in the Message Center.

How to View and Assign Incidents

You can see the incidents that are unassigned, assigned to you, and assigned to others the Message Center.
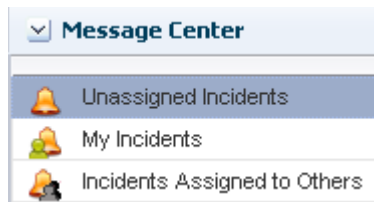
Details appear in the center pane. The details include a bar chart, a list of incidents by category and severity, and a detailed list of the individual incidents.
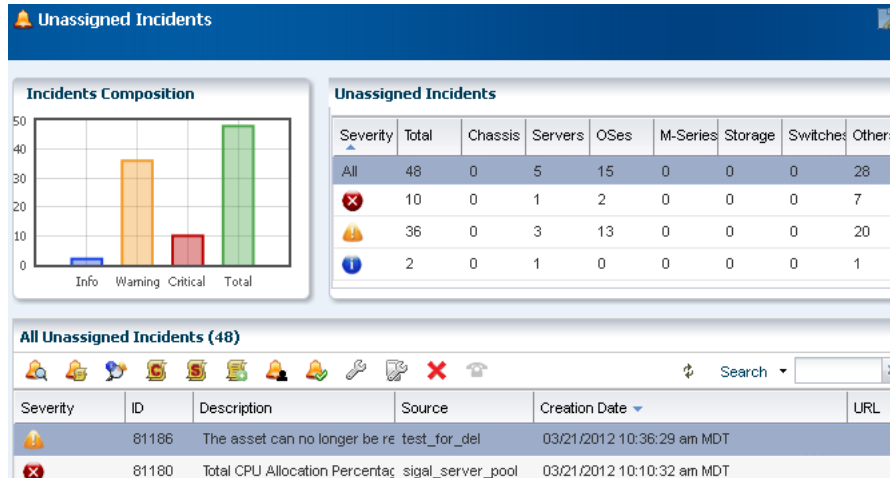
You can also see incidents and the associated alerts for each asset in the Incidents tab.

Where to Go From Here

The initial setup uses a disconnected mode without registering your MOS account and without creating the software libraries. You can edit the configuration at any time to change the connection mode, create the DHCP and software libraries, and register a My Oracle Support (MOS) account. You must register your MOS account and create the software libraries before you can use the Service Request, Automated Service Request, provisioning, and update features.

What You'll Need When the Enterprise Controller is on Oracle Solaris 11

When you have the Enterprise Controller installed on an Oracle Solaris 11, you might need the following:

- If you use an HTTP proxy to connect to the Internet, you must set the `http_proxy` and `https_proxy environment` variables to specify the proxy server to use.

- The location of the key and certificate files for Oracle Solaris 11. If you do not have key and certificate files, go to https://pkg-register.oracle.com/ and log in using your MOS credentials to download them.

Related Articles and Resources

The documentation is available at
http://www.oracle.com/pls/topic/lookup?ctx=oc121.

See the platform-specific Installation Guide for a more complex installation.

See the *Oracle Enterprise Manager Ops Center Concepts Guide* for an introduction to the product and an overview of the features. See the *Oracle Enterprise Manager Ops Center Feature Reference Guide* for more information about the features.

See the *Oracle Enterprise Manager Ops Center Administration Guide* for details about connection modes and editing authentications to add a MOS user account.

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