

Oracle® Hardware Plug-In for Oracle Enterprise Manager Grid Control

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Using This Documentation

This section describes product information, documentation and feedback, and a document change history.

- “Product Downloads” on page 5
- “Documentation and Feedback” on page 6
- “About This Documentation” on page 6
- “Contributors” on page 6
- “Change History” on page 7

Product Downloads

You can find downloads for all Oracle servers and server modules (blades) on My Oracle Support. On My Oracle Support you can find two types of download:

- Software release bundles specific to the rackmount server, server module, modular system (blade chassis) or NEM. These software release bundles include Oracle Integrated Lights Out Manager (ILOM), Oracle Hardware Installation Assistant and other platform software and firmware.
- Standalone software common across multiple types of hardware. This includes Oracle Hardware Management Pack and Oracle Hardware Management Connectors.

▼ Get Software and Firmware Downloads

- 1 Go to <http://support.oracle.com>.
- 2 In My Oracle Support, on the top row of tabs, click Patches & Updates.
- 3 In the Patch Search box, select Product or Family (Advanced Search).
- 4 In the Product is field, type a full or partial product name, for example Sun Fire X4800 or Hardware Management, until a list of matches is displayed and select the product of interest.
- 5 In the Release is drop down, select one or more releases and then click Close.

- 6 Under Patches Search, click Search.
A list of product downloads is displayed as software patches.
- 7 Click the Patch Name of the relevant software to go to the download information page
- 8 Review the details of the download, then click Download.

Documentation and Feedback

Documentation	Link
All Oracle products	http://www.oracle.com/documentation
Oracle ILOM 3.0	http://www.oracle.com/ pls/topic/lookup?ctx=ilom30

Provide feedback on this documentation at: <http://www.oracle.com/goto/docfeedback>.

About This Documentation

This documentation set is available in both PDF and HTML. The information is presented in topic-based format (similar to online help) and therefore does not include chapters, appendices, or section numbering.

A PDF that includes all information on a particular topic subject (such as hardware installation or product notes) can be generated by clicking on the PDF button in the upper left corner of the page.

Contributors

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Change History

The following lists the release history of this documentation set:

- April 2011. Initial publication.
- August 2011. Updated for software version 1.1.
- September 2011. Updated for software version 1.1.0.1.

Overview of the Plug-In

This section provides an overview of Oracle Hardware Plug-In for Oracle Enterprise Manager Grid Control 1.1.0.1 and the features it provides.

- [“Features of the Plug-In” on page 9](#)

Features of the Plug-In

Oracle Hardware Plug-In for Oracle Enterprise Manager Grid Control 1.1.0.1 extends Oracle Enterprise Manager Grid Control 11g with the ability to monitor the basic hardware configuration and status of your Oracle Sun servers.

Oracle Hardware Plug-In for Oracle Enterprise Manager Grid Control 1.1.0.1 provides the following functionality:

- general information about a hardware system such as server model, type and serial number; system firmware version; host primary MAC and IP address, MAC and IP address of the Oracle Integrated Lights Out Manager (ILOM) service processor
- a link to the Oracle ILOM web interface is provided if the Oracle ILOM service processor is connected to the network
- basic hardware inventory such as the maximum and actual number of installed fans, processors, DIMMs, power supplies, disks, flash storage modules and disk controllers; total size of installed memory and disks, number of logical volumes
- a user-centric view of hardware system health, both of the entire system and the functional subsystems, such as cooling, processors, memory, power, storage
- meaningful error messages if there are problems with the system or its components
- alerts raised when system or subsystem health states indicate problems
- current and historical readings of inlet and exhaust air temperature, also available as charts
- current and historical readings of system's power consumption, also available as charts

Installing the Plug-In

This section explains how to install and uninstall the Oracle Hardware Plug-In for Oracle Enterprise Manager Grid Control 1.1.0.1 (Oracle Hardware Plug-In for Oracle EM) on your Oracle Enterprise Manager management server, as well as the servers you want to monitor.

- “Importing the Plug-In” on page 11
- “Installing the Plug-In on Your Servers” on page 12
- “Uninstalling the Plug-In” on page 16

Importing the Plug-In

This section explains how to prepare for and install Oracle Hardware Plug-In for Oracle EM to your Oracle Enterprise Manager management server.

- “Management Server Prerequisites” on page 11
- “Getting the Software” on page 11
- “Installing Oracle Hardware Plug-In for Oracle EM” on page 12

Management Server Prerequisites

Oracle Hardware Plug-In for Oracle EM has been tested with Oracle Enterprise Manager 11g Grid Control (Oracle Enterprise Manager) version 11.1.0.1.0. For more information on Oracle Enterprise Manager 11g Grid Control, see the following web page:

<http://www.oracle.com/technetwork/oem/grid-control/overview/index.html>.

Getting the Software

The latest version of the Oracle Hardware Plug-In for Oracle EM can be downloaded from the following web page:

<http://www.oracle.com/technetwork/oem/grid-control/downloads/index.html>

Click System Monitoring Plug-ins and then navigate to the Oracle Hardware entry in the list. Download Oracle Hardware Plug-In for Oracle EM to your Oracle Enterprise Manager management server.

Installing Oracle Hardware Plug-In for Oracle EM

Oracle Hardware Plug-In for Oracle EM is installed to your Oracle Enterprise Manager management server by importing the plug-in. You only need to import Oracle Hardware Plug-In for Oracle EM once.

Note – If your Oracle Enterprise Manager management server already has Oracle Hardware Plug-In for Oracle EM imported, skip this section and continue with [“Installing the Plug-In on Your Servers”](#) on page 12.

▼ **Importing Oracle Hardware Plug-In for Oracle EM**

Before You Begin You must have administrator rights on your Oracle EM management server to import the Oracle Hardware Plug-In for Oracle EM.

- 1 Log in to the Oracle Enterprise Manager management server.**
- 2 In the Navigation menu, click Setup and then click Management Plug-in.**
- 3 Click Import and then click Browse.**
A file browser opens.
- 4 Navigate to the directory that contains the Oracle Hardware Plug-In for Oracle EM . jar file you previously downloaded and select the file. For example oracle_hardware_1.1.0.1. jar.**
- 5 Click Open to import Oracle Hardware Plug-In for Oracle EM.**
- 6 Click List Archive.**
- 7 Select the check box for oracle hardware and click OK.**
- 8 Notice that oracle hardware now appears in the list of plug-ins available for deployment.**
The Oracle Hardware Plug-In for Oracle EM is now ready to deploy to your servers.

Installing the Plug-In on Your Servers

Oracle Hardware Plug-In for Oracle EM provides a set of tools that you deploy to the servers you want to monitor. These tools then supply Oracle Hardware Plug-In for Oracle EM with the information required to monitor your servers in Oracle Enterprise Manager. The following sections describe the configuration procedures you should follow on each server you want to monitor.

- [“Monitored Server Prerequisites”](#) on page 13

- “Preparing Servers for Monitoring” on page 13
- “Deploying Oracle Hardware Plug-In for Oracle EM” on page 15

Monitored Server Prerequisites

The servers you want to monitor using Oracle Hardware Plug-In for Oracle EM must be supported and in addition the operating system running on the server must be supported.

The following operating systems are supported by Oracle Hardware Plug-In for Oracle EM:

- Solaris 10 on SPARC
- Solaris 10 on x86 64-bit
- Oracle Enterprise Linux 5 64-bit
- Red Hat Enterprise Linux 5 64-bit
- SuSE Linux Enterprise Server 11 64-bit

The following servers are supported by Oracle Hardware Plug-In for Oracle EM:

- Oracle SPARC T3-1 Server
- Oracle SPARC T3-1B Server
- Oracle SPARC T3-2 Server
- Oracle SPARC T3-4 Server
- Sun Fire X2270 M2 Server
- Sun Fire X4170 M2 Server
- Sun Fire X4270 M2 Server
- Sun Fire X4470 Server
- Sun Fire X4800 Server
- Sun Blade X6270 M2 Server Module
- Sun Blade X6275 M2 Server Module

Your servers must be running a recent version of Oracle Integrated Lights Out Manager 3. For more information, see:

<http://www.oracle.com/goto/system-management>

Preparing Servers for Monitoring

Oracle Hardware Plug-In for Oracle EM communicates with your server's Oracle Integrated Lights Out Manager (ILOM) service processor for hardware inventory, health and configuration data. The following sections describe the configuration procedures you should follow on each server you want to monitor by enabling communication with the Oracle ILOM service processor. In addition, the plug-in also communicates with storage devices to provide information about storage configuration and health.

Configuring the IPMI Interface

For each server you want to monitor, an IPMI interface needs to be enabled in the running operating system. Processes that need to read from and write to the IPMI interface must run with superuser privileges. For security reasons, the `sudo` command is required on each server running Oracle Hardware Plug-In for Oracle EM.

On servers running Oracle Solaris, the IPMI interface is enabled by default. On servers running a Linux based operating system, follow this procedure:

▼ Enabling the IPMI Interface on Servers Running Linux

Before You Begin You must have superuser privileges on the server to be able to follow this configuration procedure.

- **On servers running Linux, the IPMI interface needs to be enabled using the following command:**

```
# chkconfig --level 2345 ipmi on
```

Note – After making this change, you might need to start the IPMI service.

Configuring Superuser Privileges

Oracle Hardware Plug-In for Oracle EM contains a utility called `hwmgmtcli` that is responsible for getting information from the Oracle ILOM service processor. The `hwmgmtcli` utility needs to be granted superuser privileges to successfully communicate with the Oracle ILOM service processor using the IPMI interface.

▼ Granting Superuser Privileges

- 1 **Open the `sudoers` file for editing. The `sudoers` file is usually found at `/etc/sudoers`.**
- 2 **Add the following line to the `sudoers` file:**

```
agentuser ALL = AGENT_HOME/sysman/admin/scripts/  
emx/oracle_hardware/oracle-daq-2.2/bin/hwmgmtcli
```

where *agentuser* is the user name under which the Oracle Enterprise Manager agent runs, typically **oracle**, and where *AGENT_HOME* is the root directory of the Oracle Enterprise Manager agent installation.

This is an example of the line to add to the `sudoers` file:

```
oracle ALL = /opt/oracle/agent11g/sysman/admin/  
scripts/emx/oracle_hardware/oracle-daq-2.2/bin/hwmgmtcli
```

Deploying Oracle Hardware Plug-In for Oracle EM

Once you have prepared your servers for monitoring, you deploy Oracle Hardware Plug-In for Oracle EM to each server you want to monitor. You must configure your servers before deploying Oracle Hardware Plug-In for Oracle EM. For more information, see [“Preparing Servers for Monitoring” on page 13](#).

This section provides the following information:

- [“Deploying the Plug-In to Your Servers” on page 15](#)
- [“Creating Oracle Hardware System Targets” on page 15](#)

Deploying the Plug-In to Your Servers

You deploy Oracle Hardware Plug-In for Oracle EM to your servers you want to monitor. You must have imported Oracle Hardware Plug-In for Oracle EM to your Oracle Enterprise Manager management server before you can deploy the plug-in. For more information, see [“Importing Oracle Hardware Plug-In for Oracle EM” on page 12](#).

▼ Deploying Oracle Hardware Plug-In for Oracle EM

- 1 Log in to the Oracle Enterprise Manager management server.
- 2 In the Navigation menu, click Setup and then click Management Plug-in.
- 3 Select the check box for oracle hardware, and then click Deploy.
- 4 Click Add Agents and in the Target Type menu select Agent.
- 5 Select each of the servers you want to monitor by clicking the check box next to the server's name, then click Select.
- 6 Click Next and then click Finish.
The Management Plug-ins screen will refresh.
- 7 In the Deployed Agents column, click the link with the number of deployed agents (for oracle hardware) to verify the deployment.

Creating Oracle Hardware System Targets

Once you have deployed Oracle Hardware Plug-In for Oracle EM to your servers, you create Oracle Hardware System targets for the servers. Repeat the following procedure of creating Oracle Hardware System targets for every server you want to monitor.

▼ **Creating Oracle Hardware System Targets for Monitored Servers**

- 1 Log in to the Oracle Enterprise Manager management server as an administrator.
- 2 Click **Targets** and then click **All Targets**.
- 3 In the **Search** drop-down menu, select **Agent**. Type the base part of the server where you have deployed the plug-in, and click the **Go** button.
- 4 Click the agent where you want to create an instance of the Oracle Hardware System target.
- 5 In the **Monitored Targets** section, select the Oracle Hardware System target type from the **Add** menu. Click the **Go** button.
- 6 Enter the name for the hardware system being added in the **Name** field.
- 7 Enter the path to the **sudo** binary in the **Sudo Path** field (for example, `/usr/bin/sudo`).
- 8 Enter the privileged username that has access to the IPMI interfaces and that will be used to collect data from the server in the **Privileged Username** field.

Tip – The privileged username that has access to the IPMI interface is usually `root` unless you configured a different user.

- 9 Enter the password of Enterprise Manager Agent user in the **EM Agent User Password** field.
- 10 Click **OK**.

Uninstalling the Plug-In

The process of uninstalling Oracle Hardware Plug-In for Oracle EM consists of reversing the steps taken during installation and removing the Oracle Hardware Plug-In for Oracle EM from your Oracle Enterprise Manager management server and monitored servers.

▼ **Removing Oracle Hardware Plug-In for Oracle EM**

- 1 Log in to Oracle Enterprise Manager Grid Control as a Super Administrator.
- 2 Select the **Targets** tab, then the **All Targets** subtab.
The All Targets page opens.

- 3** Select the Oracle Hardware System target and click Remove. You must do this step for all Oracle Hardware Plug-In for Oracle EM targets.
- 4** Make sure that the preferred credentials are set on the Agents where the Oracle Hardware Plug-In for Oracle EM is deployed.
- 5** Click the Setup link in the upper right corner of the All Targets page, then click the Management Plug-ins link on the left side of the Setup page.
The Management Plug-ins page appears.
- 6** Click the icon in the Undeploy column for the Oracle Hardware System Plug-in. The Undeploy Management Plug-in page appears.
- 7** Check all the Agents that are currently deployed with the Oracle Hardware System Plug-in and click OK. You must undeploy the plug-in from every Agent in the system to completely remove it from Oracle Enterprise Manager.
- 8** Select the Oracle Hardware System Plug-in on the Management Plug-ins page and click Delete.

Monitoring Oracle Hardware System Targets

Once you have installed Oracle Hardware Plug-In for Oracle EM and created Oracle Hardware System targets for your servers, you can start to monitor the servers in Oracle Enterprise Manager. The information collected from your monitored servers is available as reports and you can also access the specific metric data for a target. In addition, any alerts generated by the plug—in are received by Oracle Enterprise Manager and displayed with a description.

Oracle Hardware System Target Home Page

The target home page of servers that are being monitored as Oracle Hardware System targets provide additional information about the monitored server. The following information is available:

- a time series chart of the actual power consumption over the period of last 12 hours
- a time series chart of the inlet air temperature over the period of last 12 hours
- a time series chart of the exhaust air temperature over the period of last 12 hours
- a list of active alerts for the selected Oracle Hardware System target
- a link to the server's Oracle ILOM service processor web user interface (only available if the Oracle ILOM service processor is connected to the network)

As seen in [Figure 1](#), this information provides a visual overview of the status of a monitored Oracle Hardware System target.

FIGURE 1 Oracle Hardware System Target Home Page

Oracle Hardware System: x6275m2-01a Hardware

Page Refreshed Apr 12, 2011 11:06:49 AM CEST [Refresh](#)

General

Status **Up** (Black Out)
 Availability (%) **100** (Last 24 Hours)
 Host **x6275m2-01a.oracle.com**

Power Consumption
 Meters: Actual Power Consumption
 Watt

Inlet Air Temperature
 Meters: Inlet Air Temperature
 °C

Exhaust Air Temperature
 Meters: Exhaust Air Temperature
 °C

Alerts

Metric	Severity	Message	Alert Triggered	Last Value	Last Checked
No Alerts found.					

Host Alerts

Metric	Severity	Message	Alert Triggered	Last Value	Last Checked
Run Queue Length (5 minute average)	⚠	CPU Load (Run Queue Length averaged over 5 minutes) is 26, crossed warning (10) or critica...	Mar 17, 2011 10:22:16 AM	649.25	Apr 12, 2011 11:02:16 AM
Filesystem Space Available (%) for /	⚠	Filesystem / has 12.21% available space, fallen below warning (20) or critical (5) thresho...	Apr 4, 2011 8:29:36 PM	11.69	Apr 12, 2011 5:14:36 AM

Related Links

- [All Metrics](#)
- [Blackouts](#)
- [Reports](#)
- [Metric and Policy Settings](#)
- [Target Properties](#)
- [Access](#)
- [Alert History](#)
- [Monitoring Configuration](#)
- [Open Oracle Integrated Lights Out Manager](#)

In addition, the Oracle Hardware System target home page provides a list of recently received alerts from the system and links to pages providing more information about the system.

▼ Viewing the Oracle Hardware System Target Home Page

- 1 Click Targets.**
The list of currently monitored hosts opens.
- 2 In the Name column, click the host you want to view.**
The host page opens.

3 On the host page, click the targets link.

The list of targets opens.

4 From the list of targets, click the Oracle Hardware System target you want to view.

The Oracle Hardware System target page opens.

Metrics Available for Oracle Hardware System Targets

This section provides an overview of the metrics that are collected from each Oracle Hardware System target. You view the current values of the metrics by navigating to an Oracle Hardware System target's home page and selecting the All Metrics link in the Related Links section in the bottom part of the page. For more information on the Oracle Hardware System target's home page, see [“Viewing the Oracle Hardware System Target Home Page” on page 20](#).

The following sections explain the different metrics and how often they are collected.

- [“Response Metric” on page 21](#)
- [“System Information Metrics” on page 21](#)
- [“System Configuration Metrics” on page 22](#)
- [“System Health Metrics” on page 22](#)
- [“Meter Metrics” on page 23](#)
- [“System Inventory Metrics” on page 24](#)

Response Metric

The Response metric is collected from an Oracle Hardware System target every 10 minutes. The metric column Status indicates if data can be obtained from the Oracle ILOM service processor or not. If there is a communication problem, the target availability is marked as Down by Oracle Enterprise Manager.

System Information Metrics

The System Information metrics are collected from an Oracle Hardware System target every 12 hours. The metrics provide an overview of the Oracle Hardware System target's hardware. The following table explains the different metrics.

TABLE 1 System Information Metrics Provided by an Oracle Hardware System Target

Metric Column	Description
Model	Server model identifier
System Type	Rack Mount or Blade

TABLE 1 System Information Metrics Provided by an Oracle Hardware System Target *(Continued)*

Metric Column	Description
Serial Number	System Serial Number
Model ID	Unique Model ID (for service purposes)
System Identifier	Custom server identifier as configured in the ILOM Service Processor
Processor Architecture	Architecture of installed CPUs, for example x86 64-bit
Processor Summary	Summary of installed CPUs models
System Firmware Version	Summary of installed system firmware, for example BIOS and ILOM

System Configuration Metrics

The System Configuration metrics are collected from an Oracle Hardware System target every 12 hours. The metrics provide an overview of the Oracle Hardware System target's configurable parameters. The following table explains the different metrics.

TABLE 2 Metrics Provided by an Oracle Hardware System Target

Metric Column	Description
ILOM Address	IP address of the ILOM Service Processor (if connected to network)
ILOM MAC Address	MAC address of the ILOM Service Processor
Chassis Address	IP address of the chassis, only relevant for Blade server modules
Host Primary IP Address	IP address of server's primary network interface
Host Primary MAC Address	MAC address of server's primary network interface
Permitted Power Consumption	Actual value of the server's maximum permitted power consumption as configured in the ILOM Service Processor

System Health Metrics

The System Health metrics are collected from an Oracle Hardware System target every 10 minutes. The metrics provide an overview of the Oracle Hardware System target's health and any problems that have been detected. The following table explains the different metrics.

TABLE 3 System Health Metrics Provided by an Oracle Hardware System Target

Metric Column	Description
Health	Overall health status of the entire system. Possible values: OK, Warning, Service Required
Health Details	Explanation of the current overall health status
Open Problems	Number of hardware-related problems diagnosed on the system
Cooling Health	Health status of the cooling subsystem (fan modules, fans, temperatures). Possible values: OK, Warning, Service Required
Cooling Health Details	Explanation of the current cooling health status
Processors Health	Health status of the CPUs. Possible values: OK, Warning, Service Required
Processors Health Details	Explanation of the current processors health status
Memory Health	Health status of the memory subsystem (DIMMs). Possible values: OK, Warning, Service Required
Memory Health Details	Explanation of the current memory health status
Power Health	Health status of the power subsystem (power supplies, input power). Possible values: OK, Warning, Service Required
Power Health Details	Explanation of the current power health status
Storage Health	Health status of the storage subsystem (disks, controllers, logical volumes, flash modules). Possible values: OK, Warning, Service Required
Storage Health Details	Explanation of the current storage health status

Meter Metrics

The Meter metrics are collected from an Oracle Hardware System target every 10 minutes. The metrics provide an overview of actual values detected on the Oracle Hardware System target. The following table explains the different metrics.

TABLE 4 Meter Metrics Provided by an Oracle Hardware System Target

Metric Column	Description
Actual Power Consumption	Actual value of the total server's power consumption in Watts

TABLE 4 Meter Metrics Provided by an Oracle Hardware System Target *(Continued)*

Metric Column	Description
Exhaust Air Temperature	Actual value of the server chassis exhaust air in degrees Celsius
Inlet Air Temperature	Actual value of the server chassis inlet air temperature in degrees Celsius

System Inventory Metrics

The System Inventory metrics are collected from an Oracle Hardware System target every 24 hours. The metrics provide an overview of the maximum hardware amounts that can be installed on the Oracle Hardware System target. The following table explains the different metrics.

TABLE 5 System Inventory Metrics Provided by an Oracle Hardware System Target

Metric Column	Description
Maximum Chassis Fans	Maximum number of server chassis fans that can be installed in the chassis
Maximum Power Supply Fans	Maximum number of power supply fans that can be installed in the chassis
Maximum CPUs	Maximum number of processors that can be installed in the chassis
Maximum DIMMs	Maximum number of memory modules that can be installed in the chassis
Maximum Power Supplies	Maximum number of power supplies that can be installed in the chassis
Maximum Disks	Maximum number of hard drives that can be installed in the chassis
Maximum FMODs	Maximum number of flash storage modules that can be installed in the chassis

Understanding the Oracle Hardware Plug-In for Oracle EM Reports

This section provides information on the two default reports provided by Oracle Hardware Plug-In for Oracle EM, the System Overview report and the Power Consumption and Cooling report. You navigate to the reports associated with a selected Oracle Hardware System target by clicking on the Reports tab in the top part of the target home page. The reports are also accessible on the global Enterprise Manager Reports tab. For more information on the Oracle Hardware System target's home page, see [“Viewing the Oracle Hardware System Target Home Page” on page 20](#).

The section contains the following:

- [“System Overview Report” on page 25](#)
- [“Power Consumption and Cooling Report” on page 28](#)

System Overview Report

The System Overview report provides a central location for the information received from a monitored Oracle Hardware System target.

FIGURE 2 Example System Overview Report

ORACLE Enterprise Manager
Grid Control 11g

Home Targets Deployments Alerts Compliance Jobs Reports My Oracle Support

Hosts Databases Middleware Web Applications Services Systems Groups Virtual Servers All Targets

Oracle Hardware System: Example System

Page Refreshed Apr 13, 2011 3:10:56 PM CEST

Home Reports

View Report System Overview

System Overview

General Information

Property	Value
Model	SUN BLADE X6270 M2 SERVER MODULE
Serial Number	
System Type	Blade
Host Primary IP Address	
Host Primary MAC Address	
System Firmware Version	ILOM: 3.0.9.15.a BIOS: 08020105
System Identifier	

Integrated Lights Out Manager

Property	Value
ILOM Address	
ILOM MAC Address	

Overall Status

Health Status ✖ Health Details

Service Required
Server Service LED is lit, Inlet Temperature in Warning state, FM5 (Fan Module 5) in Warning state, PS0 (Power Supply 0) in Warning state
Open Problems: 3

Subsystems Status

Subsystem	Health Status	Health Details	Details	Inventory
Cooling	⚠	Warning	Inlet Air Temperature: 59 °C	Chassis Fans (Installed/Max): 12/12
		Inlet Temperature in Warning state, FM5 (Fan Module 5) in Warning state	Exhaust Air Temperature: -	Power Supply Fans (Installed/Max): -/6
Processors	✔	OK	Processor Architecture: x86 64-bit Processor Summary: One Intel Xeon Processor 5600 Series	Processor (Installed/Max): 1/2
Memory	✔	OK	Installed RAM Size: 12288 MB	DIMMs (Installed/Max): 3/18
Power	⚠	Warning	Permitted Power Consumption: 289 W	PSUs (Installed/Max): 2/2
		PS0 (Power Supply 0) in Warning state	Actual Power Consumption: 1077 W	
Storage	✔	OK	Installed Disk Size: 1117 GB	Internal Disks (Installed/Max): 4/4
			Logical Volumes: 1	FMODs (Installed/Max): 0/0 Disk Controllers: 1

Home Reports

As seen in Figure 2, the System Overview report is divided into four parts, explained in the following sections:

- “General Information Section” on page 27
- “Integrated Lights Out Manager Section” on page 27
- “Overall Status” on page 27
- “Subsystems Status” on page 27

General Information Section

The General Information section of the report provides a basic set of information about the selected Oracle Hardware System target. The properties displayed are as follows:

- Model
- Serial Number
- System Type
- Host Primary IP Address
- System Firmware Version
- System Identifier

For more information on the General Information section, see [“System Information Metrics” on page 21](#).

Integrated Lights Out Manager Section

The Integrated Lights Out Manager section of the report provides information about the current settings of the Oracle ILOM service processor on the Oracle Hardware System target. The properties displayed are as follows:

- ILOM Address
- ILOM MAC Address

For more information on the Integrated Lights Out Manager section, see [“System Configuration Metrics” on page 22](#).

Overall Status

The Overall Status section of the report provides a summary of overall system health of a Oracle Hardware System target. The properties displayed are as follows:

- Health Status
- Health Details
- Open Problems

Health Status is a graphical representation of the states OK, Warning or Service Required. Health Details is a text representation of the states OK, Warning or Service Required.

For more information on the Overall Status section, see [“Meter Metrics” on page 23](#).

Subsystems Status

This Subsystems Status section provides a tabular summary for each functional subsystem, that is cooling, processors, memory, power and storage. The table contains information about health, temperature and power consumption values as well as an inventory summary.

Power Consumption and Cooling Report

The Power Consumption and Cooling report provides two charts, a Power Consumption chart and a Cooling Air Temperature chart. By default, the charts display values for the period of past 12 hours.

If you want to display values for a longer or custom time interval, you need to navigate to the global Reports tab in Enterprise Manager and expand the Oracle Hardware System category. From there, you can select the Power Consumption and Cooling report, specify a target for which you want to run the report and then set the time period for which you want to display data. For more information on the Reports tab, see the Oracle Enterprise Manager documentation.

The Power Consumption and Cooling report is divided into the following parts:

- [“Power Consumption Chart” on page 28](#)
- [“Cooling Air Temperature Chart” on page 28](#)

Power Consumption Chart

The Power Consumption chart displays hourly roll-ups of the actual power consumption of an Oracle Hardware System target, measured in Watts. In addition, the value of permitted power consumption is also displayed. The combined chart provides information about the power capacity utilization of the entire hardware system.

Note – On some system types, one or both values might not be available. For more information, see your hardware documentation

Cooling Air Temperature Chart

The Cooling Air Temperature chart displays hourly roll-ups of the inlet and exhaust air temperatures an Oracle Hardware System target, measured in degrees Celsius.

Note – On some system types, the value of exhaust air temperature might not be available. For more information, see your hardware documentation

Understanding Oracle Hardware System Alerts

This section provides an overview of the alerts that Oracle Hardware System targets can generate when they are being monitored in Oracle Enterprise Manager. The section contains the following:

- “Default Oracle Hardware System Alerts” on page 29
- “User Definable Alerts” on page 29

Default Oracle Hardware System Alerts

The default metrics that trigger an alert are as follows:

- Health
- Cooling Health
- Memory Health
- Power Health
- Processors Health
- Storage Health

For more information on these metrics, see “[Metrics Available for Oracle Hardware System Targets](#)” on page 21.

Alerts are generated if any of the following conditions are met:

- metric has a value of Warning
- metric has a value of Service Required

A critical alert is also generated when the Health Status metric has a value of Down indicating that there is a problem communicating with the Oracle ILOM service processor on the Oracle Hardware System target.

User Definable Alerts

In addition to the default set of defined alerts, you can define additional alerts for the following rules:

- Actual Power Consumption is greater than a specified value
- Exhaust Air Temperature is greater than a specified value
- Inlet Air Temperature is greater than a specified value

You enable alerts for these metrics from the target home page of an Oracle Hardware System. For more information, see “[Oracle Hardware System Target Home Page](#)” on page 19.

▼ **Defining Alerts for an Oracle Hardware System Target**

- 1** Navigate to the Oracle Hardware System target home page.
- 2** In the Related Links section of the Oracle Hardware System target home page, select Metric and Policy Settings.
- 3** In the View combo box, select the All Metrics option.
A list of all metrics enabled for alert generation opens.
- 4** In the list of metrics enabled for alert generation, define the Warning and Critical thresholds for the metrics you want to generate an alert.
- 5** When you have defined the alerts you want this Oracle Hardware System target to generate, click OK to save your alert definition.

Troubleshooting Oracle Hardware Plug-In for Oracle EM

This section provides tips and solutions for the most common problems you may encounter when installing and using Oracle Hardware Plug-In for Oracle EM. This section contains the following:

- [“Issues When Adding an Oracle Hardware System Target” on page 31](#)
- [“Oracle ILOM Service Processor IP Address Changed” on page 31](#)

Issues When Adding an Oracle Hardware System Target

If you encounter issues when adding an Oracle Hardware System Target, verify that you have done the following:

- `sudo` was configured properly on the server you are trying to configure as an Oracle Hardware System target
- you entered the correct path to `sudo` when adding the new Oracle Hardware System target
- you entered a correct privileged username (usually `root`) when adding the new Oracle Hardware System target
- you entered a correct password for the Oracle EM Agent user when adding the new Oracle Hardware System target

For more information, see [“Creating Oracle Hardware System Targets” on page 15](#).

Oracle ILOM Service Processor IP Address Changed

If you change the IP address of the Oracle ILOM Service Processor, you need to then update the link to the Oracle ILOM service processor web user interface on the Oracle Hardware System target home page.

▼ Updating the IP address of an Oracle Hardware System Target's Oracle ILOM Service Processor

- 1 Using the Oracle EM agent user account, log in to the server you want to update.
- 2 Navigate to the directory `AGENT_HOME/bin`.

3 Run the following command:

```
$. /emctl config agent listtargets
```

You should receive output similar to the following:

```
Oracle Enterprise Manager 11g Release 1 Grid Control 11.1.0.1.0  
Copyright (c) 1996, 2010 Oracle Corporation. All rights reserved.  
[MyNode:3872, oracle_emd]  
[MyNode, host]  
[MyNode Hardware, oracle_hardware]
```

The final row in the example output corresponds with the Oracle Hardware System target instance on the server you want to update.

4 Run the following command:

```
$. /emctl reload agent dynamicproperties "MyNode Hardware":oracle_hardware
```

Where `oracle_hardware` corresponds to the final row output in step 3.

You should see output similar to the following:

```
Oracle Enterprise Manager 11g Release 1 Grid Control 11.1.0.1.0  
Copyright (c) 1996, 2010 Oracle Corporation. All rights reserved.  
-----  
EMD recompute dynprops completed successfully
```

The IP address of the Oracle ILOM service processor is re-read and stored in a dynamic variable that is used to construct the URL to the Oracle ILOM web user interface that the link on the target home page points to.

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