Oracle Hardware Management Pack 2.4 Installation Guide

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Using This Documentation

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Product Documentation Library

Documentation and resources for this product and related products are available at https://www.oracle.com/goto/ohmp/docs.

Feedback

Provide feedback about this documentation at https://www.oracle.com/goto/docfeedback.

Change History

The following changes have been made to the documentation set.

- April 2017. Initial publication.
- July 2017. Updated for Linux FMA installation instructions. Added information on manual uninstall cleanup. Added `mstflint` dependency for InfiniBand adapters.
- September 2017. Updated *Installation Guide* to change IPMItool version to shipping version.
- August 2018. Updated *Installation Guide* for minor editorial changes and moved installation issues into *Release Notes* under the "Installation Notes and Issues" section.
- March 2020. Updated *Installation Guide* to add dependencies for Oracle Linux 8 support. Added a "Creating a Bootable Thumb Drive Containing Oracle Hardware Management Pack" section.
- April 2020. Updated *Installation Guide* to remove Red Hat Enterprise Linux (RHEL) 8 support.
- May 2021. Updated *Installation Guide* to specify that command line tools interact directly with physical hardware and can not run in a virtual environment.
- May 2023. Updated *Installation Guide* to add a note that the Oracle Management Pack Installer is no longer available as of release 2.4.9.0. Also added a note that the Watchdog Agent is no longer available as of release 2.4.9.0.

1

Oracle Hardware Management Pack Installation Overview

Oracle Hardware Management Pack includes a rich set of command line interface tools and agents that are run from your host operating system to configure and monitor server hardware. For information on operating system and server support for each Oracle Hardware Management Pack component, refer to the support matrix available at https://www.oracle.com/goto/ohmp.

The Oracle Hardware Management Pack download package available from My Oracle Support (MOS) includes support for select versions of Linux and Oracle Solaris operating systems. A cross-platform installer is available for all components. Note the following:

- Beginning with Oracle Hardware Management Pack 2.4, support for the Microsoft Windows operating system is **no longer available**.

- Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is **no longer available**. Oracle Solaris 10 is still supported.

- Beginning with Oracle Solaris 11.2, Oracle Hardware Management Pack for Oracle Solaris has become an integrated component of the operating system. Do **not** download and use other versions of Oracle Hardware Management Pack that are not specifically qualified for the Oracle Solaris 11.2 (and later). For details, see https://www.oracle.com/goto/ohmp/solarisdocs.

- Beginning with Oracle Hardware Management Pack 2.4.9.0, the Oracle Hardware Management Pack Installer is **no longer available**. Installation is accomplished by first using the Installer included with your older version of Oracle Hardware Management Pack to completely remove the application. Then, install Oracle Hardware Management Pack 2.4.9.0 manually following the instructions in this guide.

This documentation applies to servers running supported versions of Linux and Oracle Solaris operating systems and includes the following:

Description	Link
Learn about Oracle Hardware Management Pack.	Introduction to the Oracle Hardware Management Pack
Enable the Host-to-ILOM Interconnect.	Enabling the Host-to-ILOM Interconnect
Install the Oracle Hardware Management Pack components using the Installer.	Installing Components Using the Oracle Hardware Management Pack Installer
Manually install Oracle HMP components using OS-specific commands.	Installing Components Manually
Manually install drivers necessary to enable Oracle Hardware Management Pack components.	Installing Drivers Manually
Review operating system component dependencies for installing Oracle Hardware Management Pack.	Software Dependencies

Description	Link
Learn how to create a bootable Linux USB thumb drive that you can use to update firmware on various x86 systems that either do not support or do not have Oracle Hardware Management Pack installed.	Creating a Bootable Thumb Drive Containing Oracle Hardware Management Pack.

2
Introduction to the Oracle Hardware Management Pack

Oracle Hardware Management Pack (HMP) provides components that you install on your servers and use to manage and configure those servers. It includes:

Tool	Documentation	Description
Command line tools	*Oracle Hardware Management Pack 2.4 Server CLI Tools User's Guide*	Upgrade your server components' firmware. Configure BIOS, UEFI BIOS, RAID volumes and the Oracle Integrated Lights Out Manager (ILOM) service processors (SP) on your servers. View hardware configuration information and the status of your Oracle servers. Configure zoning on supported servers running the Oracle Solaris operating system (OS).
Management agents	*Oracle Hardware Management Pack 2.4 Server Management Agents User's Guide*	Provide information about storage and domains to Oracle ILOM. Enable in-band monitoring of your Oracle hardware at the OS level using the Simple Network Management Protocol (SNMP). You can use this information to integrate your Oracle servers into your data center management infrastructure. Configure an ILOM trap proxy that forwards SNMP traps from your Oracle ILOM SP over the Host-to-ILOM Interconnect to a destination of your choice.
Watchdog Timer	*Oracle Hardware Management Pack 2.4 Server Management Agents User's Guide*	Monitor the host and the SP and reset either if it becomes unresponsive.
IPMI	IPMItool and IPMIflash	Access server SPs and perform management tasks using the IPMI protocol.
Fault monitoring in Linux systems	*Oracle Hardware Management Pack 2.4 Linux Fault Management Architecture Software User's Guide*	Manage faults on servers running Oracle Linux 6.5 and above using an agent and a command-line tool..

The following sections provide an overview of the Oracle Hardware Management Pack features:

- Oracle Server Management Agents
- Oracle Server CLI Tools
- Host and ILOM Watchdogs
- Oracle Linux Fault Management Architecture
- Host-to-ILOM Interconnect

- IPMItool
- IPMIflash

Oracle Server Management Agents

Oracle Server Management Agents provide information about storage and domains to Oracle ILOM and enable in-band monitoring of your Oracle hardware at the OS level over SNMP. You can use this information to integrate your Oracle servers into your data center management infrastructure.

- Oracle Server Hardware Management Agent
- Deploying Hardware Management Agent on Oracle VM for SPARC
- Oracle Server Hardware SNMP Plugins
- itpconfig and the Oracle ILOM Trap Proxy

Oracle Server Hardware Management Agent

The Oracle Server Hardware Management Agent (Hardware Management Agent), called `hwmgmtd`, enables you to monitor and manage your server and server module hardware from the OS. By default, the Hardware Management Agent manages the storage poller and provides Oracle ILOM information about storage devices in the system including any changes to these devices.

The default Hardware Management Agent configuration for polling provides the optimal functionality in systems where SNMP monitoring is not used.

Where host-based SNMP monitoring is used the Hardware Management Agent and associated Oracle Server Hardware SNMP Plugins (Hardware SNMP Plugins) run on the host operating system of your Oracle servers. The Hardware Management Agent regularly polls the Oracle ILOM service processor (SP) for information about the current state of the server. Collected information is then made available by Hardware Management Agent over SNMP using the Hardware SNMP Plugins.

> **Note:**
>
> By default, the Hardware Management Agent SNMP monitoring function is disabled even if you installed the Hardware SNMP Plugins. To use it, the Oracle ILOM trap proxy must be configured using `itpconfig` and the Hardware Management Agent must be configured as described in Hardware Management Agent Configuration File in *Oracle Hardware Management Pack 2.4 Server Management Agents User's Guide*.

The Hardware Management Agent polls the SP for hardware information either over the Host-to-ILOM Interconnect, available on Oracle's latest servers, or keyboard controller-style (KCS) interface on previous generation servers. This in-band functionality enables you to use a single IP address (the host's IP) for monitoring your servers and blade server modules without having to connect the management port of the Oracle Integrated Lights Out Manager (ILOM) SP to the network.

In addition, the Hardware Management Agent maintains a separate log that contains information about the Hardware Management Agent status, which can be used for troubleshooting.

> **Note:**
>
> In previous versions of Hardware Management Pack (before version 2.3.0.0), the agent read the service processor's System Event Log (SEL) records, logged new events to syslog and generated SNMP traps using the host SNMP daemon.
>
> In 2.3.0.0, SEL monitoring was removed from `hwmgmtd`. No traps or syslogs are generated by `hwmgmtd` for anything that appears in the SEL. The Hardware Management Agent still generates traps for sensor based issues such as voltage, presence, and temperature.

Deploying Hardware Management Agent on Oracle VM for SPARC

When using the Hardware Management Agent on a SPARC server running Oracle VM which has multiple logical domains set up, the Hardware Management Agent can be installed on each logical domain. This enables you to monitor storage devices found in the logical domain using the Hardware Management Agent in a primary domain.

When installing into such a configuration, Hardware Management Agent requires direct access to the hardware that you want to monitor. Oracle VM for SPARC defines an Input / Output (I/O) domain as a domain that has direct ownership and access to the physical devices. Running Hardware Management Agent on a non-I/O domain host does not provide any physical device information because it does not have access to physical I/O devices. As a result, Hardware Management Agent installation is recommended on a I/O Domain or a Control domain. A Control domain is an I/O Domain by default in Oracle VM for SPARC.

Oracle Server Hardware SNMP Plugins

The Oracle Server Hardware SNMP Plugins consists of OS-native SNMP plugins and hardware-specific Management Information Base (MIB) files which have been designed to enable you to monitor your Oracle servers effectively using SNMP.

> **Note:**
>
> By default, the Hardware Management Agent SNMP monitoring function is disabled even if you installed the Hardware SNMP Plugins. To use it, the Oracle ILOM trap proxy must be configured using `itpconfig` and the Hardware Management Agent must be configured as described in Hardware Management Agent Configuration File in *Oracle Hardware Management Pack 2.4 Server Management Agents User's Guide*.

The sunHwMonMIB describes the state of sensors and alarms on your servers and provides the following information:

• Overall system alarm status

- Aggregate alarm status by device type

- FRU Alarm status

- Lists of sensors, sensor types, sensor readings, and sensor thresholds

- Indicator states

- System locator control

- Inventory including basic manufacturing information

- Product and chassis inventory information (such as serial number and part numbers)

- Per-sensor alarm status

The sunHwTrapMIB describes a set of traps for hardware events that can be generated by an Oracle server and provides the following information:

- Conditions affecting the environmental state of the server (such as temperature, voltage, and current out-of-range conditions)

- Error conditions affecting the hardware components in the server, such as FRU insertion and removal and security intrusion notification

The sunStorageMIB provides the following information about system storage:

- Basic manufacturing information, properties, and alarm status for controllers

- Properties and alarm status for disks

- Properties and alarm status for RAID volumes

- Status of logical components

itpconfig and the Oracle ILOM Trap Proxy

The `itpconfig` command-line interface (CLI) tool configures Oracle ILOM to forward SNMP traps to the host over the Host-to-ILOM Interconnect, available on servers with the necessary hardware. See your server documentation to check if your server supports Host-to-ILOM Interconnect. You can also use `itpconfig` to configure the Host-to-ILOM Interconnect between Oracle ILOM SP and the host.

In Oracle Hardware Management Pack 2.4, a feature was added that allows the trap proxy to notify the Hardware Management Agent when Oracle ILOM has sent a trap. Instead of regularly polling Oracle ILOM for information, detection of a trap will initiate an update cycle to get the newest data from Oracle ILOM. By default, if no traps trigger a polling cycle then Oracle ILOM is polled by the Hardware Management Agent once per hour. For more about this feature, see Hardware Management Agent Configuration File in *Oracle Hardware Management Pack 2.4 Server Management Agents User's Guide*.

Oracle Server CLI Tools

Oracle Server CLI Tools (CLI Tools) are command-line interface tools that you can use to monitor, configure and update Oracle servers.

> **Note:**
>
> These commands interact directly with physical hardware and can not run in a virtual environment.

The following command line tools are included:

- `biosconfig` – enables you to configure your server's BIOS settings, found on the previous generation of servers.
- `fwupdate` – enables you to upgrade the firmware of your server components.
- `hwmgmtcli` – enables you to view hardware configuration information and the status of your Oracle servers.
- `ilomconfig` – enables you to configure Oracle ILOM Host Watchdogs, and can also configure Host-to-ILOM Interconnect settings.
- `nvmeadm` – enables you to view information on and configure NVM express controllers and their storage devices.
- `raidconfig` – enables you to configure RAID volumes on your servers.
- `ubiosconfig` – enables you to configure your server's UEFI BIOS, found on the latest Oracle servers.
- `zoningcli` – enables you to configure the Oracle SPARC T3-1 platform with the 16-disk backplane (SAS-2 expander) running Oracle Solaris OS into two separate zones.

For more information, see

Host and ILOM Watchdogs

The host and ILOM watchdogs enable you to monitor the host server and the ILOM SP to ensure that they are operating correctly. In the eventuality that either the host or the ILOM SP encounters a problem, you can configure the watchdog to either trigger a warning message or restart the host or ILOM SP.

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the HMP watchdog agent and associated ILOM and host watchdog services are no longer available.

Oracle Linux Fault Management Architecture

You can use the Oracle Linux Fault Management Architecture (FMA) software to manage server faults from the host OS in much the same way you manage faults in the Oracle ILOM fault management shell. In addition, CPU and memory faults processed by the Oracle Linux mcelog are included in a common fault management database. As a result, it provides a similar set of fault management commands to view and act on faults whether from the host OS or Oracle ILOM. For more information on Oracle Linux FMA, see *Oracle Hardware Management Pack 2.4 Linux Fault Management Architecture Software User's Guide*.

> **Note:**
>
> Oracle Linux FMA commands interact directly with physical hardware and can not run in a virtual environment.

Host-to-ILOM Interconnect

Host-to-ILOM Interconnect provides a high speed internal interconnect between the Oracle ILOM SP and the host server. The server must support this feature in order for Oracle Hardware Management Pack components to use it.

For more information, see Enabling the Host-to-ILOM Interconnect.

IPMItool

The IPMItool command-line utility is run on the host and enables you to manage and configure devices that support the IPMI protocol, such as Oracle ILOM. Oracle Hardware Management Pack includes IPMItool for experts that are used to using this utility.

In Oracle Hardware Management Pack 2.4, additional security has been added to the Oracle Hardware Management Pack version of IPMItool (starting with version 1.8.15.0) in the form of a new secure interface called ORCLTLS. This supports running IPMItool commands using the TLS protocol and provides additional security over the LANPLUS protocol used in IPMI 2.0. This new interface added by Oracle is in addition to all of the standard interfaces included with IPMItool and is supported with versions of Oracle ILOM starting with 3.2.8.1.

For detailed information about using the secure IPMItool feature with Oracle ILOM, refer to *Oracle ILOM Protocol Management Reference for SNMP and IPMI Firmware* manual for your release of Oracle ILOM (https://www.oracle.com/goto/ilom/docs).

For information about using the IPMItool utility included with Oracle Hardware Management Pack, refer to the command line help and the man page.

> **Note:**
>
> The `ipmievd` daemon provided with IPMItool and used to copy service processor events to host syslog has been deprecated for this release of Oracle Hardware Management Pack.

IPMIflash

IPMIflash is a command-line application that provides an alternative method to update Oracle ILOM SP firmware and BIOS remotely over the management network or locally from the server. A version of IPMIflash is provided as part of the Hardware Management Pack. It can be installed if your system does not already have IPMIflash installed.

In Oracle Hardware Management Pack 2.4, additional security has been added to IPMIflash (starting with version 1.8.15.0) in the form of a new secure interface called ORCLTLS. This supports running IPMIflash commands using the TLS protocol and provides additional security over the LANPLUS protocol used in IPMI 2.0. This new interface added by Oracle is in addition to all of the standard interfaces included with IPMIflash and is supported with versions of Oracle ILOM starting with 3.2.8.1.

For more information on using the IPMIflash command from the host, refer to the command line help and the man page.

3
Enabling the Host-to-ILOM Interconnect

As of Oracle ILOM 3.0.12, a communication channel known as the Host-to-ILOM Interconnect allows you to communicate locally with Oracle ILOM from the host operating system (OS) without the use of a network management connection (NET MGT) to the server. The Host-to-ILOM Interconnect, which is available on the latest Oracle servers, can be used to perform the following Oracle ILOM tasks locally:

- All server management functions in Oracle ILOM that you typically perform from the command line, web, or IPMI interfaces through the network management (NET MGT) port on the server.

- All data transfers, such as firmware upgrades, to Oracle ILOM that you typically perform from the host over a Keyboard Controller Style (KCS) interface using IPMI flash tools. For these types of data transfers, the Host-to-ILOM Interconnect provides a more reliable and faster data transfer rate than traditional KCS interfaces.

- All future server monitoring and fault detection operations that you typically perform from the host OS through the use of Oracle enabled software tools and agents installed on the server.

> **Note:**
>
> The Oracle Hardware Management Pack documentation refers to this feature as Host-to-ILOM Interconnect. The Oracle ILOM interface refers to this feature as Local Host Interconnect.

- Configure ILOM for Host-to-ILOM Interconnect
- Platform Server Support and ILOM Access Through the Host-to-ILOM Interconnect
- Host-to-ILOM Interconnect Configuration Options

Configure ILOM for Host-to-ILOM Interconnect

Check that the Host-to-ILOM interconnect on the service processor (SP) and set to true for "hostmanaged" (this is the default).

1. Log into Oracle ILOM command line interface by typing the command:

   ```
   ssh root@sp_ip_address
   ```

   where *sp_ip_address* represents the IP address of the SP for the server.

2. Check the status of the interconnect by typing the command:

   ```
   show /SP/network/interconnect
   ```

   You should see output similar to:

   ```
   -> show

    /SP/network/interconnect
   ```

```
Targets:

Properties:
    hostmanaged = true
    type = USB Ethernet
    ipaddress = 169.254.182.76
    ipnetmask = 255.255.255.0
    spmacaddress = 02:21:28:57:47:16
    hostmacaddress = 02:21:28:57:47:17

Commands:
    cd
    set
    show

->
```

3. If the interconnect is not set to "hostmanaged = true" reset it using the Oracle ILOM set command. Type the commands:

```
cd /SP/network/interconnect
```

```
set hostmanaged=true
```

4. Log out when you are finished.

For more information, refer to the Oracle Integrated Lights Out Manager Documentation Collection at: https://www.oracle.com/goto/ilom/docs

Platform Server Support and ILOM Access Through the Host-to-ILOM Interconnect

Oracle servers supporting the Host-to-ILOM Interconnect are supplied with an internal LAN-over-USB device installed.

The Host-to-ILOM Interconnect provides two network connection points known as the Oracle ILOM SP (SP) connection point and the host OS (OS) connection point. These must each have a non-routable IPv4 address for the Host-to-ILOM Interconnect to work. Non-routable IPv4 addresses are considered secured private addresses that prevent external internet users from navigating to your system.

> **✎ Note:**
>
> By default, Oracle provides non-routable IPv4 addresses for each connection point (Oracle ILOM SP and host OS). Oracle recommends not changing these addresses unless a conflict exists in your network environment with the provided non-routable IPv4 addresses.

Host-to-ILOM Interconnect Configuration Options

You can choose to either have the Host-to-ILOM Interconnect automatically configured for you or manually configured. Details about both of these configuration options are provided below.

- **Automatic Configuration (Recommended)**

For Oracle Hardware Management Pack to automatically configure the Host-to-ILOM Interconnect connection points, the Local Interconnect settings in Oracle ILOM must be in the Host Managed state. In order to automatically configure the Host-to-ILOM Interconnect connection points, you must:

1. Accept the default settings provided in Oracle ILOM for Local Host Interconnect before installing Oracle Hardware Management Pack.

2. Install Oracle Hardware Management Pack on the host server and accept the installation defaults provided for Host-to-ILOM Interconnect.

- **Manual Configuration (Advanced users only)**

    If you prefer not to automatically configure the Host-to-ILOM Interconnect, you can manually configure the connection points on the Oracle ILOM SP and host OS. In order to manually configure the Host-to-ILOM Interconnect connection points, you must:

    – Ensure your OS recognizes the internal LAN-over-USB device, which requires an Ethernet driver. For instructions on installing the driver, see Installing the Host-to-ILOM Interconnect Driver.

    – You must manually configure an IPv4 address for the connection points. There are two ways to do this:

        * Use the `itpconfig` tool or the `ilomconfig` tool to configure the Host-to-ILOM Interconnect connection points on the Oracle ILOM SP and the host OS.

        * Use the Oracle ILOM interface to configure the connection point in the Oracle ILOM SP and separately configure the host side connection point.

            For more information, refer to the Oracle Integrated Lights Out Manager Documentation Collection at: https://www.oracle.com/goto/ilom/docs

4

Installing Components Using the Oracle Hardware Management Pack Installer

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

This section describes how to install and uninstall Hardware Management Pack components on an Oracle server using the supplied Oracle Hardware Management Pack Installer. If you have a version of Oracle Hardware Management Pack earlier than version 2.4.9.0 and you want to upgrade to version 2.4.9.0 or later, use the Installer included with your current version to completely uninstall the application before attempting to install the newer version of Oracle Hardware Management Pack.

This section contains the following:

- Getting Started
- Getting the Software
- Prerequisites
- Installing Hardware Management Pack Components

Getting Started

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

The following methods are available for installing the Hardware Management Pack components:

- GUI mode
- Console mode
- Silent mode

Regardless of the installation method you choose, you must be logged on with administrative privileges, such as root on the Oracle Solaris operating system (OS) or a Linux based OS.

Getting the Software

Before you start, check that your target server and OS are supported. For more information on the supported servers, see:

https://www.oracle.com/goto/ohmp

The following procedure explains how to use My Oracle Support to download server firmware and software.

• Download Firmware and Software Using My Oracle Support

Download Firmware and Software Using My Oracle Support

1. Navigate to the following site:

   http://support.oracle.com

2. Sign in to My Oracle Support.

3. At the top of the page, click the Patches and Updates tab.

   The Patches and Updates screen appears.

4. In the Search screen, click Product or Family (Advanced Search).

   The screen appears with search fields.

5. In the Product is field, type a full or partial product name. Select the product of interest when it appears in the list.

   • To search for the latest Hardware Management Pack, type Hardware Management Pack.

   • To search for firmware for a specific server, type the product name, for example Sun Server X2–8.

6. In the Release field, select a software release from the drop-down list.

   Expand the folders to see all available software releases.

7. Click Search.

   The software release comprises a set of downloads (patches).

8. To select a patch, click the check box next to the patch name (you can select more than one patch).

   A popup action panel appears. The panel contains several action options.

9. To download the patch, click Download in the popup panel.

   The download begins automatically.

Prerequisites

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

- The Oracle Hardware Management Pack installer cannot be used for upgrading older versions of Oracle Hardware Management Pack. If you have previous versions of Hardware Management Pack or Component Manager installed, you must remove these before installing the new Oracle Hardware Management Pack components. For more information, refer to the documentation supplied with the version of Hardware Management Pack you have installed.

   When installing Oracle Hardware Management Pack components manually, you can upgrade existing packages with the newer version of those packages. See Installing Components Manually.

- Different Hardware Management Pack components are supported by different servers and operating systems, so ensure that your target platform is supported by all of the components you intend to install. Before proceeding make sure that you have consulted the support matrix for the version that you plan to install. The support matrix is available at:

   https://www.oracle.com/goto/ohmp

- Depending on the target server's OS, you should note the following:

   - Oracle Solaris 11 OS - Set the Oracle Solaris repository if you have not yet done so. Setting up the repository will allow the Oracle Hardware Management Pack installation program to obtain any required OS packages not already installed. For example, if you are using the Oracle repository, enter the following command:

      ```
      pkg set-publisher -g http://pkg.oracle.com/solaris/release
      ```

      If you are using a local repository, specify the appropriate URI as described in the Oracle Solaris 11 documentation.

   - Oracle Solaris 10/11 OS - For the Oracle Server Hardware SNMP Plugins to function correctly, you must have System Management Agent (SMA). SMA is installed by default on Oracle Solaris OS. For more information about SMA, see `snmpd`(1M). When installing Hardware Management Pack components, you must be in the global zone, and Hardware Management Pack can only be installed on the global zone. The device `/dev/bmc` must be present on your system for the Hardware Management Agent to function correctly.

   - Linux OS - For the Oracle Server Hardware SNMP Plugins to function correctly, you must have Net-SNMP installed. For more information about Net-SNMP, see the `snmpd` documentation. The device `/dev/ipmi#` (where # is a digit) must be present on your system for the Hardware Management Agent to function correctly. You must also ensure that the IPMI interface between the Oracle server service processor (SP) and host OS is enabled, and that the IPMI service is started. When using the Hardware Management Agent, you must ensure the root user has read/write access to the IPMI device in order for the Hardware Management Agent to function correctly.

- *Beginning with Oracle Hardware Management Pack 2.4.7, SUSE Linux Enterprise Server (SLES) support is no longer available.*

- Review the known installation issues. For a complete list of installation issues, refer to Installation Notes and Issues in *Oracle Hardware Management Pack 2.4 Release Notes*.

Installing Hardware Management Pack Components

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

This section includes the following topics:

- Using GUI Mode to Install and Uninstall Components
- Using Console Mode to Install or Uninstall Components
- Using Silent Mode to Install and Uninstall Components

Using GUI Mode to Install and Uninstall Components

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

This section includes the following procedures:

- Install Hardware Management Components Using GUI Mode
- Uninstall Hardware Management Components Using GUI Mode

Install Hardware Management Components Using GUI Mode

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

- To install Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with administrative privileges.

- Before installing Oracle Hardware Management Pack, refer to the Prerequisites section for information pertaining to your installed OS.

- Download and extract the Hardware Management Pack. See Getting the Software.

   The directory that you extract the files to is referred to as *extract-directory* in this procedure.

- The packages for Hardware Management Pack have dependencies that must be satisfied for a successful installation. See Software Dependencies for more information.

- On the Oracle Solaris OS, due to the restrictions of `pkgadd`(1M), the path that you extract the Hardware Management Pack to must not contain any spaces for the installation process to proceed.

1. To start the installer, type one of the following commands:

   - For Oracle Solaris 10 and Linux systems:

     `# /extract-directory/oracle-hmp-version/install.bin`

   - For Oracle Solaris 11 or 11.1 systems:

     `# /extract-directory/oracle-hmp-version/install.arch.bin`

     where *arch* is SPARC or x86 depending on your processor.

   The splash screen appears.

2. If any of the following dialogs appears, perform the appropriate action.

   - If the following dialog appears, click Quit and log into the system with administrative privileges.
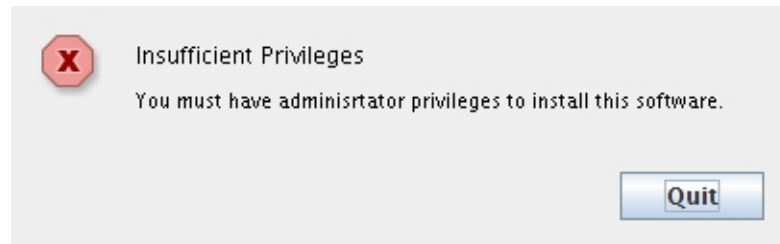
   - If the following dialog appears, click Quit and remove the previously installed version of the software.

- If the following dialog appears, click Quit and then check that you have the correct software version for your processor architecture.

If the installation is ready to proceed, the Introduction screen appears.

When you are ready to proceed, click Next.

3. From the Install Set drop-down menu, select either Standard or Custom.

- If you select Standard, the Hardware Management Agents and CLI Tools components are automatically selected.

- If you select Custom, the Choose Install Set screen appears.
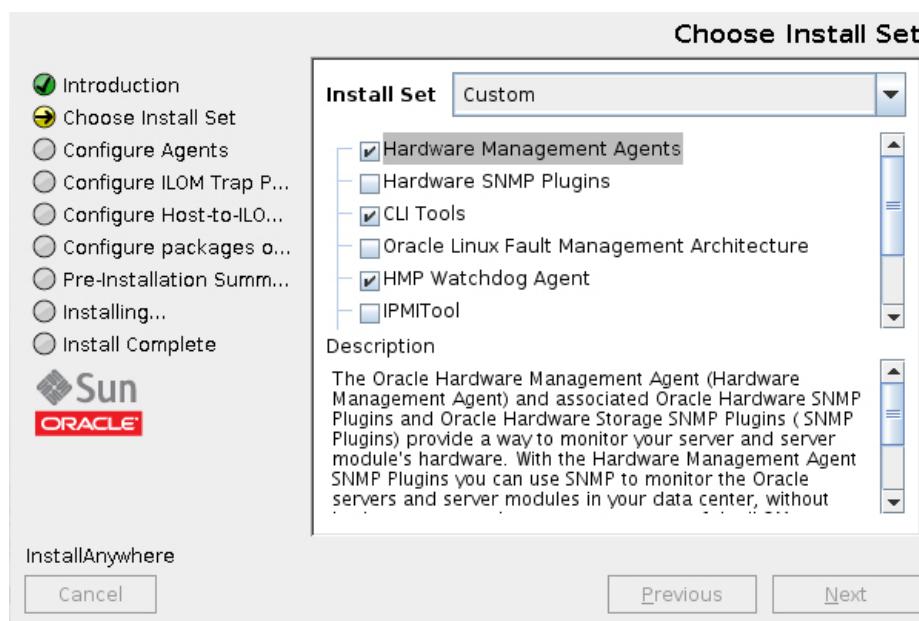
a. Select the components that you want to install using the check boxes.

For information on the available components, click the component name and read about it in the Description field.

> **✎ Note:**
>
> Some components of Hardware Management Pack are hardware or OS specific and are available in the installer only on compatible systems.
>
> The Fibre Channel support components should only be selected on servers with compatible hardware. Selecting these components for a server without the supported hardware makes the installation process slower.

   b. Click Next when done.

4. If one of the following dialogs appears, take the appropriate action:

   • If you are installing the Hardware Management Agent component and SNMP is not already installed and running on your system, click OK and deselect the Hardware Management Agent component from the Choose Install Set screen.

      You can still proceed to install other components, but you need to install SNMP on your system before you can install the Hardware Management Agent.

   • If you are installing the Oracle Linux Fault Management Architecture component, the installer warns you of changes that will be made to your system.

      Perform one of the following actions:

      – If you want the installer to make these changes for you, click OK.

– If you do not want for the installer to make these changes, click Cancel and deselect the Oracle Linux Fault Management Architecture component from the Choose Install Set screen.

> **Note:**
>
> To see the Linux OS changes that need to be made to install Oracle Linux Fault Management software, refer to Installing the Oracle Linux FMA Software for information on manually installing the software.

• If you have selected fiber channel components, and dependencies for these components are not installed in your system, click Feature Selection and deselect the fiber channel component(s) from the Choose Install Set screen.

You can still proceed to install other components, but you need to install the required fiber channel components on your system before you can install the Oracle Hardware Management Pack fiber channel support features.
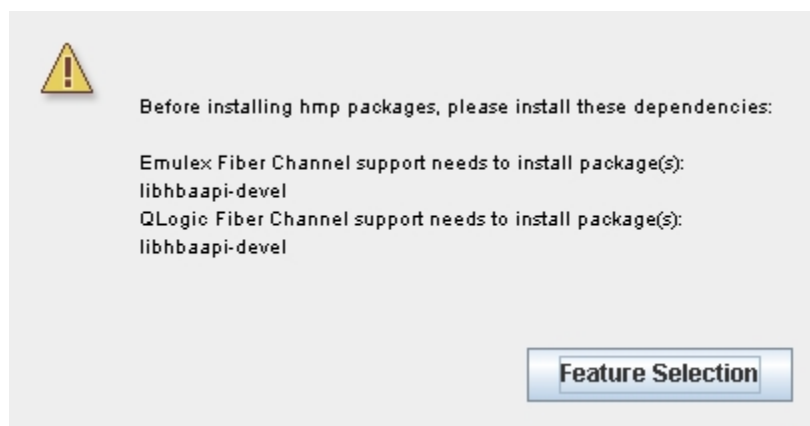
5. At the Configure Agents screen, select the Hardware Management Agent and SNMP Agent and click Next.

> **Note:**
>
> If you select SNMP Agent, you must also select Hardware Management Agent.
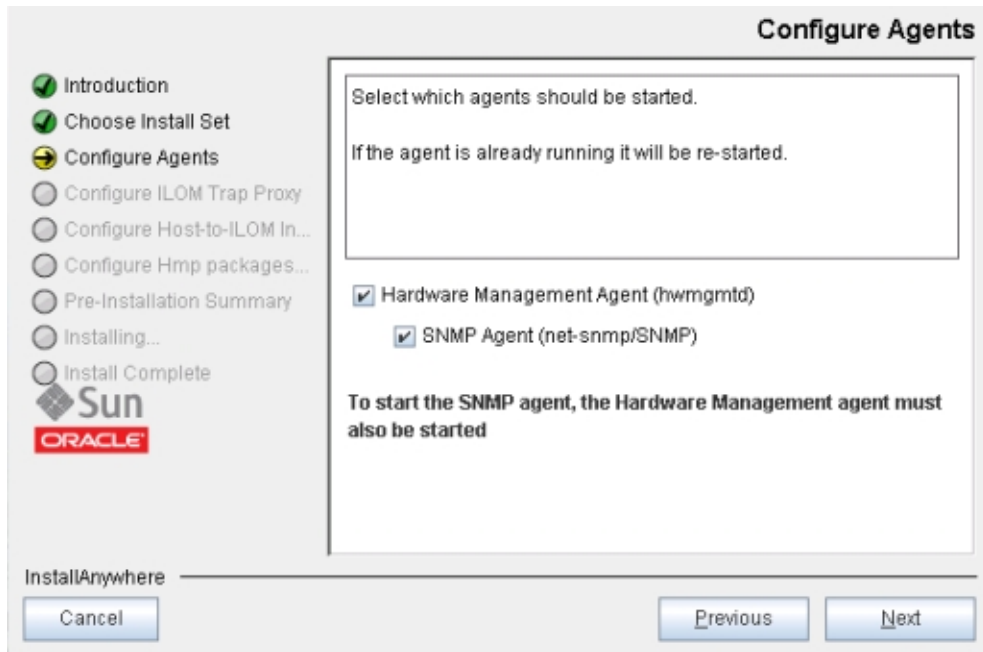
6. Choose one of the following: fault trap proxy

   • If you did not select the Hardware Management Agent, or your server does not support the Host-to-ILOM Interconnect, then go to the next step.

   • If you selected the Hardware Management Agent, and your server supports the Host-to-ILOM Interconnect, then you can choose to enable the ILOM trap proxy.
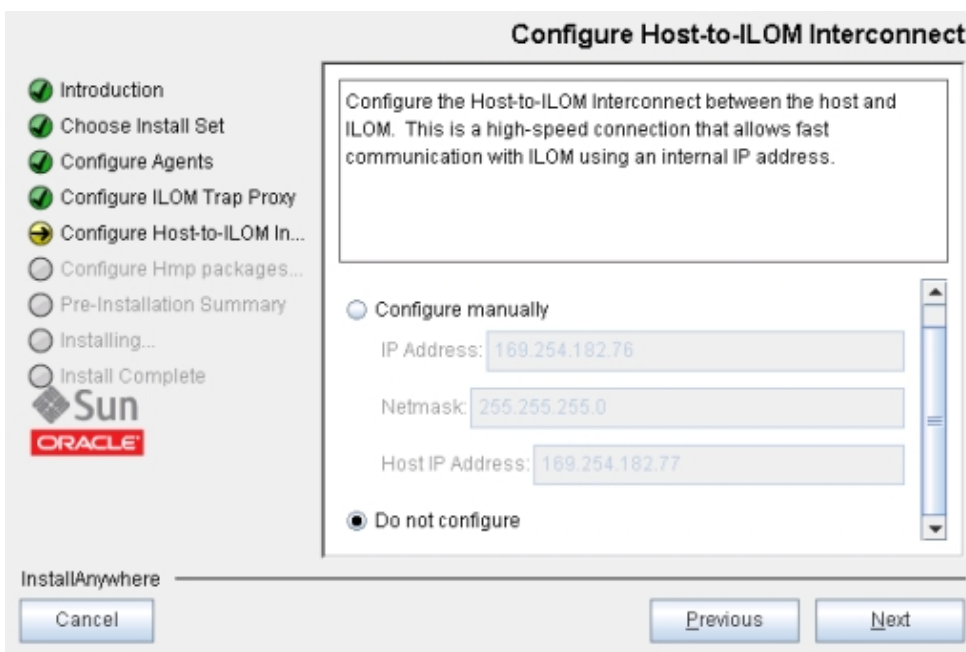
   The ILOM trap proxy enables you to forward fault traps generated by an Oracle ILOM SP to a network destination over the Host-to-ILOM Interconnect. When enabling the ILOM trap proxy, you must configure the IP, port and SNMP community that your destination is listening on.
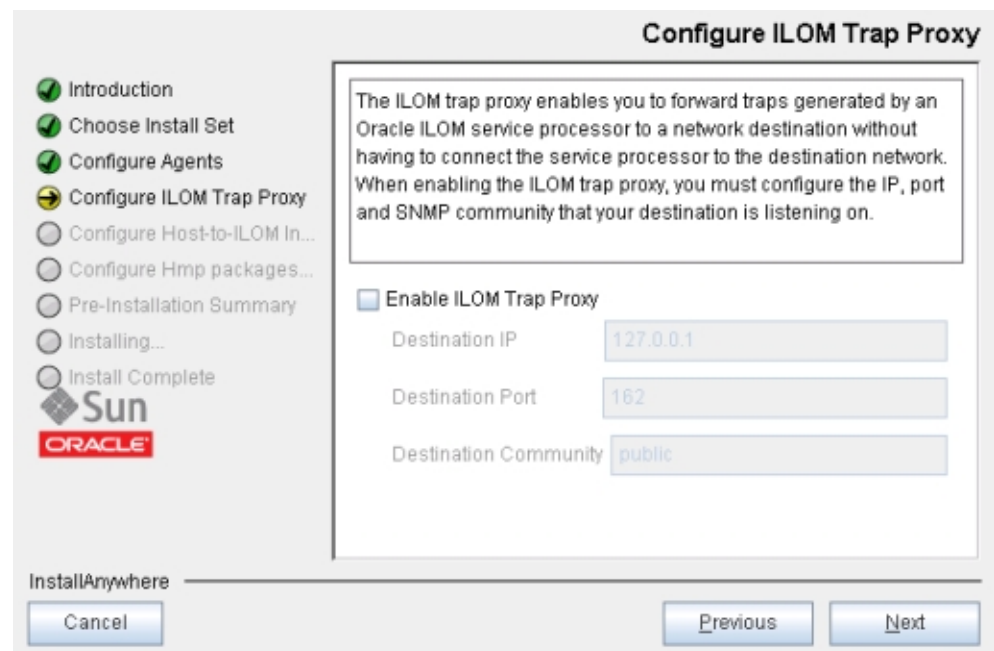
7. If your server supports the Host-to-ILOM Interconnect, then you can choose to configure the interconnect during installation. For more information on Host-to-ILOM Interconnect, see Enabling the Host-to-ILOM Interconnect.

- On servers without the Host-to-ILOM Interconnect, go to the next step.

- On supported platforms, the Configure Host-to-ILOM Interconnect screen appears.

> **Note:**
>
> The Host-to-ILOM Interconnect must be enabled for the ILOM trap proxy to function. It is also required for the Oracle Linux Fault Management Architecture (FMA) component.

By default the Host-to-ILOM Interconnect is disabled and unconfigured. Select one of the options for configuring the Host-to-ILOM Interconnect:

- If you select the Configure automatically option, the Host-to-ILOM Interconnect is configured using default settings.

- If you select the Configure manually option, you need to type the IP Address, Netmask, and Host IP Address information.

> **Note:**
>
> Automatic configuration is recommended, manual configuration is provided for expert use.

8. A Pre-Installation Summary screen appears with information similar to the following screen.
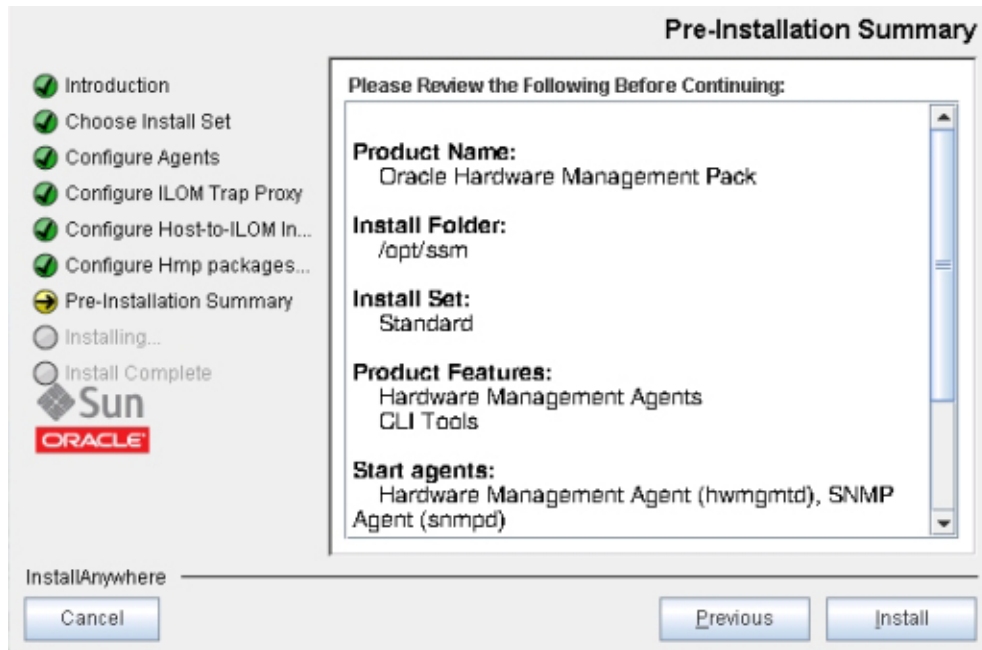
Verify that the information in the Pre-Installation Summary is correct.

- If you want to change any of the installation items, click the Previous button until you get back to the screen where you want to make the changes.

- If the information is correct, click Install.

  The Install Complete screen appears when the installation has completed.
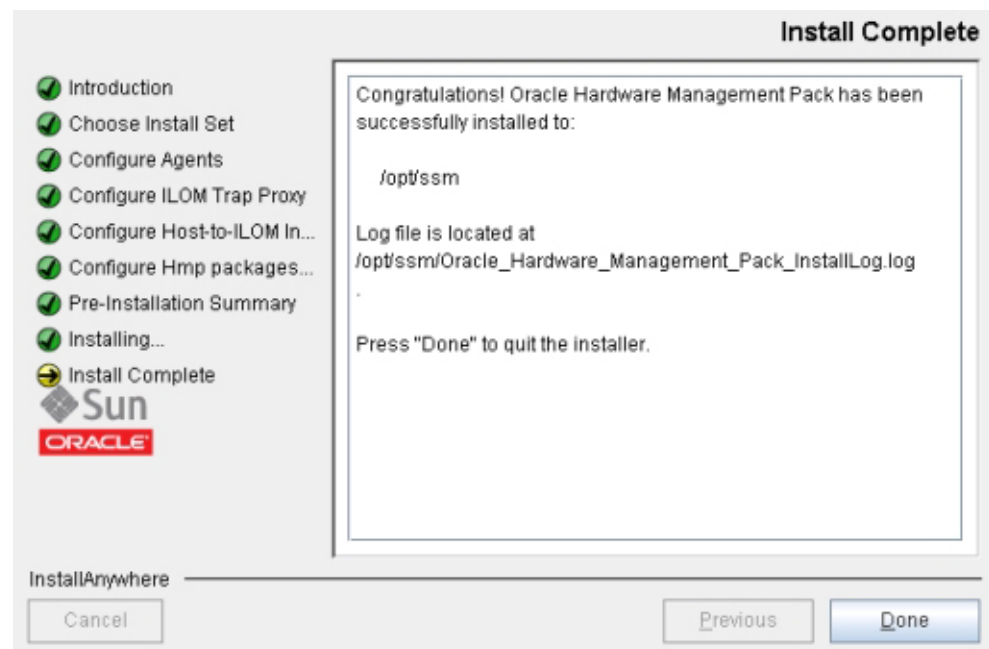
9. Click Done to complete the installation.

10. (Optional) To verify that Oracle Hardware Management Pack is installed correctly, run a command. For example, enter the following CLI command as root:

```
# ilomconfig --version
```

If it is installed correctly, Oracle Hardware Management Pack displays version information.

- Uninstall Hardware Management Components Using GUI Mode
- Using Console Mode to Install or Uninstall Components
- Using Silent Mode to Install and Uninstall Components

Uninstall Hardware Management Components Using GUI Mode

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. If you have an earlier version of Oracle Hardware Management Pack, you must uninstall it before installing Oracle Hardware Management Pack 2.4.9.0.

- To uninstall Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with administrative privileges.

1. To start the uninstaller, type one of the following commands:

   - For Oracle Solaris OS or Linux systems with Oracle Hardware Management Pack version 2.3.2.2 or later:

   ```
   # /opt/ssm/setup/uninstall
   ```

   - For Oracle Solaris OS or Linux systems with an Oracle Hardware Management Pack version earlier than 2.3.2.2:

   ```
   # /opt/sun-ssm/setup/uninstall
   ```

   The splash screen appears.

2. If the following dialog appears, click Quit and log into the system with administrative privileges.

The Uninstall Oracle Management Pack screen appears.
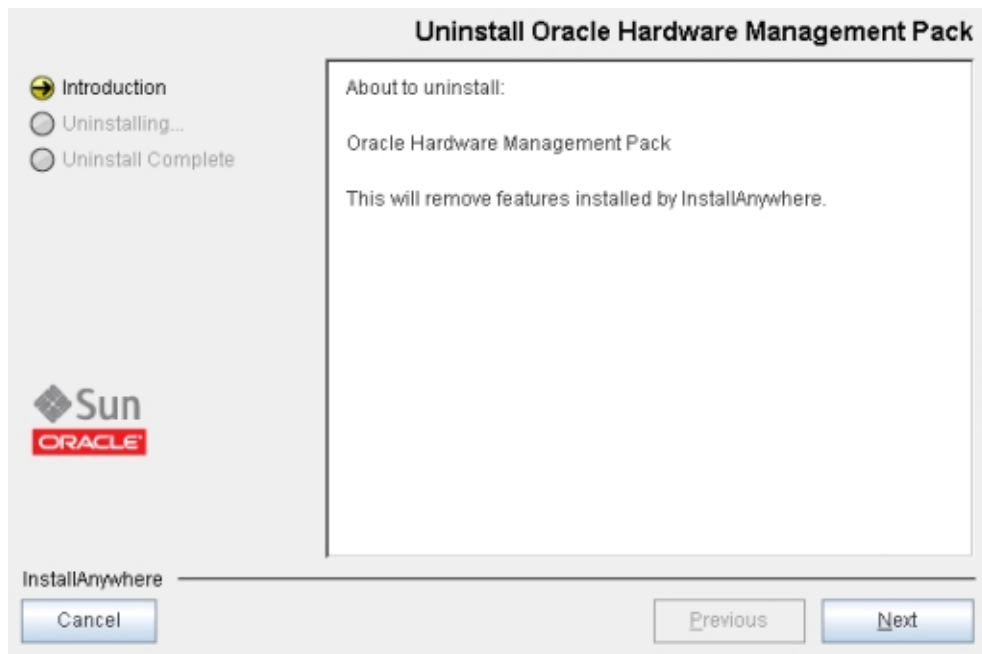
3. Click Next.

   The Uninstall Options screen appears.
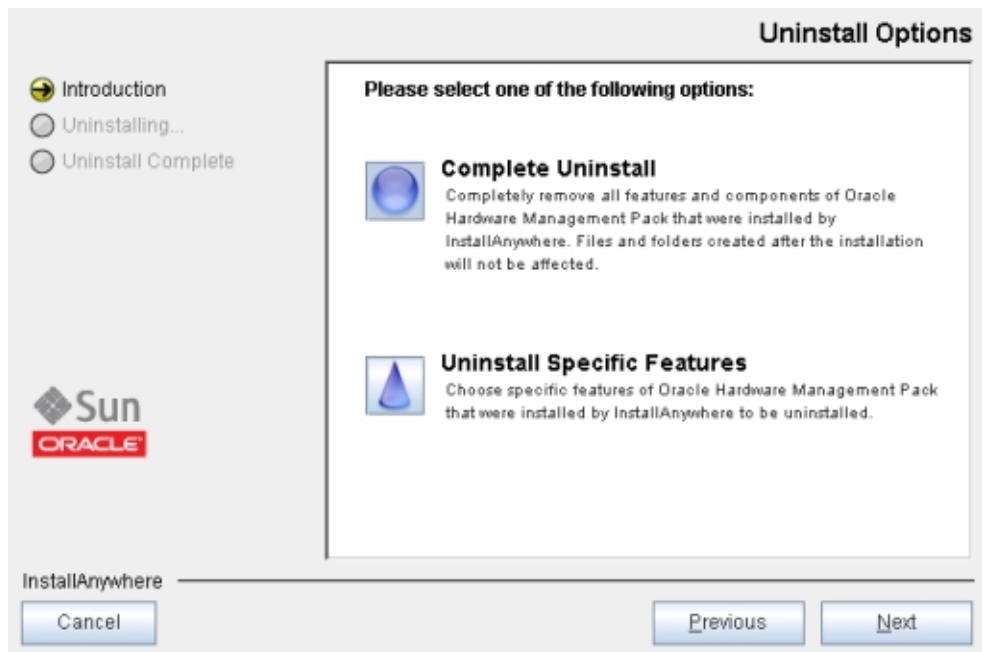
4. Select Complete Uninstall or Uninstall Specific Features and click Next.

   If you selected Uninstall Specific Features, the Choose Product Features screen appears.
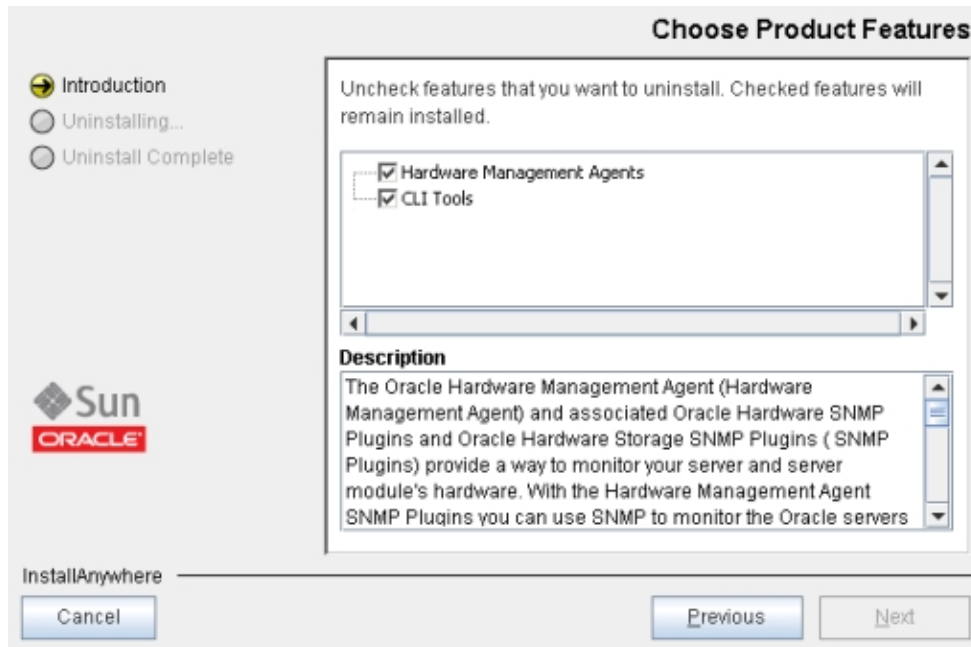
If the Host-to-ILOM Interconnect was enabled during installation, the following screen appears.
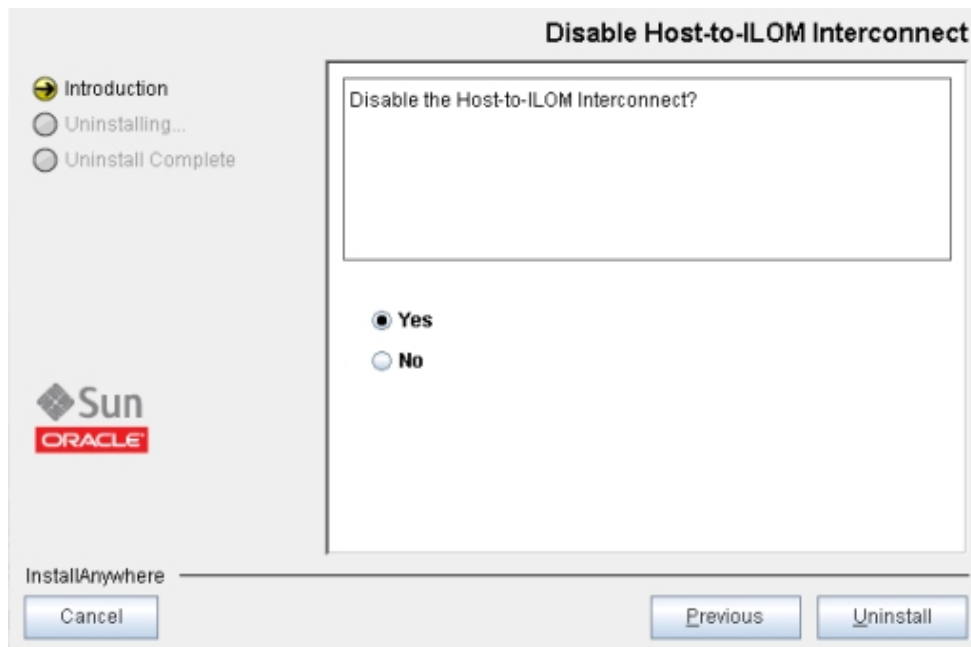
5. Select Yes or No and click Uninstall.

6. Select any features that you want to uninstall and click Uninstall.

The Uninstall Oracle Hardware Management Pack screen appears.

When the components have been uninstalled, the Uninstall Complete screen appears.

7. Click Done.

> **Note:**
>
> After running uninstall on a Solaris or Linux system, there might still be directories listed under `/opt/sun-ssm`. If you are completely removing Oracle Hardware Management Pack and all of its components, these directories can be safely deleted. In an upgrade scenario (not an uninstall), the `/opt/sun-ssm` directory is required for compatibility with other versions of Oracle Hardware Management Pack.

- Install Hardware Management Components Using GUI Mode
- Using Console Mode to Install or Uninstall Components
- Using Silent Mode to Install and Uninstall Components

Using Console Mode to Install or Uninstall Components

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

This section includes the following procedures:

- Install Hardware Management Components Using Console Mode
- Uninstall Hardware Management Pack Components Using Console Mode

Install Hardware Management Components Using Console Mode

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

- To install Management Pack components with Oracle Hardware Management Pack Installer, you must be logged in to your system with administrative privileges.
- Before installing Oracle Hardware Management Pack, refer to the Prerequisites section for information pertaining to your installed OS.
- Download and extract the Hardware Management Pack. See Getting the Software.

  The directory where you extract the files is referred to as *extract-directory* in this procedure.

- The packages for Hardware Management Pack have dependencies that must be satisfied for a successful installation. See Software Dependencies for more information.

- On the Oracle Solaris OS, due to the restrictions of `pkgadd`(1M), the path that you extract the Hardware Management Pack to must not contain any spaces for the installation process to proceed.

1. Set up a console session with the server.

2. To start the installer, type one of the following commands:

   - For Oracle Solaris 10 and Linux systems:

     ```
     # /extract-directory/oracle-hmp-version/install.bin -i
     console
     ```

   - For Oracle Solaris 11 or 11.1 systems:

     ```
     # /extract-directory/oracle-hmp-version/install.arch.bin -
     i console
     ```

     where *arch* is SPARC or x86 depending on your processor.

   The system displays output similar to the following:

   ```
   Preparing to install...
   Extracting the installation resources from the installer archive...
   Configuring the installer for this system's environment...

   Launching installer...

   Preparing CONSOLE Mode Installation...


   ==============================================================================
   ==
   Oracle Hardware Management Pack                  (created with
   InstallAnywhere)
   ------------------------------------------------------------------------------
   --




   ==============================================================================
   ==
   Introduction
   ------------

   InstallAnywhere will guide you through the installation of Oracle Hardware
   Management Pack.

   It is strongly recommended that you quit all programs before continuing with
   this installation.

   Respond to each prompt to proceed to the next step in the installation.  If
   you
   want to change something on a previous step, type 'back'.

   You may cancel this installation at any time by typing 'quit'.
   ```

3. The system displays:

   ```
   ENTER A COMMA_SEPARATED LIST OF NUMBERS REPRESENTING THE FEATURES YOU WOULD
   LIKE TO SELECT, OR DESELECT. TO VIEW A FEATURE'S DESCRIPTION, ENTER
   '?<NUMBER>'.  PRESS RETURN WHEN YOU ARE DONE:
   ```

```
1- [X] Hardware Management Agents
2- [X] Hardware SNMP Plugins
3- [X] CLI Tools
4- [ ] Oracle Linux Fault Management Architecture
5- [X] HMP Watchdog Agent
6- [ ] IPMITool
7- [ ] Emulex Fiber Channel support
8- [ ] QLogic Fiber Channel support
9- [ ] Mellanox Infiniband support

Please choose the Features to be installed by this installer.:
```

Options 1, 2, 3 and 5 are preselected.

To toggle options, type a comma separated list of numbers. Any number toggles the corresponding option. For example, in the default selection shown above, typing 1,6 deselects Hardware Management Agents and selects IPMItool.

> **✎ Note:**
>
> Some components of Hardware Management Pack are hardware or OS specific and are available in the installer only on compatible systems.
>
> The Fibre Channel support options should only be selected on servers with compatible hardware. Selecting these options on a server without the supported hardware makes the installation process slower.

4. When you have typed the features you want to install, press Enter.

   • If the system displays:

   ```
   ==============================================================================
   Dependency requirement for feature selection.
   ----------------------------------------------

   Before installing hmp packages, please resolve these requirements:

   Emulex Fibre Channel support requires package(s):  elxocmcore
   libhbaapi-devel
   QLogic Fibre Channel support requires package(s):  libhbaapi-devel

   1- Exit and resolve the dependencies.
   2- Continue and de-select unresolved packages.
   ```

   Choose one of the options and press Enter.

   • If the system displays:

   ```
   ==============================================================================
   Notice of Oracle Linux Fault Management Architecture selection.
   ----------------------------------------------

   By installing Oracle Linux FMA, you agree to let
   the installer update mcelog default settings and
   disable edac, for more information refer the
   manual installation of Linux FMA as described
   in the Oracle Hardware Management Pack Installation
   Guide.
   ```

```
If you do not wish for the install to make these
changes, you may install Oracle Linux FMA rmp
manually at a later time.

1- Continue and allow installer to update system.
2- Continue and de-select Oracle Linux FMA package.
```

Choose one of the options and press Enter.

> **✎ Note:**
>
> To see the Linux OS changes that need to be made to install Oracle Linux Fault Management software, refer to Installing the Oracle Linux FMA Software for information on manually installing the software.

5. Depending on your choices in Step 3:

    *   If you did not choose to install Hardware Management Agents, go to Step 6.

    *   If you chose to install Hardware Management Agents, the system displays:

    ```
    Configure Hardware Management Agent
    -----------------------------------

    Start the Hardware Management Agent? This agent's short name is hwmgmtd.

    ->1- Yes
    2- No
    ```

    Type the number for your choice or press Enter to select Yes.

    The following screen appears:

    ```
    Configure SNMP Agent
    --------------------

    Start the SNMP agent? This agent's short name is snmpd on Linux and sma
    on
    Solaris.
    ->1- Yes
    2- No
    ```

    Type the number for your choice or press Enter to select Yes.

6. Perform one of the following:

    *   If you did not choose to install Hardware Management Agents in Step 3, or your server does not support the Host-to-ILOM Interconnect, go to Step 10.

    *   If you chose to install Hardware Management Agents in step 3, and your server supports the Host-to-ILOM Interconnect, then you can configure the ILOM trap proxy:

    ```
    ==============================================================
    Configure ILOM  Trap Proxy
    --------------------------

    The ILOM trap proxy enables you to forward traps generated by an Oracle
    ILOM service
    ```

```
processor to a network destination without having to connect the service
processor
to the destination network. When enabling the SNMP trap proxy, you must
configure the
IP, port and SNMP community that your destination is listening on.

Do you want to enable ILOM Trap Proxy?

1- Yes
->2- No
```

If you want to enable the fault trap proxy, type 1. The system offers options to configure the SNMP fault trap proxy, or to accept the defaults:

```
Destination IP (DEFAULT: 127.0.0.1):

Destination Port (DEFAULT: 162):

Destination Community (DEFAULT: public):
```

7. If you did not choose to install CLI Tools in Step 3, go to Step 10. If you chose CLI Tools in Step 3, the system displays:

```
Configure Host-to-ILOM Interconnect
------------------------------------

Configure the Host-to-ILOM Interconnect between the host and ILOM.
This is a high-speed connection that allows fast communication with
ILOM using an internal IP address.

1- Configure automatically
->2- Configure manually
```

> **Note:**
>
> The Host-to-ILOM Interconnect must be enabled for the ILOM trap proxy to function. It is also required for the Oracle Linux Fault Management Architecture (FMA) component. For more information on Host-to-ILOM Interconnect, see Enabling the Host-to-ILOM Interconnect.

8. By default the Host-to-ILOM Interconnect is disabled and unconfigured. If the server you are installing on supports the Host-to-ILOM Interconnect, you can select one of these options:

Type the number for your choice or Enter to select Configure automatically.

If you choose 1 or 3, go to Step 11. If you choose `2-Configure manually`, the system displays:

```
Configure Host-to-ILOM Interconnect Manually
---------------------------------------------

Specify the following parameters.

IP Address: (DEFAULT: 169.254.182.76):

Netmask: (DEFAULT: 255.255.255.0):

Host IP Address: (DEFAULT: 169.254.182.77):
```

9. Type the appropriate values for the IP Address, Netmask, and Host IP Address and press Enter.

   The Pre-Installation Summary appears.

10. Verify that the information displayed on the Pre-Installation Summary is correct.

    • If the information is not correct, type `back` until you return to the screen you want to change.

    • If the information shown in the screen is correct, press Enter to continue.

    The following output appears:

    ```
    Ready To Install
    ----------------

    InstallAnywhere is now ready to install Oracle Hardware Management Pack onto
    your system at the following location:
    ```

11. Press Enter to begin the installation.

    The installation takes about 2 minutes.

12. (Optional) To verify that Oracle Hardware Management Pack is installed correctly, run a command. For example, enter the following CLI command as root:

    ```
    # ilomconfig --version
    ```

    If it is installed correctly, Oracle Hardware Management Pack displays version information.

• Uninstall Hardware Management Pack Components Using Console Mode
• Using GUI Mode to Install and Uninstall Components
• Using Silent Mode to Install and Uninstall Components

Uninstall Hardware Management Pack Components Using Console Mode

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. If you have an earlier version of Oracle Hardware Management Pack, you must uninstall it before installing Oracle Hardware Management Pack 2.4.9.0.

• To uninstall Management Pack components with Oracle Hardware Management Pack unInstaller, you must be logged in to your system with administrative privileges.

1. To start the uninstaller, type one of the following commands:

   • For Oracle Solaris OS or Linux systems with Oracle Hardware Management Pack version 2.3.2.2 or later:

     ```
     # /opt/ssm/setup/uninstall -i console
     ```

   • For Oracle Solaris OS or Linux systems with an Oracle Hardware Management Pack version earlier than 2.3.2.2:

     ```
     # /opt/sun-ssm/setup/uninstall -i console
     ```

ORACLE®

The following output appears:

```
Uninstall Oracle Hardware Management Pack
-----------------------------------------

About to uninstall...

Oracle Hardware Management Pack

This will remove features installed by InstallAnywhere.  It will not remove
files and folders created after the installation.
```

2. Press Enter.

   The following output appears.

```
Uninstall Options
-----------------

ENTER THE NUMBER FOR YOUR CHOICE, OR PRESS <ENTER> to select the default.
->1- Completely remove all features and components.
2- Choose specific features that were installed by InstallAnywhere.

Please choose one of the following options:
```

3. Type the number that represents your choice or press Enter to completely remove all features and components.

   The uninstall begins. When the uninstall is complete, the following output appears.

```
Uninstall Complete
------------------

All items were successfully uninstalled.
```

4. Press Enter to exit the uninstaller.

> **Note:**
>
> After running uninstall on a Solaris or Linux system, there might still be directories listed under `/opt/sun-ssm`. If you are completely removing Oracle Hardware Management Pack and all of its components, these directories can be safely deleted. In an upgrade scenario (not an uninstall), the `/opt/sun-ssm` directory is required for compatibility with other versions of Oracle Hardware Management Pack.

• Install Hardware Management Components Using Console Mode
• Using GUI Mode to Install and Uninstall Components
• Using Silent Mode to Install and Uninstall Components

Using Silent Mode to Install and Uninstall Components

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

This section includes the following topics:

- Silent Mode Installation Options
- Install Hardware Management Pack Components Using Silent Mode
- Uninstall Hardware Management Pack Component Using Silent Mode

Silent Mode Installation Options

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. For information on how to manually install Oracle Hardware Management Pack, see Installing Components Manually.

Silent mode is a non-interactive installation method. You navigate to the *extract-directory* and execute the `install.bin` at the command line. You can execute silent mode in one of two ways:

- A silent installation can be directed by supplying a properties file. The properties file contains parameters and properties that define the installation choices for the Installer.

  A properties file must first be created by running a GUI or console mode installation using the -r option as shown in the following example:

  `# ./install.bin -i GUI -r /path/filename.properties`

  where *path* must be an absolute path to the directory where your properties file will be created, and *filename* is the name of your properties file (suggested name: `installer.properties`).

  Once the properties file is created, you can use the file to do an identical silent installation using the following command:

  `# ./install.bin -i silent -f /path/filename.properties`

  where *path* can be either an absolute path or a path relative to the location of the properties file.

> **✎ Note:**
>
> You don't need to use the -f option if you created a file named
> `installer.properties` in the same directory as `install.bin`. The
> installer will, by default, look for a file named `installer.properties` in that
> directory.

- If no properties file is supplied, a default installation of the Management Pack
  components is performed with no post-installation configuration steps. When using the
  default silent install, all Management Pack components are installed, except IPMItool.

> **✎ Note:**
>
> On a server without SNMP configured, Management Agents is not installed. On
> a server with a previous version of Management Pack installed, the software is
> upgraded. The Host-to-ILOM Interconnect is not configured or enabled by
> default.

Install Hardware Management Pack Components Using Silent Mode

> **✎ Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation
> option available is a manual installation. For information on how to manually install
> Oracle Hardware Management Pack, see Installing Components Manually.

- To install Management Pack components with Oracle Hardware Management Pack
  Installer, you must be logged in to your system with administrative privileges.

- Before installing Oracle Hardware Management Pack, refer to the Prerequisites section
  for information pertaining to your installed OS.

- Download and extract the Hardware Management Pack Software. See Getting the
  Software.

  The directory where you extract the files is referred to as *extract-directory* in this
  procedure.

- The packages for Hardware Management Pack have dependencies that must be
  satisfied for a successful installation. See Software Dependencies for more information.

- On the Oracle Solaris OS, due to the restrictions of `pkgadd`(1M), the path that you
  extract the Hardware Management Pack to must not contain any spaces for the
  installation process to proceed.

- Refer to Silent Mode Installation Options before performing the installation.

1. To start the silent mode installation process, use one of the following commands:

   - For Oracle Solaris 10 or Linux systems:

     – To perform a typical silent installation:

```
# /extract-directory/oracle-hmp-version/install.bin -i
silent
```

    – To perform an installation directed by a properties file:

```
# /extract-directory/oracle-hmp-version/install.bin -i
silent -f /path/filename.properties
```

    where *path* can be either an absolute path or a path relative to the location of the properties file.

- For Oracle Solaris 11 or 11.1 systems:

    – To perform a typical silent installation:

```
# /extract-directory/oracle-hmp-version/
install.arch.bin -i silent
```

    where *arch* is SPARC or x86 depending on your processor.

    – To perform an installation directed by a properties file:

```
# /extract-directory/oracle-hmp-version/
install.arch.bin -i silent -f /path/
filename.properties
```

    where *arch* is SPARC or x86 depending on your processor and *path* can be either an absolute path or a path relative to the location of the properties file.

> **✎ Note:**
>
> On a server without SNMP configured, Management Agents is not installed. On a server with a previous version of Management Pack installed, the software is upgraded.

Output similar to the following appears:

```
Preparing to install...
Extracting the installation resources from the installer archive...
Configuring the installer for this system's environment...

Launching installer...

Preparing SILENT Mode Installation...


===============================================================================
==
Oracle Hardware Management Pack                    (created with
InstallAnywhere)
-------------------------------------------------------------------------------
--
```

The installation takes about two minutes. A progress bar is displayed as the installation proceeds.

When the installation is complete, the following output appears:

```
Installation Complete.
```

2. (Optional) To verify that Oracle Hardware Management Pack is installed correctly, run a command. For example, enter the following CLI command as root:

```
# ilomconfig --version
```

If it is installed correctly, Oracle Hardware Management Pack displays version information.

- Uninstall Hardware Management Pack Component Using Silent Mode
- Using GUI Mode to Install and Uninstall Components
- Using Console Mode to Install or Uninstall Components

Uninstall Hardware Management Pack Component Using Silent Mode

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. If you have an earlier version of Oracle Hardware Management Pack, you must uninstall it before installing Oracle Hardware Management Pack 2.4.9.0.

- To uninstall Management Pack components with Oracle Hardware Management Pack Installer, you must be logged in to your system with administrative privileges.

- To start the silent mode installation process, use one of the following commands:

  - For Oracle Solaris OS or Linux systems with Oracle Hardware Management Pack version 2.3.2.2 or later:

    ```
    # /opt/ssm/setup/uninstall -i silent
    ```

  - For Oracle Solaris OS or Linux systems with an Oracle Hardware Management Pack version earlier than 2.3.2.2:

    ```
    # /opt/sun-ssm/setup/uninstall -i silent
    ```

  The following output appears:

  ```
  Preparing SILENT Mode Uninstallation...


  ===============================================================================
  Oracle Hardware Management Pack                  (created with InstallAnywhere)
  -------------------------------------------------------------------------------


  ===============================================================================
  Uninstalling...
  ```

  The installation should take about 2 minutes. A progress bar is displayed as the installation proceeds.

  When the installation is complete, the following output displays:

  ```
  Uninstallation Complete.
  ```

4-26

> **Note:**
>
> After running uninstall on a Solaris or Linux system, there might still be directories listed under `/opt/sun-ssm`. If you are completely removing Oracle Hardware Management Pack and all of its components, these directories can be safely deleted. In an upgrade scenario (not an uninstall), the `/opt/sun-ssm` directory is required for compatibility with other versions of Oracle Hardware Management Pack.

- Install Hardware Management Pack Components Using Silent Mode
- Using GUI Mode to Install and Uninstall Components
- Using Console Mode to Install or Uninstall Components

5

Installing Components Manually

This section describes how to manually install and uninstall Hardware Management Pack components on an Oracle server using operating system (OS)-specific commands. As of Oracle Hardware Manaagement Pack 2.4.9.0, manual installation is the only supported method of installation. If you have an earlier version of Oracle Hardware Management Pack, you should use the Installer included with that version to completely uninstall the application (see Installing Hardware Management Pack Components) before installing Oracle Hardware Manaagement Pack 2.4.9.0 or later.

> **Note:**
>
> You have the option of installing Oracle Hardware Management Pack on a bootable Linux USB thumb drive. This option can be useful when using Oracle Hardware Management Pack `fwupdate` command to update system firmware on an x86 server that might be running an operating system not supported by Oracle Hardware Management Pack. For more information, see Creating a Bootable Thumb Drive Containing Oracle Hardware Management Pack.

- Getting the Software
- Prerequisites
- Installing and Uninstalling Components Manually on an Oracle Solaris Server
- Installing and Uninstalling Components Manually on a Linux Server
- Optional Cleanup After Installation or Uninstallation

Getting the Software

Before you start, check that your target server and OS are supported. For more information on the supported servers, see:

https://www.oracle.com/goto/ohmp

The following procedure explains how to use My Oracle Support to download server firmware and software.

- Download Firmware and Software Using My Oracle Support

Download Firmware and Software Using My Oracle Support

1. Navigate to the following site:

    http://support.oracle.com

2. Sign in to My Oracle Support.

3. At the top of the page, click the Patches and Updates tab.

The Patches and Updates screen appears.

4. In the Search screen, click Product or Family (Advanced Search).

The screen appears with search fields.

5. In the Product is field, type a full or partial product name. Select the product of interest when it appears in the list.

- To search for the latest Hardware Management Pack, type Hardware Management Pack.

- To search for firmware for a specific server, type the product name, for example Sun Server X2–8.

6. In the Release field, select a software release from the drop-down list.

Expand the folders to see all available software releases.

7. Click Search.

The software release comprises a set of downloads (patches).

8. To select a patch, click the check box next to the patch name (you can select more than one patch).

A popup action panel appears. The panel contains several action options.

9. To download the patch, click Download in the popup panel.

The download begins automatically.

Prerequisites

- If you are installling Oracle Hardwae Management Pack 2.4.9.0 or later, you must first uninstall any version older than 2.4.9.0 to remove components that are no longer supported. Use one of the following methods:

  – Using GUI Mode to Install and Uninstall Components

  – Using Console Mode to Install or Uninstall Components

  – Using Silent Mode to Install and Uninstall Components

- When installing Oracle Hardware Management Pack components manually, you can upgrade existing packages with the newer version of those packages.

- Different Hardware Management Pack components are supported by different servers and operating systems, so ensure that your target platform is supported by all of the components you intend to install. Before proceeding make sure that you have consulted the support matrix for the version that you plan to install. The support matrix is available at:

  https://www.oracle.com/goto/ohmp

- Depending on the target server's OS, you should note the following:

  – Oracle Solaris 10/11 OS - For the Oracle Server Hardware SNMP Plugins to function correctly, you must have System Management Agent (SMA). SMA is installed by default on Oracle Solaris OS. For more information about SMA, see `snmpd`(1M). When installing Hardware Management Pack components, you must be in the global zone, and Hardware Management Pack can only be installed on the global zone. The device `/dev/bmc` must be present on your system for the Hardware Management Agent to function correctly.

- Linux OS - For the Oracle Server Hardware SNMP Plugins to function correctly, you must have Net-SNMP installed. For more information about Net-SNMP, see the `snmpd` documentation. The device `/dev/ipmi#` (where # is a digit) must be present on your system for the Hardware Management Agent to function correctly. You must also ensure that the IPMI interface between the Oracle server service processor (SP) and host OS is enabled, and that the IPMI service is started. When using the Hardware Management Agent, you must ensure the root user has read/write access to the IPMI device in order for the Hardware Management Agent to function correctly.

- *Beginning with Oracle Hardware Management Pack 2.4.7, SUSE Linux Enterprise Server (SLES) support is no longer available.*

- Review the known installation issues. For a complete list of installation issues, refer to Installation Notes and Issues in *Oracle Hardware Management Pack 2.4 Release Notes*.

Installing and Uninstalling Components Manually on an Oracle Solaris Server

This section includes the following topics:

- Installing and Uninstalling Components Manually on an Oracle Solaris 10 Server
- Installing and Uninstalling Components Manually on an Oracle Solaris 11 Server
- Manually Configure Hardware Management Pack on an Oracle Solaris Server

Installing and Uninstalling Components Manually on an Oracle Solaris 10 Server

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. If you have an earlier version of Oracle Hardware Management Pack, you must uninstall it before installing Oracle Hardware Management Pack 2.4.9.0.

This section includes the following topics:

- Available Packages for Oracle Solaris 10
- Manually Install Components on an Oracle Solaris 10 Server
- Manually Uninstall Components on an Oracle Solaris 10 Server

Available Packages for Oracle Solaris 10

This section provides details on the packages included with the Hardware Management Pack. For information on the software dependencies for these packages, see Software Dependencies. The following packages are available on Intel x86 and SPARC architecture servers running Oracle Solaris 10:

- `ORCLhmp-hwmgmt` - Oracle Server Hardware Management Agents.
- `ORCLhmp-libs` - Libraries required by Oracle Hardware Management Pack.

- `ORCLhmp-snmp` - Oracle Server Hardware SNMP plugins.

- `ORCLhmp-tools` - Oracle Server CLI Tools.

- `ORCLhmp-uecm` - CDC ECM USB-to-Ethernet driver. Only compatible with systems running Oracle Solaris 10 10/09 (update 8). For later versions of Oracle Solaris 10, use the CDC ECM USB driver that comes with Oracle Solaris.

- `ORCLhmp-tools-biosconfig` - Oracle Server CLI Tools `biosconfig`. Only compatible with x86 systems using Legacy BIOS.

- `ORCLhmp-tools-ubiosconfig` - Oracle Server CLI Tools `ubiosconfig`. Only compatible with x86 systems that have a UEFI BIOS.

- `ORCLhmp-zoningcli` - Zoning CLI Tool. Only compatible with Oracle SPARC T3-1 servers that have the 16 disk backplane.

- `ELXocmcore` and `EMLXemlxu` - Emulex Fibre Channel support and drivers.

- `SUNWfirmwareflash` - Oracle Solaris Generic Firmware Flash Tool for InfiniBand Host Channel Adapters.

- `QConvergeConsoleCLI` - QLogic Fibre Channel Host Bus Adapter command line interface.

- `ipmiflash` - IPMIflash utility.

- `ipmitool` - IPMItool utility.

Manually Install Components on an Oracle Solaris 10 Server

- To install Management Pack components with Oracle Hardware Management Pack Installer, you must be logged in to your system with administrative privileges.

- Download and extract the Hardware Management Pack. See Getting the Software.

  The directory where you extract the files is referred to as *extract-directory* in this procedure.

- The packages for Hardware Management Pack have dependencies that must be satisfied for a successful installation. See Software Dependencies for more information.

- On the Oracle Solaris OS, due to the restrictions of `pkgadd`(1M), the path that you extract the Hardware Management Pack to must not contain any spaces for the installation process to proceed.

- If your system includes adapters using technology from QLogic or Emulex, you must install the appropriate third-party utilities included with Hardware Management Pack. See Available Packages for Oracle Solaris 10.

1. If you want to install only IPMItool or IPMIflash, see the following steps. If you also want to install the other Hardware Management Pack components, go to Step 3.

   - To install `ipmiflash`, run the following command:

     ```
     # pkgadd -d /extract-directory/packages ipmiflash
     ```

   - To install `ipmitool`, run the following command:

     ```
     # pkgadd -d /extract-directory/packages ipmitool
     ```

2. If you see the prompt to install conflicting files, type y to continue the installation.

3. Determine which Hardware Management Pack components that you want to install, see Available Packages for Oracle Solaris 10.

4. To install the packages, use the following command:

```
# pkgadd -d /extract-directory/packages ORCLhmp-libs additional
components
```

For example, to install just the Hardware Management agent and SNMP plugins:

```
# pkgadd -d /extract-directory/packages ORCLhmp-libs ORCLhmp-
hwmgmt ORCLhmp-snmp
```

5. Follow the on screen instructions to continue the installation.

The selected components are installed.

Optional Cleanup After Installation or Uninstallation

Manually Uninstall Components on an Oracle Solaris 10 Server

- To uninstall Hardware Management Pack components manually, you must be logged in to your system with root privileges.

- The packages for Hardware Management Pack have dependencies that must be observed for a successful uninstallation. See Software Dependencies for more information.

- The packages for Hardware Management Pack have dependencies that must be observed for a successful uninstallation. See Software Dependencies for more information.

1. Determine which components you want to uninstall. See Available Packages for Oracle Solaris 10.

> **✎ Note:**
>
> The following package dependencies exist.
>
> - `ORCLhmp-libs` must be uninstalled after all other Hardware Management packages have been uninstalled.
>
> - `ORCLhmp-snmp` must be uninstalled before `ORCLhmp-hwmgmt` is uninstalled.

2. Run the following command:

```
# pkgrm package name(s)
```

For example, to remove the hardware agent with SNMP plugins:

```
# pkgrm ORCLhmp-snmp ORCLhmp-hwmgmt
```

3. Follow any on screen prompts to complete the uninstallation.

Optional Cleanup After Installation or Uninstallation

Installing and Uninstalling Components Manually on an Oracle Solaris 11 Server

Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is no longer available.

This section contains the following:

- [Available Packages for Oracle Solaris 11](#)
- [Manually Install Components on Oracle Solaris 11 Without Zones](#)
- [Manually Install Components on Oracle Solaris 11 With Zones](#)
- [Manually Uninstall Components on an Oracle Solaris 11 Server](#)

Available Packages for Oracle Solaris 11

Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is no longer available.

This section provides details on the packages included with the Hardware Management Pack. For information on the software dependencies for these packages, see Software Dependencies. The following packages are available:

> **Note:**
>
> For installation, the package name specified must include the full package path listed below (for example, `system/management/hmp/hmp-ipmitool`).

- `system/management/hmp/hmp-libs` - libraries required by Oracle Hardware Management Pack.
- `system/management/hmp/hmp-hwmgmt` - Oracle Server Hardware Management Agents.
- `system/management/hmp/hmp-snmp` - Oracle Server Hardware SNMP plugins.
- `system/management/hmp/hmp-tools` - Oracle Server CLI Tools.
- `system/management/hmp/hmp-ipmiflash` - IPMIflash utility.
- `system/management/hmp/hmp-ipmitool` - IPMItool utility.
- `system/management/hmp/hmp-tools-biosconfig` - BIOS configuration utility. Only compatible with x86 systems using Legacy BIOS.
- `system/management/hmp/hmp-tools-ubiosconfig` - UEFI BIOS configuration utility. Only compatible with x86 systems that have a UEFI BIOS.
- `hmp-zoningcli` - zoning CLI Tool for Oracle SPARC T3-1 servers that have the 16 disk backplane.
- `system/management/hmp/ELXocmcore` and `EMLXemlxu` - Emulex Fibre Channel support and drivers.

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- `system/management/hmp/QConvergeConsoleCLI` - QLogic Fibre Channel Host Bus Adapter command line interface.

> **Note:**
>
> `hmp-hwmgmt` must be installed before `hmp-snmp` is installed.

Manually Install Components on Oracle Solaris 11 Without Zones

- *Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is no longer available.*

- To install Hardware Management Pack components manually, you must be logged in to your system with root privileges.

- Before installing Oracle Hardware Management Pack, refer to the Prerequisites section for information pertaining to your installed OS.

- Download and extract the Hardware Management Pack. See Getting the Software.

  The directory that you extract the files to is referred to as *extract-directory* in this procedure.

- The packages for Hardware Management Pack have dependencies that must be satisfied for a successful installation. See Software Dependencies for more information.

- On the Oracle Solaris OS, due to the restrictions of `pkgadd`(1M), the path that you extract the Hardware Management Pack to must not contain any spaces for the installation process to proceed.

- If your system includes adapters using technology from QLogic or Emulex, you must install the appropriate third-party utilities included with Hardware Management Pack. See Available Packages for Oracle Solaris 11.

1. Determine which Hardware Management Pack components that you want to install. See Available Packages for Oracle Solaris 11.

2. To list the available packages:

   ```
   # pkg list -g file:///extract-directory/oracle-hmp-2.4.0.0-
   SunOS-5.11.p5p
   ```

3. To install the packages, use the following command:

   ```
   # pkg install -g file:///extract-directory/oracle-hmp-2.4.0.0-
   SunOS-5.11.p5p pkg:/mp-re/package-name
   ```

   where *package-name* is one or more of the packages listed in Available Packages for Oracle Solaris 11.

   The selected packages are installed.

   Optional Cleanup After Installation or Uninstallation

Manually Install Components on Oracle Solaris 11 With Zones

- *Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is no longer available.*

- To install Hardware Management Pack components manually, you must be logged in to your system with root privileges.

- Before installing Oracle Hardware Management Pack, refer to the Prerequisites section for information pertaining to your installed OS.

- Download and extract the Hardware Management Pack. See Getting the Software.

  The directory that you extract the files to is referred to as *extract-directory* in this procedure.

- The packages for Hardware Management Pack have dependencies that must be satisfied for a successful installation. See Software Dependencies for more information.

- On the Oracle Solaris OS, due to the restrictions of `pkgadd`(1M), the path that you extract the Hardware Management Pack to must not contain any spaces for the installation process to proceed.

- If your system includes adapters using technology from QLogic or Emulex, you must install the appropriate third-party utilities included with Hardware Management Pack. See Available Packages for Oracle Solaris 11.

- This procedure applies to servers with zones. See Manually Install Components on Oracle Solaris 11 Without Zones for a server without zones.

1. Determine which Hardware Management Pack components that you want to install. See Available Packages for Oracle Solaris 11.

2. Create a package repository at a suitable path.

   ```
   # pkgrepo create path
   ```

   where *path* is a path such as `/var/tmp/OHMP`

3. Publish the repository using the install files.

   ```
   # pkgrecv -s extraction_directory/oracle-hmp-2.4.0.0-
   SunOS-5.11.p5p -d path '*'
   ```

   where *path* is the path used in the previous step.

4. Set the publisher for the repository.

   ```
   # pkg set-publisher -g file://path mp-re
   ```

   ```
   # pkg set-publisher --search-first mp-re
   ```

   where *path* is the path used in the previous step and *mp-re* is a name for the repository.

5. To install the packages, use the following command:

   ```
   # pkg install -g file:///extract-directory/oracle-
   hmp-2.4.0.0-SunOS-5.11.p5p pkg:/mp-re/package-name
   ```

   where *package-name* is one or more of the packages listed in Available Packages for Oracle Solaris 11.

   The selected packages are installed.

Optional Cleanup After Installation or Uninstallation

Manually Uninstall Components on an Oracle Solaris 11 Server

- To uninstall Hardware Management Pack components manually, you must be logged in to your system with root privileges.

- The packages for Hardware Management Pack have dependencies that must be observed for a successful uninstallation. See Software Dependencies for more information.

1. Determine which components you want to uninstall. See Available Packages for Oracle Solaris 11.

   > **Note:**
   >
   > The following package dependencies exist.
   >
   > - `hmp-libs` must be uninstalled after all other Hardware Management packages have been uninstalled.
   >
   > - `hmp-snmp` must be uninstalled before `hmp-hwmgmt` is uninstalled.
   >
   > - `hmp-zoningcli` is only available for SPARC servers running Oracle Solaris OS.

2. To uninstall the packages, use the following command:

   ```
   # pkg uninstall package-name
   ```

   where *package-name* is one of the packages listed in Available Packages for Oracle Solaris 11.

Optional Cleanup After Installation or Uninstallation

Manually Configure Hardware Management Pack on an Oracle Solaris Server

Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is no longer available.

- Run the appropriate commands for the features that you want to configure.

  - If Oracle Server Management Agents are installed, restart the Hardware Management Agent using the following commands:

    ```
    # /usr/sbin/svcadm disable hwmgmtd
    ```

    ```
    # /usr/sbin/svcadm enable hwmgmtd
    ```

  - If Oracle Hardware SNMP Plugins are installed, restart the SNMP daemon.

    On Oracle Solaris 10 OS, use the following command:

    ```
    # /usr/sbin/svcadm restart sma
    ```

    On Oracle Solaris 11 OS, use the following command:

    ```
    # /usr/sbin/svcadm restart net-snmp
    ```

- If itpconfig is installed on a server that supports Host-to-ILOM Interconnect, enable the Host-to-ILOM Interconnect using the following steps:

    1. Verify the server's Oracle ILOM service processor (SP) supports this feature using the following command:

       ```
       # /opt/ssm_directory/bin/itpconfig list interconnect
       ```

       Where *ssm_directory* is either `sun-ssm` or `ssm`, depending on your version of Oracle Hardware Management Pack.

       If `SUBCOMMAND NOT SUPPORTED` appears, then this feature is not supported by your server.

    2. On Oracle Solaris OS 10 10/09, install the `usbecm` driver.

       ```
       # pkgadd -d /extract-directory/packages/ORCLhmp-uecm
       ```

    3. Do one of the following:

       – If you want to enable the interconnect automatically, use the following command:

         ```
         # /opt/ssm_directory/bin/itpconfig enable
         interconnect
         ```

         Where *ssm_directory* is either `sun-ssm` or `ssm`, depending on your version of Oracle Hardware Management Pack.

         This is the preferred method for configuring the interconnect.

       – If you want to enable the interconnect manually, use the following command:

         ```
         # /opt/ssm_directory/bin/itpconfig enable
         interconnect --ipaddress=x.x.x.x --netmask=x.x.x.x
         --hostipaddress=x.x.x.x
         ```

         Where *ssm_directory* is either `sun-ssm` or `ssm`, depending on your version of Oracle Hardware Management Pack.

Installing and Uninstalling Components Manually on a Linux Server

This section includes the following procedures:

> **✎ Note:**
>
> You have the option of installing Oracle Hardware Management Pack on a bootable Linux USB thumb drive. This option can be useful when using Oracle Hardware Management Pack `fwupdate` command to update system firmware on an x86 server that might be running an operating system not supported by Oracle Hardware Management Pack. For more information, see Creating a Bootable Thumb Drive Containing Oracle Hardware Management Pack.

- Available Packages for Linux

- Install Components on a Linux Server
- Installing the Oracle Linux FMA Software
- Uninstall Components on a Linux Server
- Configure the Software After Installation

Available Packages for Linux

The Hardware Management Pack download contains packages that can be used to install the components manually. For information on the software dependencies for these packages, see Software Dependencies. The following list provides the names of these packages.

- `hmp-libs` - libraries required by Oracle Hardware Management Pack.

- `hmp-snmp` - Oracle Server Hardware SNMP plugins.

- `hmp-hwmgmt` - Oracle Server Hardware Management Agents.

- `hmp-tools` - Oracle Server CLI Tools.

- `hmp-tools-biosconfig`- Oracle Server CLI Tools `biosconfig`. Only compatible with x86 systems using Legacy BIOS.

- `hmp-tools-ubiosconfig`- Oracle Server CLI Tools `ubiosconfig`. Only compatible with servers that have a UEFI BIOS.

- `hmp-wdt` - Oracle Hardware Management Pack Watchdog Agent.

- `fm` - Oracle Linux Fault Management Architecture.

- `ipmiflash` - IPMIflash utility.

- `ipmitool` - IPMItool utility.

- `elxocmcore` - Emulex Fibre Channel support and drivers.

- `QConvergeConsoleCLI` - QLogic Fibre Channel Host Bus Adapter command line interface.

The file names for the packages generally follow the following format:

component-version.distribution.architecture`.rpm`

where:

- *component* is one of component names listed above.

- *version* is the software version number.

- *distribution* is one of el4, el5, el6, etc.

- *architecture* is either i386 (32-bit) or x86_64 (64-bit).

For example, for Oracle Enterprise Linux 5 32-bit, the Hardware Management Pack version 2.2.1 CLI Tools file name is `oracle-hmp-tools-2.2.1-1.el5.i386.rpm`.

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> **✏ Note:**
>
> Unlike previous releases of Management Pack, there is not a specific package for Oracle VM 3.2 or earlier. Use the oel5 package for servers running Oracle VM 3.2 or earlier and the ovm3.3 package for servers running Oracle VM 3.3.

Install Components on a Linux Server

> **✏ Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the only installation option available is a manual installation. If you have an earlier version of Oracle Hardware Management Pack, you must uninstall it before installing Oracle Hardware Management Pack 2.4.9.0.

- To install Hardware Management Pack components manually, you must be logged in to your system with root privileges.

- Download and extract the Hardware Management Pack. See Getting the Software.

  The directory to which you extract the files is referred to as *extract-directory* in this procedure.

- The packages for Hardware Management Pack have dependencies that must be satisfied for a successful installation. See Software Dependencies for more information.

- If your system includes adapters using technology from QLogic, Emulex or Mellanox, you must install the appropriate third-party utilities included with Hardware Management Pack. See Available Packages for Linux.

- These instructions also apply to Oracle VM, see Software Dependencies for OS-specific package dependencies information.

- For instructions on installing Oracle Linux Fault Management Architecture software on Oracle Linux, see Installing the Oracle Linux FMA Software.

- *Beginning with Oracle Hardware Management Pack 2.4.7, SUSE Linux Enterprise Server (SLES) support is no longer available.*

1. If you want to install only ipmitool or ipmiflash, see the following steps. If you also want to install the other Hardware Management Pack components, go to Step 3.

   - To install `ipmiflash`, type the following command:

     ```
     # rpm -i /extract-directory/packages/ipmiflash*.rpm
     ```

   - To install `ipmitool`, type the following command:

     ```
     # rpm -i /extract-directory/packages/ipmitool*.rpm
     ```

     By default, no output opens after the installation.

2. Determine which Hardware Management Pack components to install.

See Available Packages for Linux for an overview of which packages are available for installation.

> **Note:**
>
> You must install `oracle-hmp-libs` with all packages. If you are installing `oracle-hmp-snmp` you must also install `oracle-hmp-hwmgmt`.

3. Use one of the following methods to install the packages:

   • Install on an Oracle Linux system using yum with the following syntax:

   ```
   # yum localinstall /extract-directory/packages/oracle-hmp-
   component.rpm path_to_additional_components
   ```

   For example, to install the command-line tools, the Hardware Management Agent and SNMP plugins:

   ```
   # yum localinstall /extract-directory/packages/oracle-hmp-
   libs*rpm /extract-directory/packages/oracle-hmp-tools*rpm /
   extract-directory/packages/oracle-hmp-hwmgmt*rpm /extract-
   directory/packages/oracle-hmp-snmp*rpm
   ```

   • Install on any supported Linux system using rpm with the following syntax:

   ```
   # rpm -i /extract-directory/packages/oracle-hmp-component.rpm
   path_to_additional_components
   ```

   For example, to install the command-line tools, the Hardware Management Agent and SNMP plugins:

   ```
   # rpm -i /extract-directory/packages/oracle-hmp-libs*rpm /
   extract-directory/packages/oracle-hmp-tools*rpm /extract-
   directory/packages/oracle-hmp-hwmgmt*rpm /extract-directory/
   packages/oracle-hmp-snmp*rpm
   ```

   No output appears by default.

4. If you have installed the Oracle Hardware Management Agent, start the hwmgmtd service.

   • For systems running Oracle Linux or Red Hat Linux versions 4, 5 and 6, and SUSE Linux versions 10 and 11:

   ```
   # service hwmgmtd start
   ```

   • For systems running Oracle Linux 7 and 8, or Red Hat Linux version 7 and SUSE Linux version 12:

   ```
   # systemctl start hwmgmtd
   ```

Optional Cleanup After Installation or Uninstallation

Installing the Oracle Linux FMA Software

This section describes how to manually install the required Oracle Linux components and Oracle Linux FMA software on the server.

For more information on Oracle Linux FMA, see *Oracle Hardware Management Pack 2.4 Linux Fault Management Architecture Software User's Guide*.

Install the Required Linux Components Before Installing Oracle Linux FMA Software

To perform this procedure, you must be logged in to your system with root privileges.

The procedures in this section assume that your system is configured with access to Oracle Linux Software Repositories. By default, Oracle Linux configures the Oracle Linux repositories for the system through network access to the Oracle Linux Public site::

https://public-yum.oracle.com/

If your site does not permit this access, then you need another means of acquiring the required software package(s). Your site might provide its own internal "mirror" repository, or you might even have to manually download (for example, using HTTP, FTP, and manually mounting the installation DVD) and copy the appropriate package file(s) to your system and manually install them.

Unless you are an expert user familiar with manual installation of Linux components, use the Yum utility or its corresponding GUI counterpart 'gpk-application' available from the GNOME desktop (Menu: System > Administration > Add/Remove Software) to deal with software installation and updates.

1. Check to see if the IPMI service is installed and running by typing the command:

   ```
   # service ipmi status
   ```

   You should see output similar to:

   ```
   [root@hostname ~]# service ipmi status
   ipmi_msghandler module loaded.
   ipmi_si module loaded.
   ipmi_devintf module loaded.
   /dev/ipmi0 exists.
   ```

   - If the service is installed but is not running, start the service:

     a. Type the command:

        ```
        # service ipmi start
        ```

     b. To have the service automatically start after a server reboot (so that you do not have to manually start it each time), also type the command:

        ```
        # chkconfig --levels 345 ipmi on
        ```

   - If the IPMI service is not installed, you see an "unrecognized service" error. If so, you will need to install the IPMI service software package first, and then start it.

     Oracle Linux provides the OpenIPMI software distribution for use as the standard (or default) IPMI service.

     a. Install the service by typing the command:

        ```
        # yum install OpenIPMI
        ```

> **✎ Note:**
>
> If you are not using Yum, you will have to download and install the OpenIPMI package (Oracle Linux 6.5 base version: `OpenIPMI-2.0.16-14.el6.x86_64.rpm`) and the ancillary OpenIPMI-libs package (Oracle Linux 6.5 base version: `OpenIPMI-libs-2.0.16-14.el6.x86_64.rpm`). Other dependencies could include glibc and openssl, install them as needed.

   b. After successful installation, start the service by typing the command:

```
# service ipmi start
```

   c. To have the service automatically start after a server reboot so that you do not have to manually start it each time, type:

```
# chkconfig --levels 345 ipmi on
```

2. Check to see if the dmidecode package is installed and available by typing the command:

```
# dmidecode -V
```

- If dmidecode is available, you should see its version listed as output, similar to:

```
[root@hostname ~]# dmidecode -V
2.11
```

- If dmidecode is not available, install it by typing the command:

```
# yum install dmicode
```

3. If your system is running Oracle Linux 6.5 or 7.0 or later, disable the EDAC module.

If your system is running Oracle Linux 7 or later, skip to **step 5**.

   a. Check to see if the EDAC module is enabled. Type the command:

```
# lsmod | grep edac
```

If you see output like this, then the EDAC module is enabled, and you must disable it.

```
[root@ban25uut190 ~]# lsmod | grep edac
@ sb_edac3341   0
@ edac_core   54168   0
```

If the `grep` does not find an instance of EDAC, skip to **step 4**.

   b. To disable the EDAC module, type the commands:

```
# rmmod sb_edac
# rmmod edac_core
```

The EDAC module is disabled.

   c. To prevent the EDAC module from restarting when the server is booted:

      i. Add the following lines to the file /etc/modprobe.d/blacklist.conf:

```
blacklist sb_edac
blacklist edac_core
```

      ii. Save the file.

4. If your system is running Oracle Linux 6.5, check to see if the mcelog service is installed and running.

   If your system is running Oracle Linux 7 or later, skip to **Step 5**.

   Type the command:

   ```
   # service mcelogd status
   ```

   You should see output similar to:

   ```
   [root@hostname ~]# service mcelogd status   [ OK ]
   Checking for mcelog
   mcelog (pid 44912) is running...
   ```

   - If the service is installed and running, edit the mcelog.conf file and then restart the service, as follows:

     a. Edit the `/etc/mcelog/mcelog.conf` file to uncomment the "`raw = yes`" entry.

        This provides the log information detail that Oracle Linux FMA requires.

     b. Edit the `/etc/mcelog/mcelog.conf` file to uncomment the "`memory-ce-threshold`" entry and change it to "`memory-ce-threshold = 3 / 72h`".

        This specifies when meclog should offline a memory page.

     c. If an mcelog file exists that was in the default format, delete it.

        ```
        rm /var/log/mcelog
        ```

     d. Restart the service by typing the command:

        ```
        # service mcelogd restart
        ```

   - If the service is installed but is not running, you need to edit the mcelog.conf file and then start the service, as follows:

     a. Edit the `/etc/mcelog/mcelog.conf` file to uncomment the "`raw = yes`" entry.

        This provides the log information detail that Oracle Linux FMA requires.

     b. Edit the `/etc/mcelog/mcelog.conf` file to uncomment the "`memory-ce-threshold`" entry and change it to "`memory-ce-threshold = 3 / 72h`".

        This specifies when meclog should take a memory page offline.

     c. If an mcelog file exists that was in the default format, delete it.

        ```
        rm /var/log/mcelog
        ```

     d. Start the service by typing the command:

        ```
        # service mcelogd start
        ```

     e. To have the service automatically start after a server reboot (so that you do not have to manually start it each time), also type the command:

        ```
        # chkconfig --levels 345 mcelogd on
        ```

   - If the mcelog service is not installed, you see an "unrecognized service" error. If so, you must install the mcelog service software package, edit the mcelog.conf file, and then start the service.

     Oracle Linux provides the mcelog software distribution for use.

a. Install the service by typing the command:

```
# yum install mcelog
```

> **Note:**
>
> If you are not using Yum, you must download and install the mcelog
> package (Oracle Linux 6.5 base version:
> `mcelog-1.0pre3_20120814_2-0.13.el6.x86_64.rpm`).

b. After successful installation, edit the `/etc/mcelog/mcelog.conf` file to
    uncomment the "`raw = yes`" entry.

    This provides the log information detail that Oracle Linux FMA requires.

c. Edit the `/etc/mcelog/mcelog.conf` file to uncomment the "`memory-ce-threshold`" entry and change it to "`memory-ce-threshold = 3 / 72h`".

    This specifies when meclog should take a memory page offline.

d. Start the service by typing the command:

```
# service mcelogd start
```

e. To have the service automatically start after a server reboot (so that you do not
    have to manually start it each time), also type the command:

```
# chkconfig --levels 345 mcelogd on
```

5. If your system is running Oracle Linux 7 or later, the mcelog service must be running in
    daemon mode only.

    a. Ensure the mcelog service is installed and running by typing the command:

```
# systemctl status mcelog
```

    If mcelog is not installed, you see:

```
[root@testserver17 ~]# systemctl status mcelog
mcelog.service
   Loaded: not-found (Reason: No such file or directory)
   Active: inactive (dead)
```

    b. If mcelog is not installed, install mcelog using yum by typing the command:

```
# yum install mcelog
```

    After successful installation, proceed to the next step.

    c. Edit the /etc/mcelog/mcelog.conf file to do the folllowing:

        i.   Uncomment the "raw=yes" entry.

        ii. Comment out the existing "memory-ce-threshold" entry and create a new entry
             that reads "memory-ce-threshold = 3 / 72h".

    d. If an mcelog file exists that was in the default format, delete it.

```
rm /var/log/mcelog
```

    e. Edit the /etc/systemd/system/multi-usr.target.wants/mcelog.service file to remove the
        "--syslog" from the "ExecStart" field. When this is done, the field should look like this:

```
[Service]
Type=forking
```

```
ExecStartPre=/etc/mcelog/mcelog.setup
ExecStart=/usr/sbin/mcelog --daemon
StandardOutput=syslog
```

f. Apply the changes you have made by typing the command:

```
# systemctl daemon-reload
```

g. Restart the mcelog service by typing the command:

```
# systemctl restart mcelog
```

h. Confirm that mcelog is running in daemon mode by typing the command:

```
# systemctl status mcelog
```

You should see the output similar to:

```
[root@testserver17 ~]# systemctl status mcelog
mcelog.service - Machine Check Exception Logging Daemon
    Loaded: loaded (/usr/lib/systemd/system/mcelog.service; enabled)
    Active: active (running) since Fri 2014-10-03 12:52:13 EDT; 6s ago
  Process: 3939 ExecStart=/usr/sbin/mcelog --daemon (code=exited,
status=0/SUCCESS)
   Process: 3935 ExecStartPre=/etc/mcelog/mcelog.setup (code=exited,
status=0/SUCCESS)
 Main PID: 3940 (mcelog)
    CGroup: /system.slice/mcelog.service
|__3940 /usr/sbin/mcelog --daemon
```

- Install the Oracle Linux FMA Software as an Independent Component
- Confirm That the Oracle Linux FMA Software is Running

Install the Oracle Linux FMA Software as an Independent Component

- To install Oracle Linux FMA software, you must be logged in to your system with root privileges.
- You must have already installed the required Oracle Linux packages as described in Install the Required Linux Components Before Installing Oracle Linux FMA Software.
- You must have downloaded and extracted the Oracle Hardware Management Pack software as described in Getting the Software
- You must enable the "Host-to-ILOM Interconnect" feature on both the SP (using Oracle ILOM) and the host. See Enabling the Host-to-ILOM Interconnect.

1. Install the Oracle Hardware Management Pack software required to obtain ilomconfig and enable the Host-to-ILOM interconnect on the host.

> **✎ Note:**
>
> If you have already installed the hmp-libs and hmp-tools packages, you can skip to step c.

a. Install the hmp-libs package by typing the following command:

```
# rpm -ivh /extract-directory/packages/oracle-hmp-libs*rpm
```

where the *extract-directory* is where you extracted Oracle Hardware Management Pack software. The install script will install the required libraries.

b. Install the hmp-tools package by typing the following command:

```
# rpm -ivh /extract-directory/packages/oracle-hmp-tools*rpm
```

where the *extract-directory* is where you extracted Oracle Hardware Management Pack software. The install script will install the CLI tools.

c. Enable the Host-to-ILOM interconnect feature by typing the following command:

```
# /usr/sbin/ilomconfig enable interconnect
```

2. Install the Oracle Linux FMA software.

- If you know you have completed all prerequisites listed in Install the Required Linux Components Before Installing Oracle Linux FMA Software section, type:

```
# rpm -ivh /extract-directory/packages/fm-
version.el6.x86_64.rpm
```

where the *extract-directory* is where you extracted Oracle Hardware Management Pack software. The Linux install script installs and starts the Oracle Linux FMA software. The following is an output example of a successful installation:

```
testsystem 214 #>rpm -ivh fm-2.4.1.0.2-1.el6.x86_64.rpm
Preparing...################################ [100%]
Checking for mcelog setup:
Checking for standard commands:
This is OL: 7.3
Checking lfma system configuration.
System configuration looks good.
Host-to-ILOM interconnect is enabled
Updating / installing...
   1:fm-version.el6  ################################ [100%]
/sbin/chkconfig --add fmd.init
/sbin/chkconfig --add ksyseventd.init
Starting ksyseventd.init (via systemctl):        [  OK  ]
Starting fmd.init (via systemctl):               [  OK  ]
testsystem 215 #>
```

> **Note:**
>
> If required, the Fault Manager installer prompts you for any missing OS components. Use Yum to install any OS components that are missing.

- If you are not sure you have completed all prerequisites listed in the Install the Required Linux Components Before Installing Oracle Linux FMA Software section and want the installer to make changes for you, type:

```
# LFMA_UPDATE=1 rpm -ivh /extract-directory/packages/fm-
version.el6.x86_64.rpm
```

where the *extract-directory* is where you extracted Oracle Hardware Management Pack software. The Linux install script installs, fixes any issues, and starts the Oracle Linux FMA software. The following is an output example of a successful installation.

```
testsystem 214 #>LFMA_UPDATE=1 rpm -ivh fm-2.4.1.0.2-1.el6.x86_64.rpm
Preparing...################################ [100%]
Checking for mcelog setup:
```

```
Checking for standard commands:
This is OL: 7.3
Updating system configuration for lfma.
Making sure edac is disabled.
Updating mcelog configuration.
Uncommenting/Adding RAW mode
mcelog memory-ce-threshold already set to 3 / 72h
mcelog service already in daemon mode
Starting mcelog.
System configuration looks good.
Host-to-ILOM interconnect is enabled
Updating / installing...
   1:fm-version.el6  ############################### [100%]
/sbin/chkconfig --add fmd.init
/sbin/chkconfig --add ksyseventd.init
Starting ksyseventd.init (via systemctl):          [  OK  ]
Starting fmd.init (via systemctl):                 [  OK  ]
testsystem 215 #>
```

- If you have completed all the prerequisites listed in the Install the Required Linux Components Before Installing Oracle Linux FMA Software section, but specifically want a different memory-ce-threshold setting in the /etc/mcelog/ mcelog.conf file than the recommended "memory-ce-threshold = 3 / 72h", type:

```
# LFMA_SKIP_CHECK=1 rpm -ivh /extract-directory/
packages/fm-version.el6.x86_64.rpm
```

where the *extract-directory* is where you extracted Oracle Hardware Management Pack software. The Linux install script installs without altering your current configurations and starts the Oracle Linux FMA software. The following is an output example of a successful installation.

```
testsystem 214 #>LFMA_SKIP_CHECK=1 rpm -ivh fm-2.4.1.0.2-1.el6.x86_64.rpm
Preparing...############################################# [100%]
   1:fm-version.el6  ############################### [100%]
/sbin/chkconfig --add fmd.init
/sbin/chkconfig --add ksyseventd.init
Starting ksyseventd.init (via systemctl):          [  OK  ]
Starting fmd.init (via systemctl):                 [  OK  ]
testsystem 215 #>
```

> **Note:**
>
> If you change other settings listed in the Install the Required Linux Components Before Installing Oracle Linux FMA Software section other than the memory-ce-threshold, Oracle Linux FMA might not run.

Confirm That the Oracle Linux FMA Software is Running

Confirm That the Oracle Linux FMA Software is Running

- You must be logged in to your system with root privileges to run Oracle Linux FMA commands.

- You must have already installed the required Oracle Linux packages and Oracle Linux FMA software as described in the previous sections.

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- To confirm that the Linux Fault Manager is running, type the following command from the prompt:

```
# /opt/fma/fm/sbin/fmadm config
```

You should see output listing the required fault management components and their status. For example:

```
MODULE              VERSION STATUS  DESCRIPTION
ext-event-transport 0.2     active  External FM event transport
fmd-self-diagnosis  1.0     active  Fault Manager Self-Diagnosis
ip-transport        1.1     active  IP Transport Agent
mce                 1.0     active  Machine Check Translator
sysevent-transport  1.0     active  SysEvent Transport Agent
syslog-msgs         1.1     active  Syslog Messaging Agent
```

Uninstall Components on a Linux Server

1. Determine which components you want to uninstall.

   See Available Packages for Linux for an overview of which packages are available for uninstallation.

   > **✎ Note:**
   >
   > You must uninstall `oracle-hmp-libs` after uninstalling all other packages. If you are uninstalling `oracle-hmp-snmp` you must also uninstall `oracle-hmp-hwmgmt`.

2. Run the following command:

   ```
   # rpm -e package name(s)
   ```

   For example, to remove the hardware agent with SNMP plugins:

   ```
   # rpm -e oracle-hmp-snmp oracle-hmp-hwmgmt
   ```

   No output appears by default.

   Optional Cleanup After Installation or Uninstallation

Configure the Software After Installation

- Run the appropriate commands for the features that you want to configure.

  - On Oracle VM, the ipmi service must be started manually with the following command:

    ```
    # /sbin/service hmp-ipmi start
    ```

  - If `oracle-hmp-hwmgmt` is installed, enable and start the Hardware Management Agent with the following commands:

    ```
    # /sbin/chkconfig hwmgmtd on
    ```
    ```
    # /sbin/service hwmgmtd start
    ```

  - If `oracle-hmp-snmp` is installed, enable and start the SNMP daemon with the following commands:

1. To enable the SNMP daemon, run the following command:

   ```
   # /sbin/chkconfig snmpd on
   ```

2. To determine whether or not the daemon is running, run the following command:

   ```
   # /sbin/service snmpd status
   ```

   – If snmpd is running, type the following command to restart it:

     ```
     # /sbin/service snmpd restart
     ```

   – If snmpd is not running, type the following command to start it:

     ```
     # /sbin/service snmpd start
     ```

- If `oracle-hmp-tools` is installed, enable the Host-to-ILOM Interconnect with the following steps:

  > **Note:**
  >
  > Oracle VM 3.0.3 and earlier do not include a lan-over-usb driver. Therefore, Oracle Hardware Management tools do not support running commands locally over the Host-to-ILOM interconnect. Commands must be run using a remote connection to the serivce processor.

  1. Verify the system SP supports this feature with the following command.

     ```
     # /usr/sbin/ilomconfig list interconnect
     ```

     If `SUBCOMMAND NOT SUPPORTED` opens than this feature is not supported by your SP.

  2. Do one of the following:

     – If you want to enable the interconnect automatically, use the following command:

       ```
       # /usr/sbin/ilomconfig enable interconnect
       ```

       This is the preferred method for configuring the interconnect.

     – If you want to enable the interconnect manually, use the following command:

       ```
       # /usr/sbin/ilomconfig enable interconnect --
       ipaddress=x.x.x.x --netmask=x.x.x.x --
       hostipaddress=x.x.x.x
       ```

- If `oracle-hmp-tools` is installed, start the IPMI driver if not already running:

  1. Run the following command to see if IPMItool is running:

     ```
     # /sbin/service ipmi status
     ```

  2. If IPMItool is not running, type the following command to start it:

     ```
     # /etc/init.d/ipmi start
     ```

Optional Cleanup After Installation or Uninstallation

After installing or uninstalling Oracle Hardware Management Pack, you can perform additional cleanup, if desired.

- After an installation, the temporary directory can be deleted:

  `/tmp/hmptemp`

- After an uninstallation, the following directories can be deleted:

> **✎ Note:**
>
> If you are uninstalling Oracle Hardware Management Pack with the intention of installing a newer version, you should leave the directories left over from the uninstallation as they will be used for the new installation.

  – The temporary directory:

    `/tmp/hmptemp`

  – The directories for vendor tool support packages. These might include:

    `/opt/QLogic_Corporation`

    `/var/opt/emulex/`

    `/usr/sbin/ocmanager/`

    `/etc/emulex/`

6
Installing Drivers Manually

This section describes how to manually install drivers to enable Host-to-ILOM Interconnect functionality on Oracle Solaris 10 10/09.

- Installing the Host-to-ILOM Interconnect Driver

Installing the Host-to-ILOM Interconnect Driver

The drivers described in this section must be installed if you are manually configuring the Host-to-ILOM Interconnect through `ilomconfig` or the Local Host Interconnect through the ILOM interface on a Oracle Solaris OS 10 10/09 system.

You **do not** need to install this driver if:

- You have installed the Oracle Hardware Management Pack using the instructions in Installing Components Using the Oracle Hardware Management Pack Installer and enabled the Host-to-ILOM Interconnect during the installation.

- You have installed the Oracle Hardware Management Pack using the manual instructions in Installing Components Manually and chosen to install the Host-to-ILOM Interconnect features.

- You are running a Linux OS or a Solaris version other than the Oracle Solaris OS 10 10/09 (Oracle Solaris OS 10 9/10 contains the driver and Oracle Solaris OS 10 5/09 does not support this feature).

- Install Host-to-ILOM Interconnect Drivers on a Oracle Solaris Server
- Uninstall Host-to-ILOM Interconnect Drivers on a Oracle Solaris Server

Install Host-to-ILOM Interconnect Drivers on a Oracle Solaris Server

1. Check that your system is running Oracle Solaris OS 10 10/09 using the following command:

   ```
   # cat /etc/release
   ```

2. Navigate to the packages directory in the management pack distribution.

   ```
   # cd /extraction-directory/oracle-hmp-version/package
   ```

3. Install the driver using the following command:

   ```
   # pkgadd -d . ORCLhmp-uecm
   ```

Uninstall Host-to-ILOM Interconnect Drivers on a Oracle Solaris Server

1. On a system running Oracle Solaris OS 10 10/09, navigate to the packages directory in the management pack distribution.

   ```
   # cd /extraction-directory/oracle-hmp-version/package
   ```

2. Uninstall the driver using the following command:

```
# pkgrm ORCLhmp-uecm
```

7

Software Dependencies

This section provides tables of the software dependencies for Hardware Management Pack components for each of supported operating system (OS). You must satisfy these dependencies before installing the component. For up-to-date information on package dependencies, refer to the *Oracle Hardware Management Pack 2.4 Release Notes*. For more information on installing packages, see your OS documentation.

- Component Package Dependencies

Component Package Dependencies

> **Note:**
>
> Starting with Oracle Hardware Management Pack 2.4.9.0, the HMP watchdog agent and associated ILOM and host watchdog services are no longer available.

Oracle Solaris 10

The following table shows the package dependencies for Hardware Management Pack components on a server running the Oracle Solaris 10 OS.

Component	Dependencies
`ipmiflash`	SUNWcslr SUNWopenssl-libraries SUNWcry SUNWlibmsr SUNWzlib
`ipmitool`	SUNWlibmsr SUNWcslr SUNWopenssl-libraries SUNWcry
`ORCLhmp-hwmgmt`	SUNWcslr SUNWgccruntime SUNWlibmsr SUNWlxml SUNWopenssl-libraries SUNWzlib SUNWcry ORCLhmp-libs
`ORCLhmp-libs`	SUNWcslr SUNWgccruntime SUNWlibmsr SUNWopenssl-libraries SUNWlxml SUNWzlib SUNWcry
`ORCLhmp-snmp`	SUNWlibmsr SUNWcslr SUNWgccruntime ORCLhmp-hwmgmt
`ORCLhmp-tools`	SUNWopenssl-libraries SUNWlxml SUNWlibmsr SUNWcslr SUNWgccruntime SUNWzlib SUNWcry ORCLhmp-libs
`ORCLhmp-tools-biosconfig` (x86)	SUNWcsl SUNWcslr SUNWlibmsr

Component	Dependencies
`ORCLhmp-tools-ubiosconfig` (x86)	`SUNWlxml SUNWlibmsr SUNWcslr SUNWopenssl-libraries SUNWzlib SUNWcry` `ORCLhmp-libs`
`QConvergeConsoleCLI` (x86)	`SUNWcfcl SUNWcsl SUNWcslr SUNWcsr SUNWdpl SUNWlibms SUNWlibmsr`
`QConvergeConsoleCLI` (SPARC)	`SUNWbcp SUNWcfcl SUNWcsl SUNWcslr SUNWcsr SUNWdpl SUNWlibms SUNWlibmsr`
`ELXocmcore`	`SUNWcslr SUNWcfcl SUNWlibmsr`

Oracle Solaris 11

Beginning with Oracle Hardware Management Pack 2.4.7, Oracle Solaris 11 and 11.1 support is no longer available.

The following table shows the package dependencies for Hardware Management Pack components on a server running the Oracle Solaris 11 OS.

> **Note:**
>
> Refer to the Prerequisites section of this guide that describes setting up your package repository so that required packages can be obtained during Oracle Hardware Management Pack installation.

Component	Dependencies
`ipmitool`	`math openssl`
`hmp-ipmiflash`	`library openssl math`
`hmp-libs`	`library linker math gcc-45-runtime openssl libxml2 hmp-libs zlib gcc-3-runtime`
`hmp-hwmgmt`	`hmp-libs library gcc-45-runtime math libxml2 linker openssl zlib`
`hmp-snmp`	`hmp-libs hmp-hwmgmt math gcc-45-runtime net-snmp`
`hmp-tools`	`hmp-libs`
`hmp-tools-biosconfig` (x86)	`hmp-libs xsvc gcc-45-runtime`
`hmp-tools-ubiosconfig` (x86)	`hmp-libs`
`QConvergeConsoleCLI` (x86)	`library math snia-hbaapi linker`
`QConvergeConsoleCLI` (SPARC)	`profiled-libc SUNWcs library math hbaapi`

Oracle Linux 4.x or Red Hat Enterprise Linux 4.x

Beginning with Oracle Hardware Management Pack 2.4.7, Linux 4 support is no longer available.

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle Linux 4.x or Red Hat Enterprise Linux 4.x.

Component	Dependencies
`ipmiflash`	`e2fsprogs glibc krb5-libs zlib ncurses readline`
`ipmitool`	`e2fsprogs glibc krb5-libs ncurses readline zlib`
`oracle-hmp-hwmgmt`	`glibc libxml2 zlib e2fsprogs libaio krb5-libs net-snmp-libs oracle-hmp-libs`
`oracle-hmp-libs`	`glibc zlib libaio e2fsprogs krb5-libs libxml2 libgcc libstdc++` ✎ **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt`
`oracle-hmp-tools`	`e2fsprogs glibc libaio krb5-libs libxml2 zlib net-tools oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`glibc2fsprogs glibc krb5-libs libxml2 zlib`
`oracle-hmp-tools-ubiosconfig`	`e2fsprogs glibc libaio krb5-libs libxml2 zlib oracle-hmp-libs`
`oracle-hmp-wdt` (watchdog timer)	`e2fsprogs glibc krb5-libs libusb libxml2 zlib`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc libgcc libstdc++ e2fsprogs krb5-libs`

Oracle Linux 5.x or Red Hat Enterprise Linux 5.x

Beginning with Oracle Hardware Management Pack 2.4.7, Linux 4 support is no longer available.

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle Linux 5.x or Red Hat Enterprise Linux 5.x.

> **✎ Note:**
>
> For Oracle Hardware Management Pack 2.3.3 or higher, ensure you are running a Linux kernel version of 2.6.32 or higher.

Component	Dependencies
elxocmcore (Emulex fibre)	glibc libgcc libstdc++ zlib audit-libs pam libnl openssl libselinux libsepol tcp_wrappers bzip2-libs elfutils-libelf net-snmp-libs nspr popt rpm-libs lm_sensors sqlite libsysfs perl
ipmiflash	openssl glibc ncurses readline zlib
ipmitool	openssl glibc ncurses readline zlib
oracle-hmp-hwmgmt	policycoreutils glibc openssl libaio libxml2 zlib net-snmp-libs oracle-hmp-libs

Component	Dependencies
`oracle-hmp-libs`	`glibc zlib libaio openssl libxml2 libgcc libstdc++` **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt`
`oracle-hmp-tools`	`openssl glibc libaio libxml2 zlib net-tools oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`openssl glibc libxml2 zlib`
`oracle-hmp-tools-ubiosconfig`	`openssl glibc libaio libxml2 zlib oracle-hmp-libs`
`oracle-hmp-wdt` (watchdog timer)	`openssl glibc libusb libxml2 zlib libusb`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc libgcc libstdc++ e2fsprogs-libs keyutils-libs libselinux libsepol elxocmlibhbaapi krb5-libs`

Oracle Linux 6.x or Red Hat Enterprise Linux 6.x

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle Linux 6.x or Red Hat Enterprise Linux 6.x.

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> **✏ Note:**
>
> For Oracle Hardware Management Pack 2.3.3 or higher, ensure you are running a Linux kernel version of 2.6.32 or higher.

Component	Dependencies
`elxocmcore` (Emulex fibre)	`glibc libgcc zlib elxocmcorelibs libstdc++ audit-libs nss-softokn-freebl libnl pam pciutils-libs elxocmlibhbaapi libacl libattr bzip2-libs libcap db4 nspr popt libselinux tcp_wrappers-libs openssl elfutils-libelf lua xz-libs net-snmp-libs nss-util rpm-libs lm_sensors-libs libsysfs perl-libs`
`ipmiflash`	`glibc ncurses-libs readline zlib openssl`
`ipmitool`	`glibc ncurses-libs readline zlib openssl`
`oracle-hmp-hwmgmt`	`policycoreutils policycoreutils-python glibc zlib libxml2 libaio openssl net-snmp-libs oracle-hmp-libs`
`oracle-hmp-libs`	`glibc zlib libaio openssl libxml2 libgcc libstdc++` **✏ Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.

Component	Dependencies
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt`
`oracle-hmp-tools`	`libaio glibc zlib openssl libxml2 net-tools oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`glibc zlib openssl libxml2`
`oracle-hmp-tools-ubiosconfig`	`libaio glibc zlib openssl libxml2`
`fm` (Linux FMA)	`mcelog OpenIPMI glibc zlib fm libxml2`
`oracle-hmp-wdt` (watchdog timer)	`glibc pciutils-libs zlib openssl libusb libxml2 libusb`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc nss-softokn-freebl libgcc libstdc++ libcom_err krb5-libs keyutils-libs libselinux`

Oracle Linux 7.x or Red Hat Enterprise Linux 7.x

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle Linux 7.x or Red Hat Enterprise Linux 7.x.

Component	Dependencies
`elxocmcore` (Emulex fibre)	`audit-libs glibc libgcc libnl pam pciutils-libs libstdc++ zlib libacl libattr bzip2-libs libcap libcom_err openssl-libs libdb elfutils-libelf nss-softokn-freebl krb5-libs keyutils-libs lua xz-libs net-snmp-agent-libs net-snmp-libs nspr nss-util pcre popt rpm-libs libselinux lm_sensors-libs tcp_wrappers-libs perl-libs`
`ipmiflash`	`openssl-libs glibc ncurses-libs readline zlib`
`ipmitool`	`openssl-libs glibc ncurses-libs readline zlib`
`oracle-hmp-hwmgmt`	`glibc libaio openssl-libs xz-libs libxml2 zlib libcom_err krb5-libs keyutils-libs net-snmp-libs pcre libselinux policycoreutils-python`

Component	Dependencies
`oracle-hmp-libs`	`glibc libaio openssl-libs xz-libs libxml2 zlib libgcc libstdc++` ✏ **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs`
`oracle-hmp-tools`	`glibc libaio openssl-libs xz-libs libxml2 zlib net-tools`
`oracle-hmp-tools-biosconfig`	`libaio openssl-libs glibc xz-libs libxml2 zlib`
`oracle-hmp-tools-ubiosconfig`	`libaio openssl-libs glibc xz-libs libxml2 zlib`
`fm` (Linux FMA)	`glibc xz-libs libxml2 zlib mcelog OpenIPMI`
`oracle-hmp-wdt` (watchdog timer)	`openssl-libs glibc xz-libs pciutils-libs libusb libusbx libxml2 zlib libusb`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc libcom_err nss-softokn-freebl libgcc krb5-libs keyutils-libs xz-libs pcre libselinux libstdc++`

Oracle Linux 8.x

Red Hat Enterprise Linux (RHEL) 8 is not supported.

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle Linux 8.x.

Component	Dependencies
`elxocmcore` (Emulex fibre)	No package support available

Component	Dependencies
`ipmiflash`	`glibc ncurses-libs openssl-libs readline zlib`
`ipmitool`	`glibc ncurses-libs openssl-libs readline zlib`
`oracle-hmp-hwmgmt`	`glibc libxml2 net-snmp-libs openssl-libs xz-libs zlib`
`oracle-hmp-libs`	`glibc libgcc libstdc++ libxml2 openssl-libs xz-libs zlib` 📝 **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards you need to install the `mstflint` package version 4.12.0 or higher available with your OS or from the Mellanox site.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs`
`oracle-hmp-tools`	`glibc libxml2 openssl-libs xz-libs zlib`
`oracle-hmp-tools-biosconfig`	`glibc libxml2 openssl-libs xz-libs zlib`
`oracle-hmp-tools-ubiosconfig`	`glibc libxml2 openssl-libs xz-libs zlib`
`fm` (Linux FMA)	`glibc libxml2 xz-libs zlib`
`oracle-hmp-wdt` (watchdog timer)	`glibc libblkid libgcc libmount libselinux libusbx libuuid libxml2 openssl-libs pciutils-libs pcre2 systemd-libs xz-libs zlib`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc hbaapiwrapper keyutils-libs krb5-libs libcom_err libgcc libselinux libstdc++ libxcrypt openssl-libs pcre2 zlib`

Oracle VM 3.2.x or earlier version of Oracle VM 3

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle VM version 3.2.x or earlier version of Oracle VM 3.

> **Note:**
>
> The required `lm_sensors`, `net-snmp`, `net-snmp-libs`, and `perl` packages are available from the Oracle Linux 5 x86 64-bit installation media.

> **Note:**
>
> Oracle VM 3.0.3 and earlier do not include a lan-over-usb driver. Therefore, Oracle Hardware Management tools do not support running commands locally over the Host-to-ILOM interconnect. Commands must be run using a remote connection to the serivce processor.

Component	Dependencies
`elxocmcore`	`glibc libnl elxocmcore libgcc libhbaapi-devel libstdc++ openssl libselinux libsepol tcp_wrappers bzip2-libs elfutils-libelf net-snmp-libs nspr popt rpm-libs lm_sensors sqlite libsysfs zlib perl e2fsprogs-libs keyutils-libs krb5-libs`
`ipmiflash`	`openssl glibc zlib`
`ipmitool`	`openssl glibc ncurses readline zlib`
`oracle-hmp-hwmgmt`	`glibc openssl libaio libxml2 zlib oracle-hmp-libs lm_sensors net-snmp net-snmp-libs perl`
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt lm_sensors net-snmp net-snmp-libs perl`

Component	Dependencies
`oracle-hmp-libs`	`glibc zlib libaio openssl libxml2 libgcc libstdc++` ✏ **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-tools`	`openssl glibc libaio libxml2 zlib oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`glibc`
`oracle-hmp-tools-ubiosconfig`	`openssl glibc libaio libxml2 zlib oracle-hmp-libs`
`QConvergeConsoleCLI`	`glibc e2fsprogs-libs libgcc keyutils-libs libselinux libsepol krb5-libs libstdc++`

Oracle VM 3.3.x

The following table shows the package dependencies for Hardware Management Pack components on a server running Oracle VM 3.3.x based on Oracle Linux 6.

Component	Dependencies
`elxocmcore` (Emulex fibre)	`glibc libgcc zlib elxocmcorelibs libstdc++ audit-libs nss-softokn-freebl libnl pam pciutils-libs elxocmlibhbaapi libacl libattr bzip2-libs libcap db4 nspr popt libselinux tcp_wrappers-libs openssl elfutils-libelf lua xz-libs net-snmp-libs nss-util rpm-libs lm_sensors-libs libsysfs perl-libs`
`ipmiflash`	`glibc ncurses-libs readline zlib openssl`
`ipmitool`	`glibc ncurses-libs readline zlib openssl`
`oracle-hmp-hwmgmt`	`policycoreutils glibc zlib libxml2 libaio openssl net-snmp-libs`
`oracle-hmp-libs`	`glibc zlib libaio openssl libxml2 libgcc libstdc++` **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs`
`oracle-hmp-tools`	`libaio glibc zlib openssl libxml2 net-tools`
`oracle-hmp-tools-biosconfig`	`glibc zlib openssl libxml2`
`oracle-hmp-tools-ubiosconfig`	`libaio glibc zlib openssl libxml2`

Component	Dependencies
`fm` (Linux FMA)	`mcelog OpenIPMI glibc zlib fm libxml2`
`oracle-hmp-wdt` (watchdog timer)	`glibc pciutils-libs zlib openssl libusb libxml2 libusb`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc nss-softokn-freebl libgcc libstdc++ libcom_err krb5-libs keyutils-libs libselinux`

SUSE Linux Enterprise Server 10.x

Beginning with Oracle Hardware Management Pack 2.4.7, SUSE Linux Enterprise Server (SLES) support is no longer available.

The following table shows the package dependencies for Hardware Management Pack components on a server running SUSE Linux Enterprise Server 10.x.

Component	Dependencies
`elxocmcore` (Emulex fibre)	`glibc-32bit libgcc libstdc++ libnl bzip2 sysfsutils tcpd zlib openssl net-snmp popt rpm sensors`
`ipmiflash`	`glibc ncurses readline openssl`
`ipmitool`	`glibc ncurses readline openssl`
`oracle-hmp-hwmgmt`	`glibc zlib libxml2 libaio openssl oracle-hmp-libs`
`oracle-hmp-libs`	`glibc libaio zlib openssl libxml2 libgcc libstdc++`
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt`
`oracle-hmp-tools`	`glibc zlib libaio openssl libxml2 net-tools oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`glibc zlib openssl libxml2`
`oracle-hmp-tools-ubiosconfig`	`glibc zlib libaio openssl libxml2 oracle-hmp-libs`
`oracle-hmp-wdt` (watchdog timer)	`glibc zlib openssl libusb libxml2`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc libcom_err libgcc krb5 libstdc++`

SUSE Linux Enterprise Server 11.x

Beginning with Oracle Hardware Management Pack 2.4.7, SUSE Linux Enterprise Server (SLES) support is no longer available.

The following table shows the package dependencies for Hardware Management Pack components on a server running SUSE Linux Enterprise Server 11.x.

Component	Dependencies
`elxocmcore` (Emulex fibre)	`glibc-32bit libgcc43-32bit libstdc++43-32bit libnl libbz2-1 popt libselinux1 sysfsutils tcpd zlib perl libopenssl0_9_8 libsnmp15 rpm libsensors3`
`ipmiflash`	`glibc libncurses5 libreadline5 zlib libopenssl0_9_8`
`ipmitool`	`glibc libncurses5 libreadline5 zlib libopenssl0_9_8`
`oracle-hmp-hwmgmt`	`glibc zlib libxml2 libaio libopenssl0_9_8 oracle-hmp-libs`
`oracle-hmp-libs`	`glibc libaio zlib libopenssl0_9_8 libxml2 libgcc43 libstdc++43` ✎ **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt`
`oracle-hmp-tools`	`libaio glibc zlib libopenssl0_9_8 libxml2 net-tools oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`glibc zlib libopenssl0_9_8 libxml2`
`oracle-hmp-tools-ubiosconfig`	`libaio glibc zlib libopenssl0_9_8 libxml2 oracle-hmp-libs`

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Component	Dependencies
`oracle-hmp-wdt` (watchdog timer)	`glibc zlib libopenssl0_9_8 libxml2`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc libcom_err2 libgcc43 keyutils-libs krb5 libstdc++43`

SUSE Linux Enterprise Server 12.x

Beginning with Oracle Hardware Management Pack 2.4.7, SUSE Linux Enterprise Server (SLES) support is no longer available.

The following table shows the package dependencies for Hardware Management Pack components on a server running SUSE Linux Enterprise Server 12.x.

Component	Dependencies
`ipmiflash`	`glibc libopenssl1_0_0 libncurses5 libreadline6 libz1`
`ipmitool`	`glibc libopenssl1_0_0 libncurses5 libreadline6 libz1`
`oracle-hmp-hwmgmt`	`libaio1 glibc libopenssl1_0_0 libz1 liblzma5 libxml2-2 libsnmp30`
`oracle-hmp-libs`	`glibc libaio1 libopenssl1_0_0 libz1 liblzma5 libxml2-2 libgcc_s1 libstdc++6` **Note:** In order for the `fwupdate` tool to work properly with InfiniBand Host Channel Adapter cards, such as the Oracle Dual Port QDR InfiniBand Adapter M3, you need to install the `mstflint` package (available with your OS or from the Mellanox site) along with the above dependencies.
`oracle-hmp-snmp`	`glibc net-snmp net-snmp-libs oracle-hmp-hwmgmt`

Component	Dependencies
`oracle-hmp-tools`	`glibc libaio1 libopenssl1_0_0 libz1 liblzma5 libxml2-2 net-tools oracle-hmp-libs`
`oracle-hmp-tools-biosconfig`	`libaio1 glibc libopenssl1_0_0 libz1 liblzma5 libxml2-2`
`oracle-hmp-tools-ubiosconfig`	`libaio1 glibc libopenssl1_0_0 libz1 liblzma5 libxml2-2 oracle-hmp-libs`
`oracle-hmp-wdt` (watchdog timer)	`glibc libopenssl1_0_0 libpci3 libz1 liblzma5 libudev1 libusb-0_1-4 libusb-1_0-0 libxml2-2`
`QConvergeConsoleCLI` (Qlogic fibre)	`glibc libcom_err2 libgcc_s1 libkeyutils1 libselinux1 krb5 libpcre1 libstdc++6`

8

Creating a Bootable Thumb Drive Containing Oracle Hardware Management Pack

The intention of this section is to provide instructions on how to create a bootable thumb drive containing Oracle Hardware Management Pack.

This procedure uses Oracle Linux and will only work on Oracle x86 servers (it does not work with SPARC servers).

This procedure is designed to be performed on Oracle x86 server that uses UEFI boot mode (configurable in system BIOS on some older systems) and has an available USB port.

- Prepare the Thumb Drive With Oracle Linux 7 Update 7
- Install Oracle Hardware Management Pack on the Thumb Drive
- Using the Thumb Drive to Update Firmware on a System

Prepare the Thumb Drive With Oracle Linux 7 Update 7

In order to complete this procedure, you need a clean (no partition table) USB thumb drive 8 GB (or higher) in size.

1. Download the full Oracle Linux 7 Update 7 ISO image from the Oracle Software Download site to your Oracle x86 server or accessible network location:

   https://edelivery.oracle.com/osdc/faces/Home.jspx

   Example image download details:

   ```
   V983339-01.iso          Oracle Linux Release 7 Update 7 for x86 (64 bit), 4.4 GB
   SHA-256          1D06CEF6A518C32C0E7ADCAD0A99A8EFBC7516066DE41118EBF49002C15EA84D
   ```

2. Log onto Oracle Integrated Lights Out Manager (ILOM) of your Oracle x86 server.

   For more information on logging into and using Oracle ILOM, see: https://www.oracle.com/goto/ilom/docs

3. Launch the Oracle ILOM Host Remote System Console.

4. Using Host Remote System Console, do the following:

   - Redirect the storage device to point to your Oracle Linux 7 Update 7 ISO image (for example, V983339-01.iso).
   - After adding the ISO image to storage devices, select the image, disable SSL and click **CONNECT**.

5. Insert your clean (no partitions) USB thumb drive into the system.

6. Boot the system and, when prompted, press F8 to display the boot device selection menu.

7. Boot from the redirected storage device that contains your ISO image. This might be listed as `[UEFI]USB:VIRTUAL:Remote ISO CDROM`.

   The system will then boot from the ISO image and present you with an installation menu.

8. Select **Install Oracle Linux 7.7**.

   The system will then boot from the ISO image and present you with the **INSTALLATION SUMMARY** menu.

9. Under the **LANGUAGE** and **KEYBOARD** options, select the preferred language and keyboard map.

10. Under the **DATE & TIME** option, adjust the Time Zone.

11. Under the **INSTALLATION DESTINATION** option:

    • Choose your USB thumb drive.

    > ⚠ **Caution:**
    >
    > Make absolutely sure that your USB thumb drive and only that drive is selected. Selecting other drives that have data will result in the loss of that data.

    • Choose **Automatically configure partitioning**.

12. Under the **SOFTWARE SELECTION** option, choose **Minimal Install**.

13. Under the **NETWORK & HOST NAME** option, set the switch to ON for the network interface and set the Host name (for example, ol7u7hmp).

14. Select **Begin Installation**.

15. During the installation, set the ROOT PASSWORD.

16. Once you have completed the user configuration, click **Finish Configuration**.

17. When the packages have been installed, click **Reboot**.

18. When prompted during the boot process, press F8 to display the boot device selection menu.

19. Select your Oracle Linux bootable USB thumb drive label from the list.

20. At the host login prompt, log in as root.

21. If your network is not working, there is a quick solution in LAN with DHCP server. Enter the following commands:

    `# ip a`

    `# dhclient eno1` (use your device with "state UP").

    If you still cannot get a network connection, contact your network administrator.

22. If you have to use a proxy, adjust your username, password, host and ports as needed. For example:

    ```
    # export http_proxy="http://username:password@host:port"
    # export https_proxy="http://username:password@host:port"
    ```

23. Upgrade the operating system:

    `# yum update`

24. Install these packages:

    `# yum install @Base mstflint ftp libusb`

Install Oracle Hardware Management Pack on the Thumb Drive

You should have already prepared your thumb drive with a bootable Linux image.

This procedure installs Oracle Hardware Management Pack 2.4.x on the thumb drive. For additional information on Oracle Hardware Management Pack, see the documentation at: https://www.oracle.com/goto/ohmp/docs

1. Download the latest version of Hardware Management from My Oracle Support (MOS) portal:

   https://support.oracle.com/

2. Unzip the package to your thumb drive and change directory to the created folder (e.g. `oracle-hmp-2.4.7.0`).

3. Enter the command:

   `# ./install.bin`

4. Select only CLI Tools to be installed.

   Once complete, your thumb drive is ready for use.

Using the Thumb Drive to Update Firmware on a System

You should have already prepared your thumb drive with a bootable Linux image and installed Oracle Hardware Management Pack on it.

1. Download the firmware patch you want to install from My Oracle Support (MOS) portal:

   https://support.oracle.com/

2. Unzip the package to your thumb drive.

3. You should now be able to put the thumb drive in another system, boot Linux and perform a firmware update using the Oracle Hardware Management Pack `fwupdate` command. For information on using the `fwupdate` command, see *Oracle Hardware Management Pack 2.4 Server CLI Tools User's Guide*.

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