

# Oracle® Hardware Management Pack 2.1 Installation Guide



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# Preface

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The Oracle Hardware Management Pack documentation provides detailed information about how to install and use Hardware Management Pack and its components.

This preface describes related documentation, submitting feedback to Oracle, and a document change history.

- “Documentation and Feedback” on page 5
- “About This Documentation (PDF and HTML)” on page 5
- “Change History” on page 6

## Documentation and Feedback

Documentation	Link
All Oracle products	<a href="http://www.oracle.com/documentation">http://www.oracle.com/documentation</a>
Oracle Hardware Management Pack	<a href="http://download.oracle.com/docs/cd/E19960-01/index.html">http://download.oracle.com/docs/cd/E19960-01/index.html</a>
Oracle ILOM 3.0	<a href="http://www.oracle.com/technetwork/documentation/sys-mgmt-networking-190072.html#ilom">http://www.oracle.com/technetwork/documentation/sys-mgmt-networking-190072.html#ilom</a>

Provide feedback on this documentation at:

<http://www.oracle-surveys.com/se.ashx?s=25113745587BE578>.

## About This Documentation (PDF and HTML)

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

## Change History

The following changes have been made to the documentation set.

- September 2010, initial publication
- January 2011, Installation Guide and Management Agent User's Guide updated
- July 2011, updated document URLs

# Oracle Hardware Management Pack 2.1 Installation Guide Overview

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This document contains information show in the following table.

Description	Link
Introduction to the Oracle Hardware Management Pack 2.1	<a href="#">“Introduction to the Oracle Hardware Management Pack” on page 9</a>
Enable the Local Interconnect Interface	<a href="#">“Enabling the Local Interconnect Interface” on page 13</a>
Install the Oracle Hardware Management Pack 2.1 components using the Oracle Hardware Management Installer	<a href="#">“Installing Components Using the Oracle Hardware Management Pack Installer” on page 17</a>
Install Oracle Hardware Management Pack 2.1 components using operating system-specific commands.	<a href="#">“Installing Components Manually” on page 47</a>
Install drivers necessary to enable Oracle Hardware Management Pack 2.1 components.	<a href="#">“Installing Drivers Manually” on page 63</a>

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# Introduction to the Oracle Hardware Management Pack

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This section provides an overview of the Oracle Hardware Management Pack components and how to use them with your Oracle servers.

Oracle Hardware Management Pack (Hardware Management Pack) provides tools to help you manage and configure your Oracle servers. Hardware Management Pack consists of components that you install on your server using Oracle Hardware Management Pack Installer, which is supplied as part of Hardware Management Pack.

The Hardware Management Pack components enable you to:

- Use a management agent at the operating system level to enable in-band monitoring of your Oracle hardware over Simple Network Management Protocol (SNMP). You can use this information to integrate your Oracle servers into your data centre management infrastructure.
- Use command-line tools to configure BIOS, RAID volumes and ILOM service processors on your servers.
- Use a command-line tool to upgrade your server components.
- Use IPMItool to access server service processors via the IPMI protocol and perform management tasks.

The Hardware Management Pack components are installed using the Oracle Hardware Management Pack Installer, which is supplied as part of the Hardware Management Pack. This guide provides an overview of the Hardware Management Pack components and how to install them.

For more information on how to configure and work with the Hardware Management Pack components see the following individual component documents:

- [Oracle Server Management Agents 2.1 User's Guide](#)
- [Oracle Server CLI Tools and IPMItool 2.1 User's Guide](#)

For more information on the Hardware Management Pack features, see the following sections:

- [“Oracle Hardware Management Agents” on page 10](#)
- [“Oracle Server CLI Tools” on page 12](#)
- [“IPMItool” on page 12](#)
- [“Local ILOM Interconnect \(LAN over USB\)” on page 12](#)

# Oracle Hardware Management Agents

Oracle Hardware Management Agents provide operating-system-specific agents to enable management of your Oracle server.

The Oracle Hardware Management Agents component provides the following software:

- Oracle Hardware Management Agent
- Oracle Hardware SNMP Plugins
- Oracle Hardware Storage Management Agent
- Oracle Hardware Storage Access Libraries

## Oracle Hardware Management Agent

The Oracle Hardware Management Agent (Hardware Management Agent) and associated Oracle Hardware SNMP Plugins and Oracle Hardware Storage SNMP Plugins (SNMP Plugins) provide a way to monitor your server and server module's hardware. With the Hardware Management Agent SNMP Plugins you can use SNMP to monitor the Oracle servers and server modules in your data center, without having to connect the management port of the ILOM service processor to the network. This in-band functionality enables you to use a single IP address (the host's IP) for monitoring you servers and server modules.

The Hardware Management Agent SNMP Plugins run on the host operating system of Oracle servers. The Oracle Hardware SNMP Plugin uses the keyboard controller-style (KCS) interface to communicate with the service processor, and the Oracle Hardware Storage SNMP Plugins use the Oracle Hardware Storage Access Libraries to communicate with the service processor. By regularly polling the service processor, information about the current state of the server is fetched automatically by the Hardware Management Agent. This information is then made available through SNMP, using the SNMP Plugins.

The Hardware Management Agent polls the service processor for hardware information over the KCS interface or Oracle Hardware Storage Access Libraries. The Hardware Management Agent is visible on the network through the SNMP Plugins. The SUN-HW-MONITORING-MIB Net-SNMP plugin communicates over a socket to the Hardware Management Agent daemon service, called hwmgmt. The Hardware Management Agent also communicates over a socket to the SUN-HW-TRAP-MIB Net-SNMP plugin, sending SNMP traps via the Net-SNMP agent. In addition, the Hardware Management Agent provides sensor and indicator readings, as well as System Event Log records.

The System Event Log (SEL) is stored on the service processor and is used for recording hardware events such as temperatures crossing a threshold. The Hardware Management Agent reads the service processor's SEL records and writes this information to the host operating system's syslog and sends the SUN-HW-TRAP-MIB traps. For storage information, the Hardware Management Agent uses the reads the Oracle Hardware Storage Access Library. Finally, the Hardware Management Agent also maintains a separate log that contains information about the Hardware Management Agent status, which can be used for troubleshooting.

Previous versions of Hardware Management Pack have included a separate Storage Management Agent, but starting with Oracle Hardware Management Pack 2.1, the Storage Management Agent has been merged with the functionality of the Hardware Management Agent.

System storage information is now available via SNMP with the sunStorageMIB.

## Oracle Hardware SNMP Plugins

The Oracle Hardware SNMP Plugins consist of two Net-SNMP plugins. These Net-SNMP plugins are compiled versions of three Oracle-specific hardware Management Information Bases (MIB) that have been designed to enable you to monitor your Oracle servers effectively. The Sun HW Monitoring MIB is a newly developed MIB that 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 HW Trap MIB 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 Storage MIB 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

## Oracle Server CLI Tools

Oracle Server CLI Tools (CLI Tools) are command-line interface tools that configure Oracle servers. CLI Tools is a Hardware Management Pack component and is installed using Oracle Hardware Management Pack Installer .

CLI Tools consists of the following software:

- BIOSconfig enables you to configure your server's BIOS settings.
- RAIDconfig enables you to configure RAID volumes on your servers and can be automated using an XML configuration file.
- ILOMconfig enables you to configure ILOM and can be automated using an XML configuration file. You can also configure Local Interconnect Interface (LAN over USB) settings.
- FWupdate enables you to upgrade the firmware of your server components.

## IPMItool

A version of IPMItool is provided as part of the Hardware Management Pack. It can be installed if your system does not already have IPMItool installed. IPMItool is a command line application which enables you to manage and configure devices which support the IPMI protocol. For more information on IPMItool, see: <http://ipmitool.sourceforge.net/>

## Local ILOM Interconnect (LAN over USB)

Local ILOM interconnect is a new feature in Management Pack 2.1 that provides an interface to the host, which allows the host to communicate with ILOM over a high-speed channel.

For more information, see “[Enabling the Local Interconnect Interface](#)” on page 13.

# Enabling the Local Interconnect Interface

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As of ILOM 3.0.12, a communication channel known as the Local Interconnect Interface was added to ILOM to enable you to communicate locally with ILOM from the host operating system (OS) without the use of a network management connection (NET MGT) to the server. Specifically, the local interconnect feature to ILOM is particularly useful when you want to perform these ILOM tasks locally:

- All server management functions in ILOM that you would have typically performed from the ILOM CLI, web interface, or IPMI interfaces through the network management (NET MGT) connection on the server.
- All data transfers, such as firmware upgrades, to ILOM that you would have typically performed from the host over a Keyboard Controller Style (KCS) interface using IPMI flash tools. In particular, for these types of server management environments, the Local Interconnect Interface to ILOM can provide a more reliable and possibly faster data transfer rate than traditional KCS interfaces.
- All future server monitoring and fault detection operations that you would have typically performed from the host operating system through the use of Oracle enabled software tools and agents installed on the server.

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**Note** – The Oracle Hardware Management Pack Installer refers to this feature as Local ILOM Interconnect. The ILOM interface refers to this feature as Local Host Interconnect

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## Platform Server Support and ILOM Access Through the Local Interconnect Interface

Oracle servers supporting the Local Interconnect Interface between ILOM and the host operating system are shipped from the factory with an internal USB Ethernet device installed.

The internal USB Ethernet device provides two network connection points that are known as the ILOM SP connection point and the host OS connection point. In order to establish a local connection to ILOM from the host operating system, each connection point (ILOM SP and host OS) must be either automatically or manually assigned a unique non-routable IPv4 address on the same subnet. Non-routable IPv4 addresses are considered secured private addresses that prevent external internet users from navigating to your system.

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**Note** – By default, Oracle provides non-routable IPv4 addresses for each connection point (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.

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## Local Interconnect Interface Configuration Options

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

### ■ Automatic Configuration (Recommended)

To enable the Oracle Hardware Management Pack 2.1 (or later) to automatically configure the Local Interconnect Interface connection points, Oracle recommends leaving the Host Interconnect settings in ILOM in the Host Managed state. In order to automatically configure the Local Interconnect Interface connection points, you must:

1. Accept the default settings provided in ILOM for Local Host Interconnect.
2. Install the Oracle Hardware Management Pack 2.1 or later firmware on the server and accept the installation defaults provided for Local ILOM Interconnect. You can install Hardware Management Pack Components using one of the following methods:
  - To install the components using Oracle Hardware Management Pack Installer, see [“Installing Components Using the Oracle Hardware Management Pack Installer” on page 17](#).
  - To install the components using manual OS-specific installation commands, see [“Installing Components Manually” on page 47](#).

### ■ Manual Configuration (Advanced users only)

If you are an advanced network administrator and prefer not to auto-configure the Local Interconnect Interface by installing the Oracle Hardware Management Pack 2.1 or later, you can manually configure the connections points on the ILOM SP and host operating system. In order to manually configure the Local Interconnect Interface connection points, you must:

- Ensure that an Ethernet driver for your host OS was provided by the OS distribution and installed on the server. For instructions on installing the driver, see [“Installing the Local ILOM Interconnect \(LAN Over USB\) Driver” on page 66](#). After you have confirmed that the appropriate Ethernet driver was installed on your server and your operating system recognizes the internal USB Ethernet device, you must manually configure an IPv4 address for both the host operating system connection point. There are two ways to do this:
  - Use the `ilomconfig` tool to configure the Local Interconnect Interface connection points on the ILOM SP and the host OS.

See “Using the ilomconfig Tool” in *Oracle Server CLI Tools and IPMITool 2.1 User’s Guide* for more information.

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

For more information, refer to the Oracle Integrated Lights Out Manager 3.0 Documentation Collection at: <http://docs.sun.com/app/docs/prod/int.lights.mgr30#hic>



# Installing Components Using the Oracle Hardware Management Pack Installer

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This section describes how to install and uninstall Hardware Management Pack components on an Oracle server using the supplied Oracle Hardware Management Pack Installer. This section contains the following:

- “Getting Started” on page 17
- “Prerequisites” on page 17
- “Getting the Software” on page 19
- “Installing Hardware Management Pack Components Using Installer” on page 19

## Getting Started

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 carry out the installation as a user with administrative privileges, such as root on Linux or Solaris and Administrator on Windows.

## Prerequisites

If you have previous versions of Hardware Management Pack or Component Manager installed, you will need to remove these before installing the Oracle Hardware Management Pack 2.1 components. For more information, refer to Sun Server Hardware Management Pack 2.1 documentation at

<http://download.oracle.com/docs/cd/E19960-01/index.html>

Different 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 from the HMP tab at:

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

Depending on the target server's operating system, you should note the following:

- Oracle Solaris operating system - For the Oracle Hardware SNMP Plugins to function correctly, you must have System Management Agent (SMA). SMA is installed by default on Solaris. For more information about SMA, see `snmpd(1M)`. When installing Hardware Management Pack components, you must be in the global zone. The device `/dev/bmc` must be present on your system for the Hardware Management Agent to function correctly.
- Linux operating system - For the Oracle Hardware SNMP Plugins to function correctly, you must have Net-SNMP installed. For more information about Net-SNMP, see the `snmpd` documentation. You must also make sure that the KCS IPMI interface between the Oracle server service processor and host operating system is enabled. 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.
- Windows operating system - For the Oracle Hardware SNMP Plugins to function correctly, you must have an IPMI device installed and the SNMP service enabled. For more information about the IPMI devices available for your version of Windows, see your Windows product documentation.

## Installation Issues

Review the following notes before performing the Hardware Management Pack installation.

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**Note** – There might be additional installation issues in the Oracle Hardware Management Pack 2.1 Release Notes. Please review the Release Notes, along with the following issues, before installing Hardware Management Pack.

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### Unix Installer Issue (CR 6977584)

The installer aborts when the `DISPLAY` variable is set for a Solaris or Linux operating system. To avoid this issue, unset the `DISPLAY` variable before installing Hardware Management Pack.

### Error Reported When Launching Installer on a Solaris System (CR 6982393)

When launching the Oracle Hardware Management Pack Installer on a Solaris system, the following error might appear: `./install.bin: !: not found` You can ignore this error. The Installer should launch normally.

### Running Installer on Solaris With SUNWCreq Cluster Fails (CR 6982718)

Before installing Oracle Hardware Management Pack on a Solaris host installed with the `SUNWCreq` (Core System Support) metacluster, you must install `SUNWxcu4` (contains `POSIX df` command) or set the following environment variable: `IATEMPDIR=$HOME`.

## Sun Fire X4170 M2 Requires Tools and Driver Installation for Correct ICH10 Slot Information (CR 6992155)

For a Sun Fire X4170 M2 system running Windows 2008 R2, you need to install the drivers from the X4170 M2 Tools and Drivers CD before using the RAIDconfig tool. Failure to install the drivers could result in the slot information for the HDDs attached to the internal ICH10 controller to be reported incorrectly.

You can also use the Oracle Hardware Installation Assistant to install Windows 2008 R2 to avoid this problem.

## Getting the Software

Before you start, make sure that you have downloaded the latest Hardware Management Pack compatible with the operating system on your target server. Instructions for downloading Hardware Management Pack are available the Downloads tab at:

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

This file contains the files necessary to install Hardware Management Pack components.

The Hardware Management Pack download file name for the operating systems supported by Hardware Management Pack is as follows:

`oracle-hmp-version-OSVersionNumber`

where *version* is the version of the Hardware Management Pack, and *OSVersionNumber* is the operating system that this Hardware Management Pack is designed for.

Once you download the Hardware Management Pack, you need to uncompress it to a local directory on the server that you want to manage.

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**Note** – On the Solaris operating system, due to the restrictions of pkgadd(1M), the path that you uncompress the Hardware Management Pack to must not contain any spaces for the installation process to proceed.

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## Installing Hardware Management Pack Components Using Installer

This section covers the following topics:

- “Using GUI Mode to Install and Uninstall Components” on page 20
- “Using Console Mode to Install or Uninstall Components” on page 37

- [“Using Silent Mode to Install and Uninstall Components” on page 43](#)

## Using GUI Mode to Install and Uninstall Components

This section covers the following procedures:

- [“How to Install Hardware Management Components Using GUI Mode” on page 20](#)
- [“How to Uninstall Hardware Management Components Using GUI Mode” on page 30](#)

### ▼ How to Install Hardware Management Components Using GUI Mode

#### Before You Begin

- To install Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with Administrator privileges.
- Download and extract the Hardware Management Pack Software. See [“Getting the Software” on page 19](#).

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

- For Windows SP2 or earlier, you must first install the Sun IPMI System Management Driver. See [“Installing the Sun IPMI System Management Driver 2.1” on page 63](#). This driver is included with other operating systems.

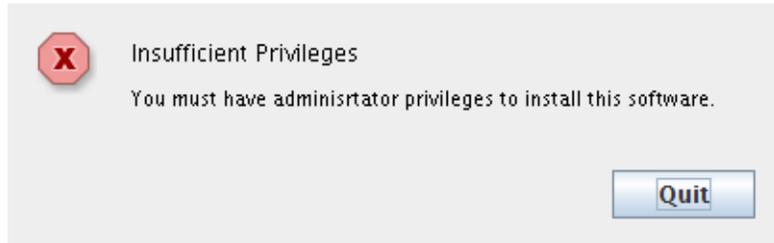
#### 1 To start the installer, issue one of the following commands:

- **For Solaris or Linux systems:** `/extract-directory/oracle-hmp-2.1/SOFTWARE/install.bin`
- **For Windows systems:** `/extract-directory/oracle-hmp-2.1/SOFTWARE/install.exe`

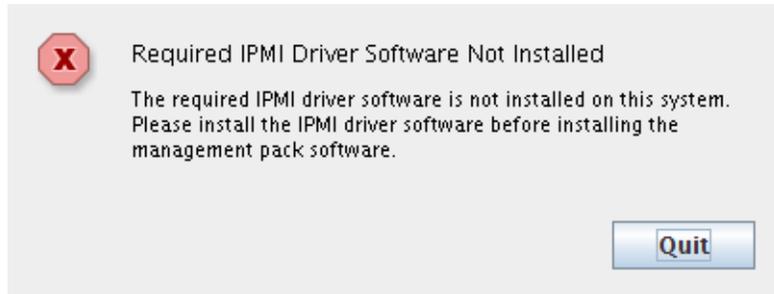
The following splash screen appears.



- 2 If any of the following dialogs display, perform the appropriate action.
  - If the following dialog displays, click **Quit** and log into the system with Administrator privileges.



- If the following dialog appears, click the **Quit** button and install the IPMI driver software. See [“Installing the Sun IPMI System Management Driver 2.1” on page 63](#).



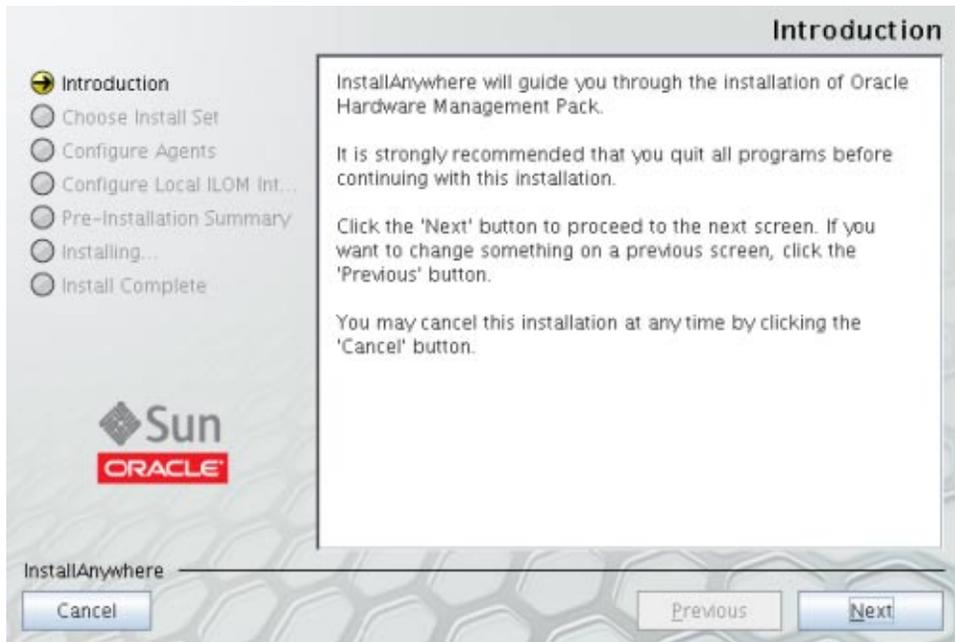
- If the following dialog displays, click **Quit** and remove the previously installed version of the software.



- If the following dialog displays, click quick and then ?



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



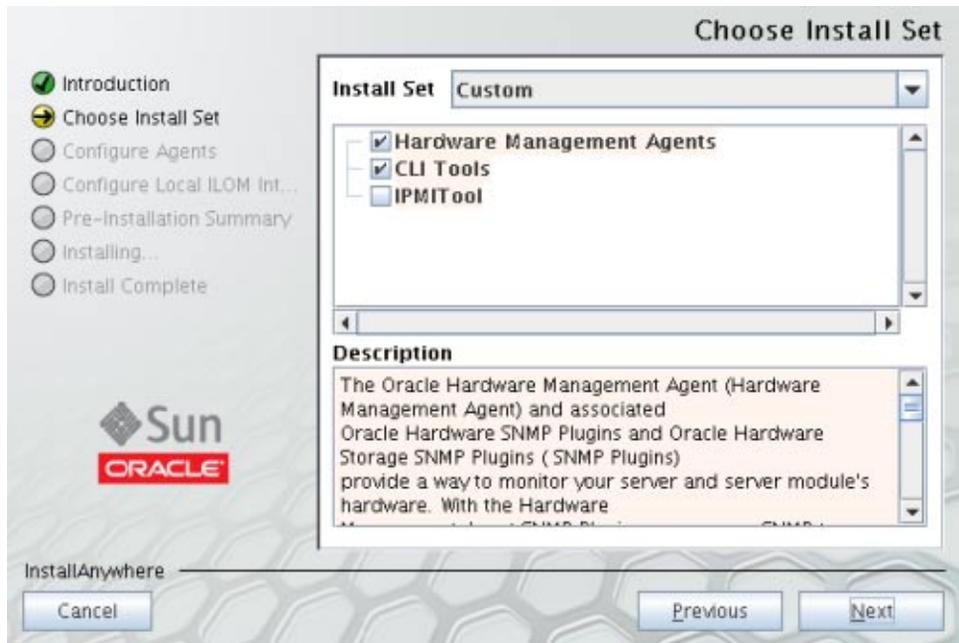
**3 Click Next.**

The Choose Install Set screen appears.

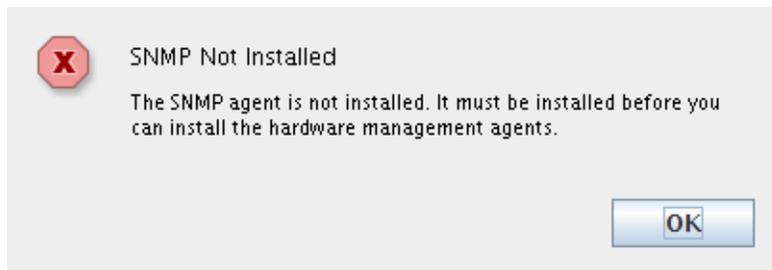
**4 Select either Typical or Custom and click Next.**

- If you select Standard, The Hardware Management Agents and CLI Tools options will automatically be selected.

- If you select Custom, the Choose Install Set screen appears.



- 5 Select the features that you want to install and click Next.
- 6 Take action, as needed, if one of the following dialogs appear:
  - If the following dialog appears, click OK and de-select the Hardware Management Agent feature from the Choose Install Set screen.

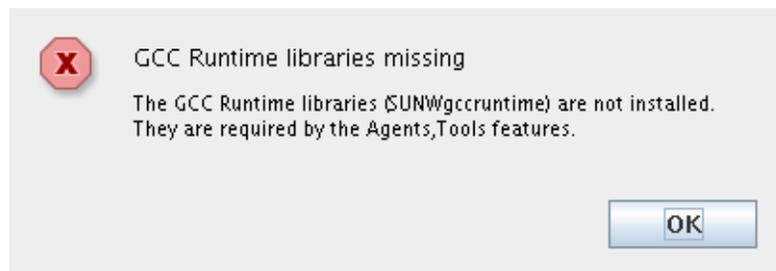


- If the following dialog appears, click OK and de-select the IPMITool feature from the Choose Install Set screen.

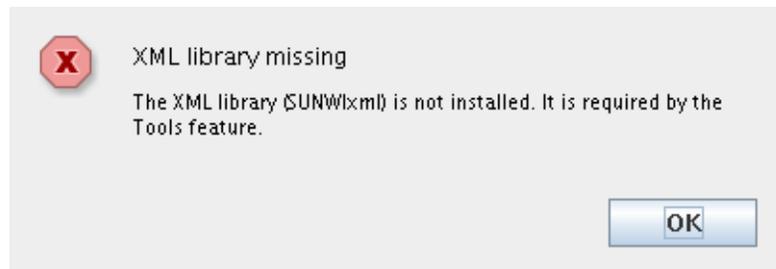


Alternatively, you can cancel the wizard and install SNMP software or remove IMPITool software, then restart the installation.

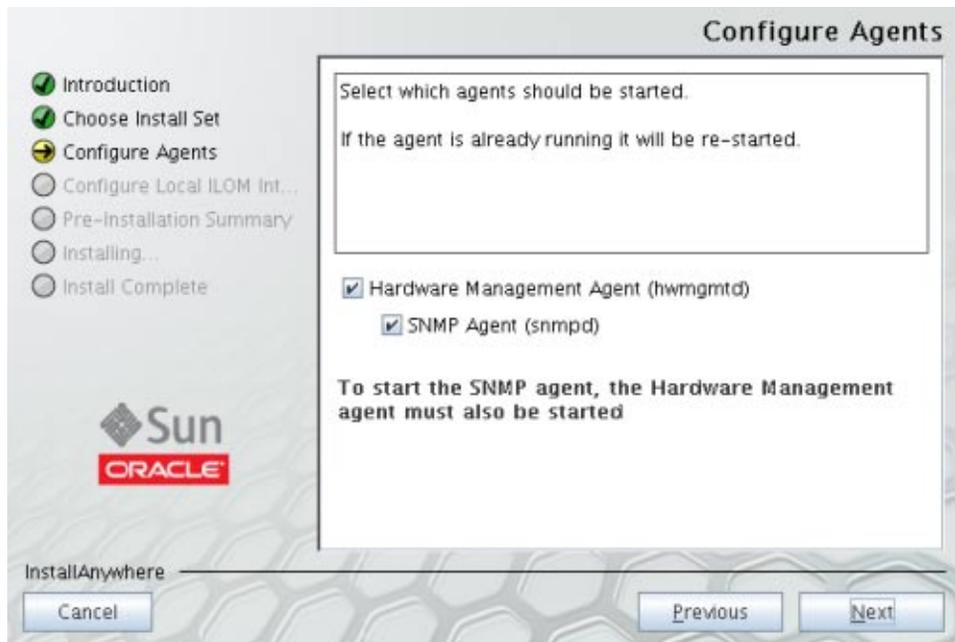
- If the following dialog appears click Quit and install the Solaris GCC runtime libraries.



- If the following dialog appears, click Quit and install the Solaris XML libraries.



The Configure Agents screen appears.



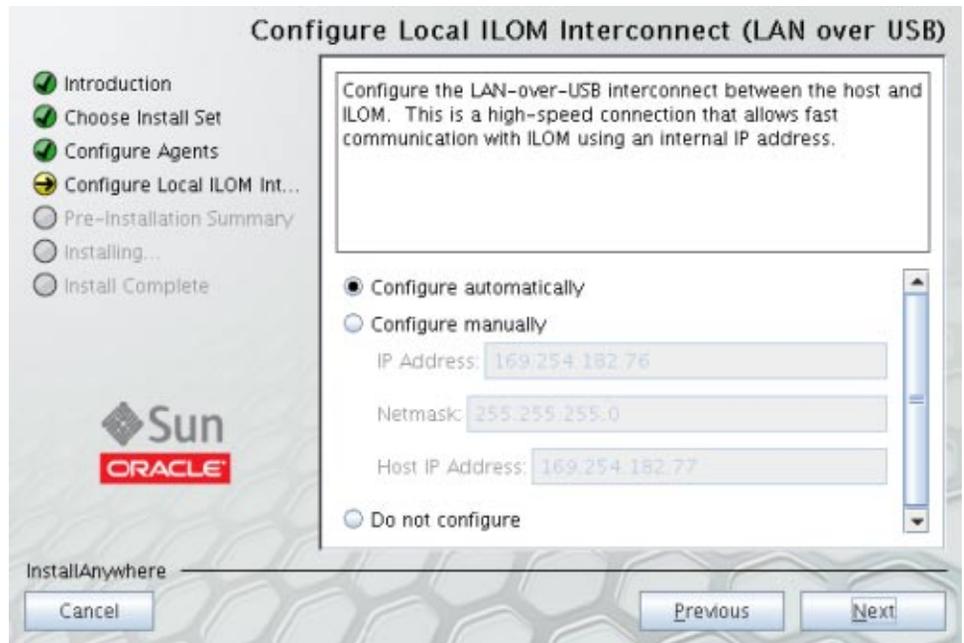
- 7 Select Start for the Hardware Management Agent and SNMP Agent and click Next.

---

**Note** – If you select SNMP Agent, you must also select Hardware Management Agent.

---

The Local ILOM Interconnect (LAN Over USB) screen appears.



**8 Select one of the options for configuring the Local ILOM Interconnect.**

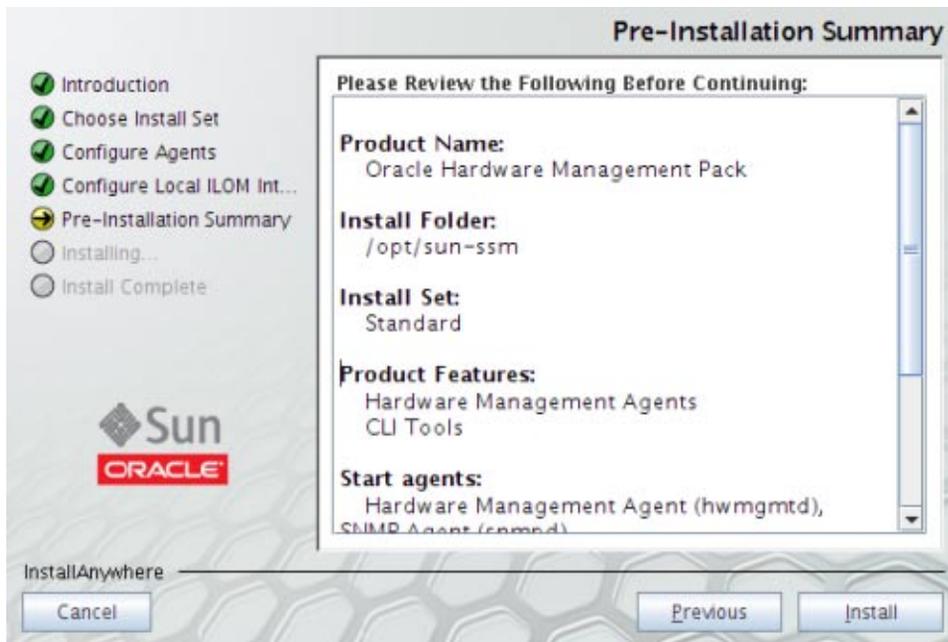
If you select the Configure manually option, you need to enter the ILOM IP Address, Netmask, and Host IP Address information.

---

**Note** – For more information on Local ILOM Interconnect, see [“Enabling the Local Interconnect Interface”](#) on page 13.

---

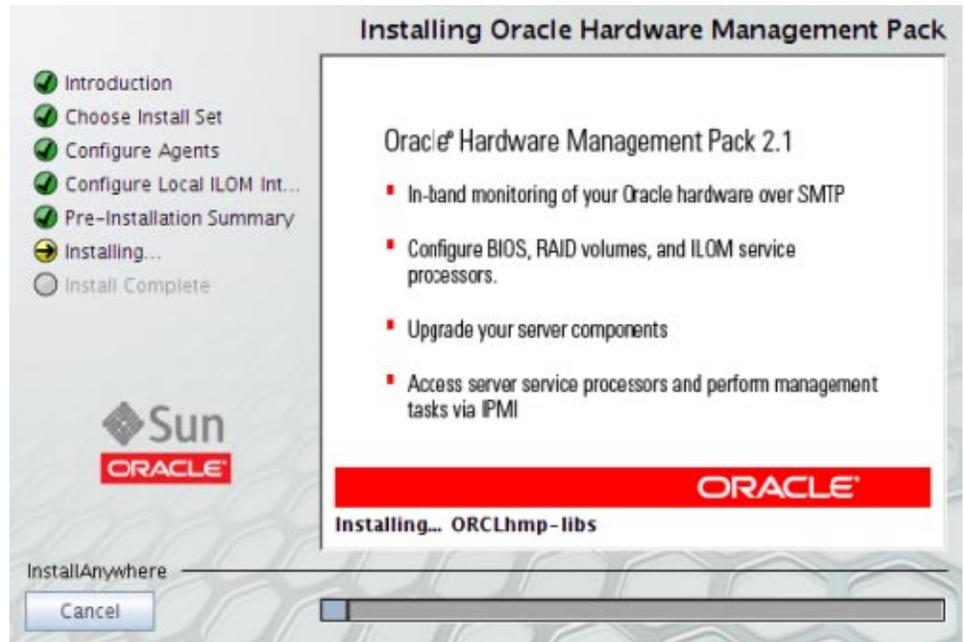
A Pre-Installation Summary screen appears with information similar to the following screen.



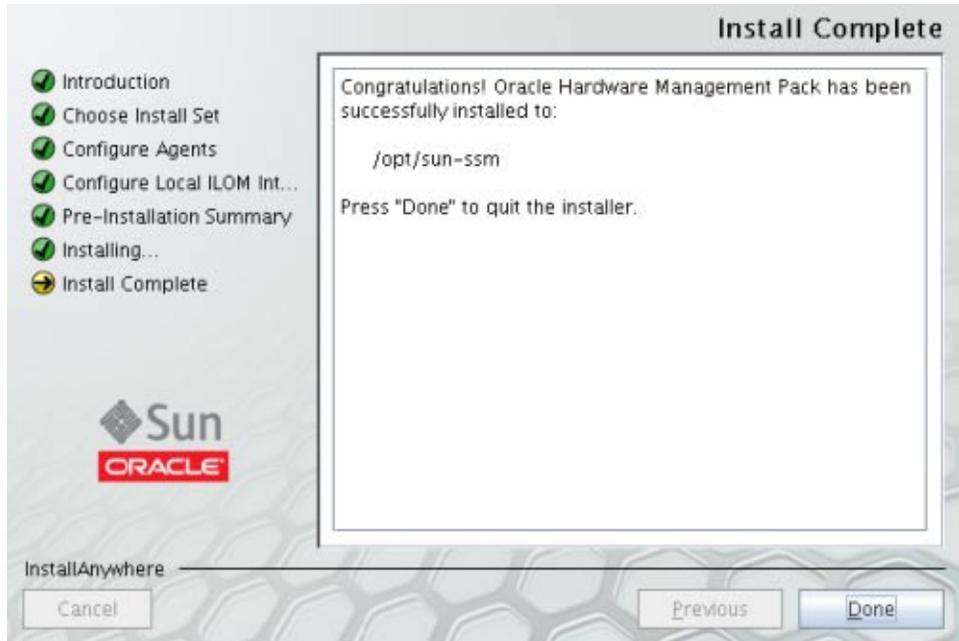
- 9 Make sure that the information in the Pre-Installation Summary is correct.
  - If you want to change any of the installation items, click the Previous button until you get back to the screen where you want to make the changes.

- If the information is correct, click Install.

The Installing Oracle Hardware Management screen appears.



The Install Complete screen appears when the installation has completed.



- 10 Click Done to complete the installation.

- See Also**
- “How to Uninstall Hardware Management Components Using GUI Mode” on page 30
  - “Using Console Mode to Install or Uninstall Components” on page 37
  - “Using Silent Mode to Install and Uninstall Components” on page 43

## ▼ How to Uninstall Hardware Management Components Using GUI Mode

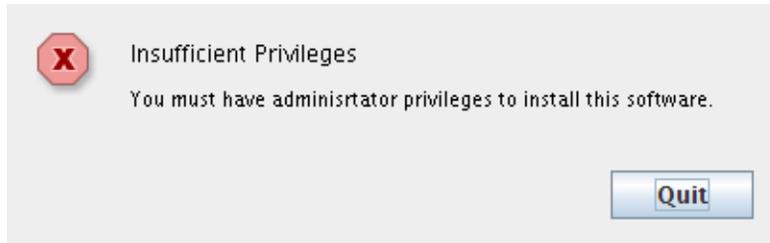
- Before You Begin**
- To uninstall Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with Administrator privileges.

- 1 To start the uninstaller, issue one of the following commands:
  - For Solaris or Linux systems: `/opt/sun-ssm/setup/uninstall`
  - For Windows systems: `C:\Program Files\Oracle\Oracle Hardware Management Pack\setup\uninstall`

The following splash screen appears.



- 2 If the following dialog displays, click Quit and log into the system with Administrator privileges.



The Uninstall Oracle Management Pack screen appears.



**3 Click Next.**

The Uninstall Options screen appears.

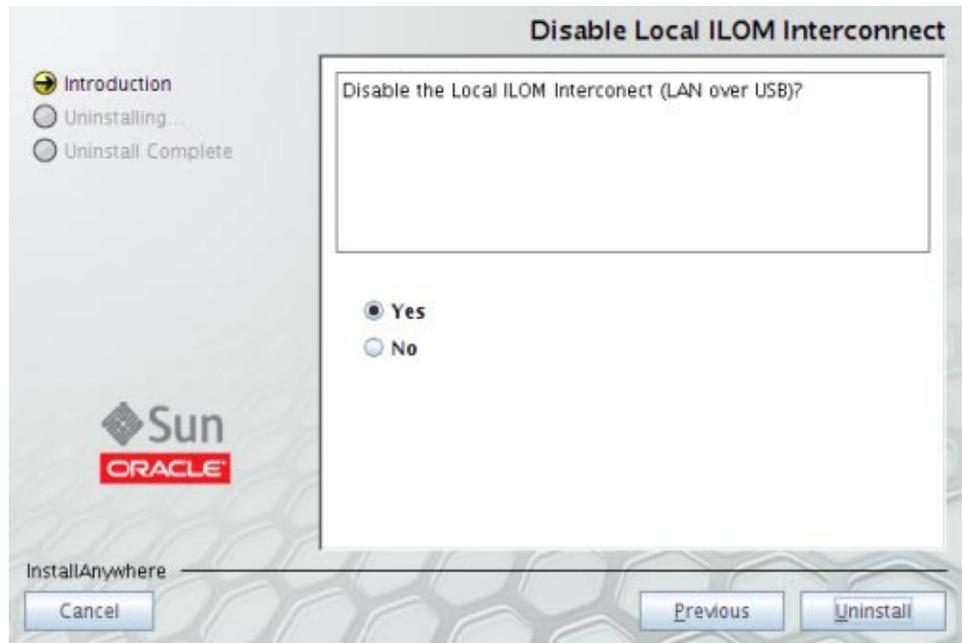


4 Select Complete Uninstall or Uninstall Specific Features and click Next.

If you selected Uninstall Specific Features, the Choose Product Features screen appears.



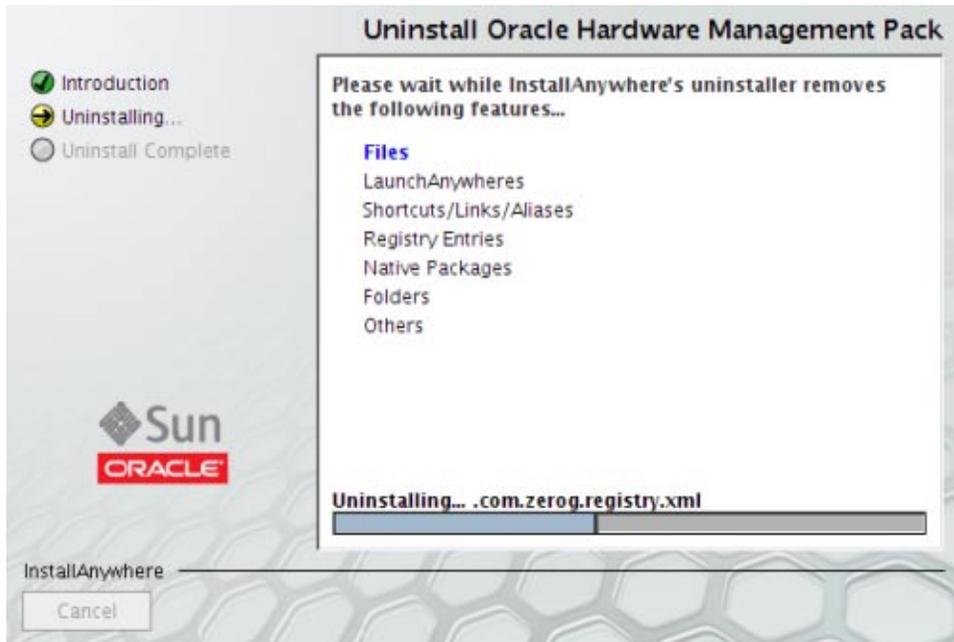
If the Local ILOM Interconnect is enabled during installation, the following screen appears.



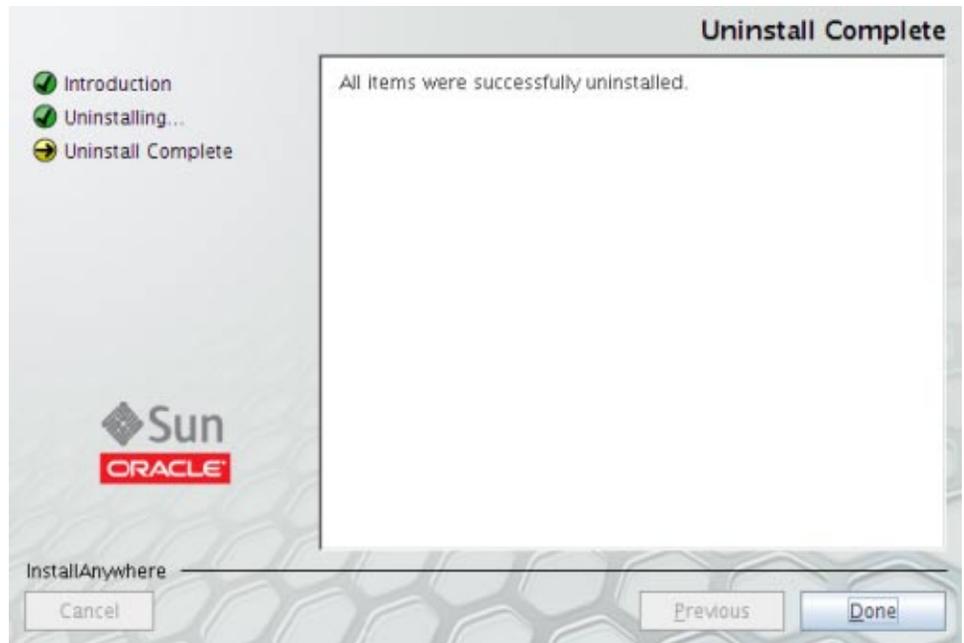
- 5 Select Yes or No and click Uninstall.

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.

- See Also**
- [“How to Install Hardware Management Components Using GUI Mode”](#) on page 20
  - [“Using Console Mode to Install or Uninstall Components”](#) on page 37
  - [“Using Silent Mode to Install and Uninstall Components”](#) on page 43

## Using Console Mode to Install or Uninstall Components

This section covers the following procedures:

- [“How to Install Hardware Management Components Using Console Mode”](#) on page 37
- [“How to Uninstall Hardware Management Pack Components Using Console Mode”](#) on page 42

### ▼ How to Install Hardware Management Components Using Console Mode

- Before You Begin**
- To install Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with Administrator privileges.

- Download and extract the Hardware Management Pack Software. See [“Getting the Software” on page 19](#).

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

- For Windows SP2 or earlier, you must first install the Sun IPMI System Management Driver. See [“Installing the Sun IPMI System Management Driver 2.1” on page 63](#).

## 1 Set up a console session with the server.

See product documentation for instructions on doing this.

## 2 To start the installer, issue one of the following commands:

- **For Solaris or Linux systems:** `/extract-directory/oracle-hmp-2.1/SOFTWARE/install.bin -i console`
- **For Windows systems:** `\extract-directory\oracle-hmp-2.1\SOFTWARE\install.exe -i console`

You will see 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'.
```

```
PRESS <ENTER> TO CONTINUE:
```

**3 Press Enter to Continue.**

The following screen appears:

```
Choose Install Set
-----
```

Please choose the Install Set to be installed by this installer.

```
->1- Standard
    2- Customize...
```

ENTER THE NUMBER FOR THE INSTALL SET, OR PRESS <ENTER> TO ACCEPT THE DEFAULT:

**4 Type the number for your choice or press Enter to select Standard.**

- If you selected Standard installation, go to Step 6.

- If you selected Custom installation, the following screen appears.

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> IF YOU ARE DONE:

```
1- [X] Hardware Management Agents
2- [X] CLI Tools
3- [ ] IPMITool
```

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

Options 1 and 2 are pre-selected. When you enter a number, it will select an item that is not selected and deselect an item that is already selected.

For example, if you type 1, 3 Hardware Management Agents is deselected and IPMITool is selected.

**5 Type one or more numbers separated by a comma.**

If you chose to install Agents, the following screen appears. If you did not choose to install agents, go to Step 8.

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

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

```
->1- Yes
    2- No
```

ENTER THE NUMBER FOR YOUR CHOICE, OR PRESS TO ACCEPT THE DEFAULT::

**6 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 Unix and SNMP on Windows.

- >1- Yes
- 2- No

ENTER THE NUMBER FOR YOUR CHOICE, OR PRESS `<ENTER>` TO ACCEPT THE DEFAULT::

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

The following screen appears, if you selected CLI Tools in Step 5. If you did not select CLI Tools, go to Step 10:

Configure LAN Over USB  
-----

Configure the LAN-over-USB interconnect between the host and ILOM. This is a high-speed connection that allows fast communication with ILOM using an internal IP address. This enables IPMI and SSH clients as well as a web browser running on the host operating system to connect directly to ILOM.

- >1- Configure automatically
- 2- Configure manually
- 3- Do not configure

ENTER THE NUMBER FOR YOUR CHOICE, OR PRESS `<ENTER>` TO ACCEPT THE DEFAULT:

**8 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 following screen appears.

Configure LAN Over USB Manually  
-----

Specify the following parameters.

IP Address: (DEFAULT: 192.168.1.1):

Netmask: (DEFAULT: 255.255.255.0):

Host IP Address: (DEFAULT: 192.168.1.2):

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

A screen similar to the following appears, to confirm your installation choices.

Pre-Installation Summary  
-----

Please Review the Following Before Continuing:

Product Name:  
Oracle Hardware Management Pack

Install Folder:  
/opt/sun-ssm

Install Set:  
Custom

```

Product Features:
  Hardware Management Agents,
  CLI Tools

Start Agents:
  Hardware Management Agent (hwmgmt), SNMP Agent (snmpd/SNMP)

LAN Over USB:
  Configure manually

Disk Space Information (for Installation Target):
  Required: 930,151 bytes
  Available: 11,144,399,872 bytes

```

PRESS <ENTER> TO CONTINUE

## 10 Make sure that the information displayed is correct.

- If the information is not correct, type Back until you get back to the screen where you want to change the information.
- If the information shown in the screen is correct, press Enter to continue.

The following screen appears:

```

Ready To Install
-----

```

```

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

```

```

/opt/sun-ssm

```

PRESS <ENTER> TO INSTALL:

## 11 Press Enter to begin the installation.

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

When the installation is complete, the following screen appears:

```

Installation Complete
-----

```

```

Congratulations. Oracle Hardware Management Pack has been successfully
installed to:

```

```

/opt/sun-ssm

```

PRESS <ENTER> TO EXIT THE INSTALLER:

- See Also** ▪ [“How to Uninstall Hardware Management Pack Components Using Console Mode” on page 42](#)

- [“Using GUI Mode to Install and Uninstall Components” on page 20](#)
- [“Using Silent Mode to Install and Uninstall Components” on page 43](#)

## ▼ **How to Uninstall Hardware Management Pack Components Using Console Mode**

**Before You Begin** ▪ To uninstall Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with Administrator privileges.

**1 To start the unininstallation, issue one of the following command:**

- **For Solaris or Linux systems:** `/opt/sun-ssm/setup/uninstall -i console`
- **For Windows systems:** `C:\Program Files\Oracle\Oracle Hardware Management Pack\setup\uninstall -i console`

The following screen 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.
```

```
PRESS <ENTER> TO CONTINUE:
```

**2 Press Enter.**

The following screen 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 Enter 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 screen appears.

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

```
All items were successfully uninstalled.
```

**4 Press Enter to exit the installer.**

- See Also**
- “How to Install Hardware Management Components Using Console Mode” on page 37
  - “Using GUI Mode to Install and Uninstall Components” on page 20
  - “Using Silent Mode to Install and Uninstall Components” on page 43

## Using Silent Mode to Install and Uninstall Components

The following topics are included in this section:

- “Silent Mode Installation Options” on page 43
- “How to Install Hardware Management Pack Component Using Silent Mode” on page 43
- “How to Uninstall Hardware Management Pack Component Using Silent Mode” on page 45

### Silent Mode Installation Options

Silent mode is a non-interactive installation method. Silent mode can be executed in one of two ways:

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

A response file can 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_to_file/response.txt
```

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

```
# ./install.bin -i silent -f /path_to_file/response.txt
```

- If no response is supplied, a typical installation is performed with no post-installation configuration steps.

### ▼ How to Install Hardware Management Pack Component Using Silent Mode

- Before You Begin**
- To install Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with Administrator privileges.
  - Download and extract the Hardware Management Pack Software. See “Getting the Software” on page 19.  
The directory that you extract the files is referred to as *extract-directory* in this procedure.
  - For Windows SP2 or earlier, you must first install the Sun IPMI System Management Driver. See “Installing the Sun IPMI System Management Driver 2.1” on page 63.
  - Refer to “Silent Mode Installation Options” on page 43 before performing the installation.

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

For Solaris or Linux systems:

- **For Solaris or Linux systems:**

- **To perform a typical silent installation:**

```
/extract-directory/oracle-hmp-2.1/SOFTWARE/install.bin -i silent
```

- **To perform an installation directed by a response file:**

```
/extract-directory/oracle-hmp-2.1/SOFTWARE//install.bin -i silent  
-f/path_to_file/response.txt
```

- **For Window systems:**

- **To perform a typical silent installation:**

```
\extract-directory\oracle-hmp-2.1\SOFTWARE\install.bin -i silent
```

- **To perform an installation directed by a response file:**

```
\extract-directory\oracle-hmp-2.1\SOFTWARE\install.bin -i silent  
-f\path_to_file\response.txt
```

The following output 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 should take about two minutes. A progress bar is displayed as the installation proceeds.

When the installation is complete, the following output displays:

```
Installation Complete.
$
```

- See Also**
- [“How to Uninstall Hardware Management Pack Component Using Silent Mode”](#) on page 45
  - [“Using GUI Mode to Install and Uninstall Components”](#) on page 20
  - [“Using Console Mode to Install or Uninstall Components”](#) on page 37

## ▼ How to Uninstall Hardware Management Pack Component Using Silent Mode

**Before You Begin** ■ To uninstall Management Pack components with Oracle Hardware Management Pack Installer, you must be logged into your system with Administrator privileges.

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

- For Solaris or Linux systems: `/opt/sun-ssm/setup/uninstall -i silent`
- For Windows systems: `C:\Program Files\Oracle\Oracle Hardware Management Pack\setup\uninstall -i silent`

The following output appears:

```
Preparing SILENT Mode Uninstallation...
```

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

```
=====
Uninstalling...
9-----
```

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.
$
```

- See Also**
- [“How to Install Hardware Management Pack Component Using Silent Mode”](#) on page 43
  - [“Using GUI Mode to Install and Uninstall Components”](#) on page 20
  - [“Using Console Mode to Install or Uninstall Components”](#) on page 37



# Installing Components Manually

---

This section describes how to install and uninstall Hardware Management Pack components on an Oracle server manually using OS-specific commands.

The section contains:

- [“Installing and Uninstalling Components Manually on a Solaris Server”](#) on page 47
- [“Installing and Uninstalling Components Manually on a Linux Server”](#) on page 55
- [“Installing and Uninstalling Components Manually on a Windows Server”](#) on page 59

## Installing and Uninstalling Components Manually on a Solaris Server

This section covers the following topics:

- [“How to Manually Install Components on a Solaris Server”](#) on page 47
- [“How to Manually Uninstall Components on a Solaris Server”](#) on page 52
- [“How to Configure the Software After Installation”](#) on page 54

### ▼ How to Manually Install Components on a Solaris Server

- 1 **Verify that you have the prerequisites packages installed using the following command:**

```
# pkginfo SUNWgccruntime SUNWlxml SUNWsmagt SUNWsmmgr
```

system	SUNWgccruntime	GCC Runtime libraries
system	SUNWlxml	The XML library
system	SUNWsmagt	System Management Agent files and libraries
system	SUNWsmmgr	System Management Agent Startup scripts

If these packages are missing, they need to be installed from appropriate Solaris distribution media. For exact steps on installing system packages, refer to Solaris OS documentation.

- 2 **Download the Oracle HMP pack and extract it.**

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

**3 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 5.**

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

```
# pkgadd -d /extraction-directory/SOFTWARE/packages ipmiflash
```

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

```
# pkgadd -d /extraction-directory/SOFTWARE/packages ipmitool
```

Output similar to the following appears:

```
Processing package instance <ipmitool> from
</root/oracle-hmp-2.1/SOFTWARE/packages>
```

```
ipmitool - Utility for Intelligent Platform Management Interface (IPMI)
control(sparc) 1.8.10.3
Duncan Laurie
Using </usr> as the package base directory.
## Processing package information.
## Processing system information.
   5 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
```

```
The following files are already installed on the system and are being
used by another package:
  /usr/sbin/ipmitool
```

```
Do you want to install these conflicting files [y,n,?,q]
```

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

Output similar to the following appears:

```
Installing ipmitool - Utility for Intelligent Platform Management Interface
(IPMI) control as <ipmitool>
```

```
## Installing part 1 of 1.
/usr/sbin/ipmievd
/usr/sbin/ipmitool
/usr/share/man/man1/ipmitool.1
/usr/share/man/man8/ipmievd.8
[ verifying class <none> ]
```

```
Installation of <ipmitool> was successful.
```

**5 Determine which Hardware Management Pack components that you want to install.**

The following packages are available for installation:

- ORCLhmp-uecm — CDC ECM USB-to-Ethernet driver
- ORCLhmp-hwmgmt — Oracle Hardware Management Agent
- ORCLhmp-libs — Oracle Hardware Management Pack Libraries (mandatory)

- `ORCLhmp-snmplib` — Oracle Hardware Management Pack SNMP plugins (requires `ORCLhmp-hwmgmtlib`)
- `ORCLhmp-tools` — Oracle Hardware Management Pack CLI Tools

Note the following guidelines for installing the packages:

- `ORCLhmp-lib` must be installed with all packages except for `ORCLhmp-drivers`.
- `ORCLhmp-hwmgmtlib` must be installed if `ORCLhmp-snmplib` is installed.
- `ORCLhmp-uecm` can only be installed on Solaris 10 10/09.

## 6 To install the packages that you want to install, use the following command:

```
# pkgadd -d /extraction-directory/SOFTWARE/packages ORCLhmp-lib additional components
```

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

```
# pkgadd -d /extraction-directory/SOFTWARE/packages
ORCLhmp-lib ORCLhmp-hwmgmt ORCLhmp-snmplib
```

Output similar to the following appears:

```
Processing package instance <ORCLhmp-lib> from
</root/oracle-hmp-2.1/SOFTWARE/packages>
```

```
Oracle Hardware Management Pack - Libraries(sparc) 2.1,
REV=2010.09.13.18.44
Copyright (c) 2010, Oracle and/or its affiliates. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
  2 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.
```

```
Installing Oracle Hardware Management Pack -
Libraries as <ORCLhmp-lib>
```

```
## Installing part 1 of 1.
/opt/sun-ssm/lib/libSTORARC.so
/opt/sun-ssm/lib/libfishwrap.so
/opt/sun-ssm/lib/libfishwrap.so.4 <symbolic link>
/opt/sun-ssm/lib/libfishwrap.so.4.0 <symbolic link>
/opt/sun-ssm/lib/libstorelib.so <symbolic link>
/opt/sun-ssm/lib/libstorelib.so.1 <symbolic link>
/opt/sun-ssm/lib/libstorelib.so.3 <symbolic link>
/opt/sun-ssm/lib/libstorelib.so.3.30-0
/opt/sun-ssm/lib/libstorelibir-2.so <symbolic link>
/opt/sun-ssm/lib/libstorelibir-2.so.1 <symbolic link>
/opt/sun-ssm/lib/libstorelibir-2.so.2.02-0
/opt/sun-ssm/lib/plugins/engines/arc_scsi.so
/opt/sun-ssm/lib/plugins/engines/ascsi.so
/opt/sun-ssm/lib/plugins/engines/libusmp.so
/opt/sun-ssm/lib/plugins/engines/libusmpfusion.so
/opt/sun-ssm/lib/plugins/engines/lsi_scsi_ir2.so
```

```

/opt/sun-ssm/lib/plugins/engines/lsi_scsi_sas2.so
/opt/sun-ssm/lib/plugins/engines/lsi_smp_ir2.so
/opt/sun-ssm/lib/plugins/engines/lsi_smp_sas2.so
/opt/sun-ssm/lib/plugins/engines/uscsi.so
/opt/sun-ssm/lib/plugins/framework/arc_sdk.so
/opt/sun-ssm/lib/plugins/framework/dta.so
/opt/sun-ssm/lib/plugins/framework/libsas2.so
/opt/sun-ssm/lib/plugins/framework/libses2.so
/opt/sun-ssm/lib/plugins/framework/libsesext.so
/opt/sun-ssm/lib/plugins/framework/loki.so
/opt/sun-ssm/lib/plugins/framework/lsi_ir2.so
/opt/sun-ssm/lib/plugins/framework/lsi_mpt.so
/opt/sun-ssm/lib/plugins/framework/lsi_sas2.so
/opt/sun-ssm/lib/plugins/framework/mongo.so
/opt/sun-ssm/lib/plugins/framework/nemplus.so
/opt/sun-ssm/lib/plugins/framework/riverwalk.so
/opt/sun-ssm/lib/plugins/framework/riverwalk2.so
/opt/sun-ssm/lib/plugins/framework/vela.so
/opt/sun-ssm/man/README.txt
[ verifying class <none> ]

```

Installation of <ORCLhmp-libs> was successful.

```

Processing package instance <ORCLhmp-hwmgmt> from
</root/oracle-hmp-2.1/SOFTWARE/packages>

```

```

Oracle Hardware Management Pack - Hardware Management Agent(sparc) 2.1,
REV=2010.09.13.18.44

```

```

Copyright (c) 2010, Oracle and/or its affiliates. All rights reserved.

```

```

Using </opt> as the package base directory.

```

```

## Processing package information.

```

```

## Processing system information.

```

```

    18 package pathnames are already properly installed.

```

```

## Verifying package dependencies.

```

```

## Verifying disk space requirements.

```

```

## Checking for conflicts with packages already installed.

```

```

## Checking for setuid/setgid programs.

```

```

This package contains scripts which will be executed with super-user
permission during the process of installing this package.

```

```

Do you want to continue with the installation of <ORCLhmp-hwmgmt> [y,n,?]

```

## 7 Type y to continue the installation.

Output similar to the following appears:

```

Installing Oracle Hardware Management Pack -
Hardware Management Agent as <ORCLhmp-hwmgmt>

```

```

## Installing part 1 of 1.

```

```

/etc/opt/sun-ssm/hwmgmtd.conf

```

```

/lib/svc/method/svc-hwmgmtd

```

```

/opt/sun-ssm/lib/64 <symbolic link>

```

```

/opt/sun-ssm/lib/libhwmgmtapi.so <symbolic link>

```

```

/opt/sun-ssm/lib/libhwmgmtapi.so.2 <symbolic link>

```

```

/opt/sun-ssm/lib/libhwmgmtapi.so.2.1

```

```

/opt/sun-ssm/lib/libhwmgmtcommon.so <symbolic link>

```

```

/opt/sun-ssm/lib/libhwmgmtcommon.so.2 <symbolic link>

```

```

/opt/sun-ssm/lib/libhwmgmtcommon.so.2.1
/opt/sun-ssm/lib/libtrapapi.so <symbolic link>
/opt/sun-ssm/lib/libtrapapi.so.2 <symbolic link>
/opt/sun-ssm/lib/libtrapapi.so.2.1
/opt/sun-ssm/lib/sparcv9/libhwmgmtapi.so <symbolic link>
/opt/sun-ssm/lib/sparcv9/libhwmgmtapi.so.2 <symbolic link>
/opt/sun-ssm/lib/sparcv9/libhwmgmtapi.so.2.1
/opt/sun-ssm/lib/sparcv9/libhwmgmtcommon.so <symbolic link>
/opt/sun-ssm/lib/sparcv9/libhwmgmtcommon.so.2 <symbolic link>
/opt/sun-ssm/lib/sparcv9/libhwmgmtcommon.so.2.1
/opt/sun-ssm/lib/sparcv9/libtrapapi.so <symbolic link>
/opt/sun-ssm/lib/sparcv9/libtrapapi.so.2 <symbolic link>
/opt/sun-ssm/lib/sparcv9/libtrapapi.so.2.1
/opt/sun-ssm/man/hwmgmt.d.1m
/opt/sun-ssm/private/fwrxmlDIFF
/opt/sun-ssm/private/ipmitool-hwmgmt
/opt/sun-ssm/sbin/hwmgmt
[ verifying class <none> ]
[ verifying class <manifest> ]
## Executing postinstall script.

```

Installation of <ORCLhmp-hwmgmt> was successful.

```

Processing package instance <ORCLhmp-snmp> from
</root/oracle-hmp-2.1/SOFTWARE/packages>

```

```

Oracle Hardware Management Pack - SNMP plugins(sparc) 2.1,
REV=2010.09.13.18.44
Copyright (c) 2010, Oracle and/or its affiliates. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
  7 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

```

Installing Oracle Hardware Management Pack - SNMP plugins as <ORCLhmp-snmp>

```

## Installing part 1 of 1.
/opt/sun-ssm/lib/libSunHwMonMIB.so <symbolic link>
/opt/sun-ssm/lib/libSunHwMonMIB.so.1
/opt/sun-ssm/lib/libSunHwTrapIntf.so <symbolic link>
/opt/sun-ssm/lib/libSunHwTrapIntf.so.2 <symbolic link>
/opt/sun-ssm/lib/libSunHwTrapIntf.so.2.1
/opt/sun-ssm/lib/libSunStorageMIB.so <symbolic link>
/opt/sun-ssm/lib/libSunStorageMIB.so.1
/opt/sun-ssm/lib/mibs/SUN-HW-MONITORING-MIB.mib
/opt/sun-ssm/lib/mibs/SUN-HW-TRAP-MIB.mib
/opt/sun-ssm/lib/mibs/SUN-STORAGE-MIB.mib
/opt/sun-ssm/lib/sparcv9/libSunHwMonMIB.so <symbolic link>
/opt/sun-ssm/lib/sparcv9/libSunHwMonMIB.so.1
/opt/sun-ssm/lib/sparcv9/libSunHwTrapIntf.so <symbolic link>
/opt/sun-ssm/lib/sparcv9/libSunHwTrapIntf.so.2 <symbolic link>
/opt/sun-ssm/lib/sparcv9/libSunHwTrapIntf.so.2.1
/opt/sun-ssm/lib/sparcv9/libSunStorageMIB.so <symbolic link>
/opt/sun-ssm/lib/sparcv9/libSunStorageMIB.so.1
[ verifying class <none> ]

```

```
Modifying /etc/sma/snmp/snmpd.conf
[ verifying class <build> ]
```

Installation of <ORCLhmp-snmp> was successful.

## ▼ How to Manually Uninstall Components on a Solaris Server

### 1 Determine which components you want to uninstall.

- ORCLhmp-drvs— Drivers
- ORCLhmp-hwmgmt— Oracle Hardware Management Agent
- ORCLhmp-libs— Oracle Hardware Management Pack Libraries (mandatory)
- ORCLhmp-snmp— Oracle Hardware Management Pack SNMP plugins (requires ORCLhmp-hwmgmt)
- ORCLhmp-tools— Oracle Hardware Management Pack CLI Tools

### 2 Run the following command:

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

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

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

Output similar to the following appears:

```
The following package is currently installed:
ORCLhmp-snmp   Oracle Hardware Management Pack - SNMP plugins
               (sparc) 2.1,REV=2010.09.13.18.44
```

```
Do you want to remove this package? [y,n,?,q] y
```

### 3 Type y to remove the package.

```
## Removing installed package instance <ORCLhmp-snmp>
## Verifying package <ORCLhmp-snmp> dependencies in global zone
## Processing package information.
## Removing pathnames in class <build>
Modifying /etc/sma/snmp/snmpd.conf
## Removing pathnames in class <none>
/opt/sun-ssm/lib/sparcv9/libSunStorageMIB.so.1
/opt/sun-ssm/lib/sparcv9/libSunStorageMIB.so
/opt/sun-ssm/lib/sparcv9/libSunHwTrapIntf.so.2.1
/opt/sun-ssm/lib/sparcv9/libSunHwTrapIntf.so.2
/opt/sun-ssm/lib/sparcv9/libSunHwTrapIntf.so
/opt/sun-ssm/lib/sparcv9/libSunHwMonMIB.so.1
/opt/sun-ssm/lib/sparcv9/libSunHwMonMIB.so
/opt/sun-ssm/lib/sparcv9 <shared pathname not removed>
/opt/sun-ssm/lib/mibs/SUN-STORAGE-MIB.mib
/opt/sun-ssm/lib/mibs/SUN-HW-TRAP-MIB.mib
/opt/sun-ssm/lib/mibs/SUN-HW-MONITORING-MIB.mib
/opt/sun-ssm/lib/mibs
/opt/sun-ssm/lib/libSunStorageMIB.so.1
```

```

/opt/sun-ssm/lib/libSunStorageMIB.so
/opt/sun-ssm/lib/libSunHwTrapIntf.so.2.1
/opt/sun-ssm/lib/libSunHwTrapIntf.so.2
/opt/sun-ssm/lib/libSunHwTrapIntf.so
/opt/sun-ssm/lib/libSunHwMonMIB.so.1
/opt/sun-ssm/lib/libSunHwMonMIB.so
/opt/sun-ssm/lib/64 <shared pathname not removed>
/opt/sun-ssm/lib <shared pathname not removed>
/opt/sun-ssm <shared pathname not removed>
/etc/sma/snmp <shared pathname not removed>
/etc/sma <shared pathname not removed>
/etc <shared pathname not removed>
## Updating system information.

```

Removal of <ORCLhmp-snmp> was successful.

The following package is currently installed:

```

ORCLhmp-hwmgmt Oracle Hardware Management Pack - Hardware Management Agent
(sparc) 2.1,REV=2010.09.13.18.44

```

Do you want to remove this package? [y,n,?,q]

#### 4 Type y to remove the package.

Output similar to the following appears:

```
## Removing installed package instance <ORCLhmp-hwmgmt>
```

This package contains scripts which will be executed with super-user permission during the process of removing this package.

```

Do you want to continue with the removal of this package [y,n,?,q] y
## Verifying package <ORCLhmp-hwmgmt> dependencies in global zone
## Processing package information.
## Removing pathnames in class <manifest>
Waiting up to 60 seconds for svc:/application/management/hwmgmt:default to stop...
## Removing pathnames in class <none>
/var/svc/manifest/application/management <shared pathname not removed>
/var/svc/manifest/application <shared pathname not removed>
/var/svc/manifest <shared pathname not removed>
/var/svc <shared pathname not removed>
/var/run/sun-ssm <non-empty directory not removed>
/var/run <shared pathname not removed>
/var/opt/sun-ssm <non-empty directory not removed>
/var/opt <shared pathname not removed>
/var <shared pathname not removed>
/opt/sun-ssm/sbin/hwmgmt
/opt/sun-ssm/sbin <non-empty directory not removed>
/opt/sun-ssm/private/ipmitool-hwmgmt
/opt/sun-ssm/private/fwrxmlDIFF
/opt/sun-ssm/private
/opt/sun-ssm/man/hwmgmt.1m
/opt/sun-ssm/man <shared pathname not removed>
/opt/sun-ssm/lib/sparcv9/libtrapapi.so.2.1
/opt/sun-ssm/lib/sparcv9/libtrapapi.so.2
/opt/sun-ssm/lib/sparcv9/libtrapapi.so
/opt/sun-ssm/lib/sparcv9/libhwmgmtcommon.so.2.1
/opt/sun-ssm/lib/sparcv9/libhwmgmtcommon.so.2
/opt/sun-ssm/lib/sparcv9/libhwmgmtcommon.so

```

```

/opt/sun-ssm/lib/sparcv9/libhwgmtapi.so.2.1
/opt/sun-ssm/lib/sparcv9/libhwgmtapi.so.2
/opt/sun-ssm/lib/sparcv9/libhwgmtapi.so
/opt/sun-ssm/lib/sparcv9
/opt/sun-ssm/lib/libtrapapi.so.2.1
/opt/sun-ssm/lib/libtrapapi.so.2
/opt/sun-ssm/lib/libtrapapi.so
/opt/sun-ssm/lib/libhwgmtcommon.so.2.1
/opt/sun-ssm/lib/libhwgmtcommon.so.2
/opt/sun-ssm/lib/libhwgmtcommon.so
/opt/sun-ssm/lib/libhwgmtapi.so.2.1
/opt/sun-ssm/lib/libhwgmtapi.so.2
/opt/sun-ssm/lib/libhwgmtapi.so
/opt/sun-ssm/lib/64
/opt/sun-ssm/lib <shared pathname not removed>
/opt/sun-ssm <shared pathname not removed>
/lib/svc/method/svc-hwgmt
/lib/svc/method <shared pathname not removed>
/lib/svc <shared pathname not removed>
/lib <shared pathname not removed>
/etc/opt/sun-ssm/hwgmt.conf
/etc/opt/sun-ssm
/etc/opt <shared pathname not removed>
/etc <shared pathname not removed>
## Updating system information.

```

Removal of <ORCLhmp-hwgmt> was successful.

## ▼ How to Configure the Software After Installation

- Run the appropriate commands for the features that you want to configure.
  - If **ORCLhmp-hwgmt** is installed, start the Hardware Management Agent using the following command:
 

```
# /usr/sbin/svcadm enable hwgmt
```
  - If **ORCLhmp-snmpp** is installed, restart the SNMP daemon using the following command:
 

```
# /usr/sbin/svcadm restart sma
```
  - If **ORCLhmp-tools** is installed, enable the Local ILOM Interconnect using the following steps:
    - a. Verify the system service processor supports this feature using the following command.
 

```
# /opt/sun-ssm/bin/ilomconfig list interconnect
```

 If **SUBCOMMAND NOT SUPPORTED** appears, then this feature is not supported by your service processor.
    - b. Install the **usbemc** driver if on Solaris 10 10/09.
 

```
# pkgadd -d /extraction-directory/SOFTWARE/packages ORCLhmp-drvs
```

c. Do one of the following:

- Enable the interconnect automatically using the following command:

```
# /opt/sun-ssm/bin/ilonconfig enable interconnect
```

- Enable the interconnect manually with the following command:

```
# /opt/sun-ssm/bin/ilonconfig enable interconnect --ipaddress=x.x.x.x
--netmask=x.x.x.x --hostipaddress=x.x.x.x
```

## Installing and Uninstalling Components Manually on a Linux Server

This section covers the following procedures:

- [“How to Install Components on a Linux Server” on page 55](#)
- [“How to Uninstall Components on a Linux Server” on page 57](#)
- [“How to Configure the Software After Installation” on page 57](#)

### ▼ How to Install Components on a Linux Server

- 1 To verify that you have prerequisites installed, use the following command:

```
# rpm -q OpenIPMI net-snmp libxml2
```

```
OpenIPMI-2.0.16-5.el5
net-snmp-5.3.2.2-9.el5_5.1
libxml2-2.6.26-2.1.2.8.0.1
```

The actual version and release numbers for the packages might be different for your specific Linux OS (OEL4, OEL5, RHEL4, RHEL5, SLES10, SLES11). VMware is based on RHEL, but the packaging for some items is different.

If any of these packages are missing, they need to be installed from the appropriate Linux distribution media. For exact steps on installing system packages, refer to Linux documentation

- 2 Download the Oracle HMP pack and extract it.

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

---

**Note** – The following step use the component name+.rpm notation for the file name for simplicity. If you do not want to install all .rpm files for a particular component, use the following file name conventions.

---

The file names for the packages are in the following format:

```
component-version.distribution.architecture.rpm
```

where:

- component = libs, snmp, hwmgmt, ipmitool, ipmiflash or tools
- version =
  - 1.8.10-3-3 for ipmitool or ipmiflash
  - 2.1.0-1.e15 for libs, snmp, hwmgmt or tools
- distribution = esx3, esx4, el4, el5, sl10 or sl11
- architecture = i386 (32-bit) or x86\_64 (64-bit)

For example, for OEL5 32-bit, the file names are as follows.

```
ipmitool-1.8.10.3-3.rhel5.i386.rpm
oracle-hmp-tools-2.1.0-1.e15.i386.rpm
ipmiflash-1.8.10.4-3.rhel5.i386.rpm
oracle-hmp-hwmgmt-2.1.0-1.e15.i386.rpm
oracle-hmp-snmp-2.1.0-1.e15.i386.rpm
oracle-hmp-libs-2.1.0-1.e15.i386.rpm
```

**3 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 4.**

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

```
# rpm -i /extraction-directory/SOFTWARE/packages/ipmiflash*.rpm
```
- **To install ipmitool, run the following command:**  

```
# rpm -i /extraction-directory/SOFTWARE/packages/ipmitool*.rpm
```

For example:

```
# rpm -i extraction-directory/SOFTWARE/packages/ipmi*.rpm
```

By default, no output appears after the installation.

**4 Determine which Hardware Management Pack components to install.**

The following packages are available for installation:

- oracle-hmp-hwmgmt — Oracle Hardware Management Agent
- oracle-hmp-libs — Oracle Hardware Management Pack Libraries (mandatory)
- oracle-hmp-snmp — Oracle Hardware Management Pack SNMP plugins (requires oracle-hmp-hwmgmt)
- oracle-hmp-tools — Oracle Hardware Management Pack CLI Tools

---

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

---

**5 Use the following command to install the packages:**

```
# rpm -i /extraction-directory/SOFTWARE/packages/  
oracle-hmp-libs*.rpm additional components
```

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

```
# rpm -i /extraction-directory/SOFTWARE/packages/oracle-hmp-libs*.rpm  
/extraction-directory/SOFTWARE/packages/oracle-hmp-hwmgmt*.rpm  
/extraction-directory/SOFTWARE/packages/oracle-hmp-snmprpm
```

No output appears by default.

**▼ How to Uninstall Components on a Linux Server****1 Determine which components you want to uninstall.**

- `oracle-hmp-hwmgmt` — Oracle Hardware Management Agent
- `oracle-hmp-libs` — Oracle Hardware Management Pack Libraries (mandatory)
- `oracle-hmp-snmprpm` — Oracle Hardware Management Pack SNMP plugins (requires `oracle-hmp-hwmgmt`)
- `oracle-hmp-tools` — Oracle Hardware Management Pack CLI Tools

---

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

No output appears by default.

**▼ How to Configure the Software After Installation**

- Run the appropriate commands for the features that you want to configure.
  - If `oracle-hmp-hwmgmt` is installed, enable and start the Hardware Management Agent with the following commands:
 

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

- If `oracle-hmp-snmp` is installed, enable and start the SNMP daemon with the following commands:
  - a. To enable the SNMP daemon, run the following command:  

```
# /sbin/chkconfig snmpd on
```
  - b. 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 Local ILOM Interconnect with the following steps:
  - a. Verify the system service processor supports this feature with the following command.  

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

If `SUBCOMMAND NOT SUPPORTED` appears than this feature is not supported by your service processor.
  - b. Do one of the following:
    - Enable the interconnect automatically with the following command:  

```
# /usr/sbin/ilomconfig enable interconnect
```
    - Enable the interconnect manually with 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:
  - a. Run the following command to see if `ipmitool` is running:  

```
# /sbin/service ipmi status
```
  - b. If `ipmitool` is not running, type the following command to start it:  

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

# Installing and Uninstalling Components Manually on a Windows Server

This section covers the following procedures:

- “How to Install Components on a Windows Server” on page 59
- “How to Uninstall Components on a Windows Server” on page 60
- “How to Configure Software After Installation” on page 61

## ▼ How to Install Components on a Windows Server

### 1 Verify that the following prerequisites are installed:

- IMPI driver
  - For a Windows 2003 Server S2 and earlier, the ISM driver must be installed. See “Installing the Sun IPMI System Management Driver 2.1” on page 63.
  - For information on the Microsoft IPMI driver for a Windows 2003 R2 Server and later, see [http://msdn.microsoft.com/en-us/library/aa391402\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa391402(VS.85).aspx)
- SNMP Service, if you plan install SNMP agents. For more information, see [http://msdn.microsoft.com/en-us/library/aa379100\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa379100(VS.85).aspx).

### 2 Download the Oracle HMP pack and extract it.

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

### 3 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 4.

- To install `ipmiflash`, do the following:
  - a. Run the following command:

```
C:\> msixec /i \extraction-directory\SOFTWARE\package\ipmiflash*.msi
```

The installation GUI appears.
  - b. Click through installation screens to install `ipmiflash`.
- To install `ipmitool`, do the following :
  - a. Run the following command:

```
C:\> msixec /i \extraction-directory\SOFTWARE\packages\ipmitool*.msi
```
  - b. Click through the installation screens to install `ipmitool`.

**4 Determine which Hardware Management Pack components that you want to install.**

The following packages are available for installation:

- `oracle-hmp-agents` — Oracle Hardware Management Agents
- `oracle-hmp-libs` — Oracle Hardware Management Pack Libraries (mandatory)
- `oracle-hmp-tools` — Oracle Hardware Management Pack CLI Tools

---

**Note** – You must install `ORCLhmp-libs` with all packages.

---

**5 To install the packages, use the following commands:**

```
C:\>msiexec /i \extraction-directory\SOFTWARE\packages\oracle-hmp-libs*msi
```

```
C:\>msiexec /i \extraction-directory\SOFTWARE\packages\other components
```

**6 For example, to install just the agents and SNMP plugins:**

```
C:\>msiexec /i \extraction-directory\SOFTWARE\packages\oracle-hmp-libs*msi
```

```
C:\>msiexec /i \extraction-directory\SOFTWARE\packages\oracle-hmp-agents*msi
```

The GUI installation screens appear for the packages that you choose to install.

**7 To install the packages, click through the installation screens.**

## ▼ How to Uninstall Components on a Windows Server

**1 Determine which components you want to uninstall.**

- `oracle-hmp-agents` — Oracle Hardware Management Agents
- `oracle-hmp-libs` — Oracle Hardware Management Pack Libraries (mandatory)
- `oracle-hmp-tools` — Oracle Hardware Management Pack CLI Tools

**2 Run the following command:**

```
# msiexec /x \extraction-directory\SOFTWARE\packages\package name(s)
```

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

```
# msiexec /x \extraction-directory\SOFTWARE\packages\oracle-hmp-agents*msi
```

The uninstall GUI appears.

**3 To uninstall the packages, click through the uninstall screens .**

## ▼ How to Configure Software After Installation

- Run the appropriate commands for the features that you want to configure.
  - If `oracle-hmp-hwmgmt` is installed, start the Hardware Management Agent using the following command:
 

```
C:\>net start "Oracle Server Hardware Management Agent"
```
  - If `oracle-hmp-snmp` is installed, start the SNMP daemon using the following commands:
 

```
C:\> net stop SNMP

C:\> net start SNMP
```
  - If `oracle-hmp-tools` is installed, enable the Local ILOM Interconnect with the following steps:
    - a. Verify the system service processor supports this feature with the following command.
 

```
C:\> ProgramFiles(x86)\Oracle\Oracle Hardware Management Pack\bin\
            ilomconfig list interconnect
```

If `SUBCOMMAND NOT SUPPORTED` appears, then this feature is not supported by your service processor.
    - b. Install the RNDIS driver.
      - For a 32-bit system:
 

```
C:\> \extraction-directory\SOFTWARE\drivers\rndis\32\installrndis ..\USB2SP.INF
```
      - For a 64-bit system:
 

```
C:\> \extraction-directory\SOFTWARE\drivers\rndis\64\installrndis\ ..\USB2SP.INF
```
    - c. Do one of the following:
      - Enable the interconnect automatically using the following command:
 

```
C:\> ProgramFiles(x86)\Oracle\Oracle Hardware Management Pack\bin\
            ilomconfig enable interconnect
```
      - Enable the interconnect manually using the following command:
 

```
C:\> ProgramFiles(x86)\Oracle\Oracle Hardware Management Pack\bin\
            ilomconfig enable interconnect --ipaddress=x.x.x.x
            --netmask=x.x.x.x --hostipaddress=x.x.x.x
```



# Installing Drivers Manually

---

This section describes how to manually install drivers to enable `ipmitool` and Local ILOM Interconnect (LAN over USB) functionality.

The section contains the following topics:

- [“Installing the Sun IPMI System Management Driver 2.1” on page 63](#)
- [“Installing the Local ILOM Interconnect \(LAN Over USB\) Driver” on page 66](#)

## Installing the Sun IPMI System Management Driver 2.1

---

**Note** – See the OS support matrix in [“Installing Components Using the Oracle Hardware Management Pack Installer” on page 17](#) to determine if you need this driver.

---

The Sun IPMI System Management Driver 2.1 allows communication between the Microsoft Windows host operating system and the ILOM service processor over an internal Keyboard Controller Style (KCS) interface. This driver is required for Microsoft Windows Server 2003 SP2 and earlier.

For later OS versions (including Microsoft Windows Server 2003 R2) the Microsoft-provided IPMI driver included in their Hardware Management Module provides the same functionality.

This section covers the following procedures:

- [“How to Install Sun IPMI System Management Driver 2.1 Manually” on page 63](#)
- [“How to Perform an Unattended Installation of the Sun IPMI System Management Driver 2.1” on page 64](#)
- [“How to Verify `ipmitool` Installation” on page 65](#)
- [“How to Uninstall the Sun IPMI System Management Driver 2.1” on page 66](#)

### ▼ **How to Install Sun IPMI System Management Driver 2.1 Manually**

To install the Sun IPMI System Management Driver 2.1 for Microsoft Windows Server 2003 SP2 or earlier:

- 1 Download and extract the Hardware Management Pack software from the following site:  
<http://www.sun.com/systemmanagement/managementtools.jsp>
- 2 Uninstall any previous versions of this driver:
  - a. Right-click My Computer and select Properties.
  - b. Select the Hardware tab and click Device Manager.
  - c. Expand the System Devices section.
  - d. Locate SUN IPMI System Management Driver and right-click this item.
  - e. Select Uninstall and confirm the removal.
- 3 Open the Control Panel and select New Hardware.
- 4 Click Next.
- 5 Select Yes, I have already connected the hardware, and click Next.
- 6 Select Add a new hardware device from the displayed list, and click Next.
- 7 Select Install the hardware that I manually select from a list, and click Next.
- 8 Select System Devices, and click Next.
- 9 To specify the file system location where the `ism.inf` file is stored, click the Have Disk tab .
- 10 Click OK to uninstall the driver.

## ▼ How to Perform an Unattended Installation of the Sun IPMI System Management Driver 2.1

This section describes how to perform unattended (no user interaction required) installation of the Sun IPMI System Management Driver 2.1 for Microsoft Windows Server 2003 SP2 or earlier.

- 1 Download and extract the Hardware Management Pack software from the following site:  
<http://www.sun.com/systemmanagement/managementtools.jsp>
- 2 Navigate to the directory containing the correct `ism.if` file:
  - For the 32-bit driver:  

```
E:\> cd \extraction-directory\oracle-hmp-2.1\SOFTWARE\drivers\ism\32
```

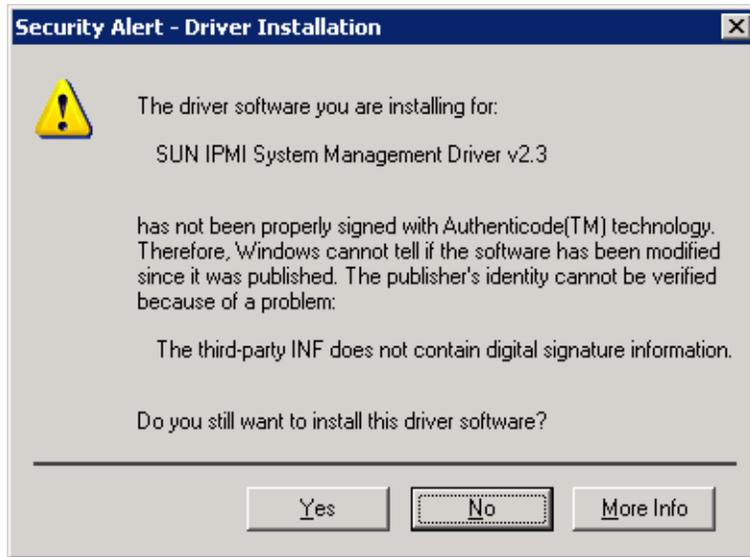
- For the 64-bit driver:

```
F:\ >cd \extraction-directory\oracle-hmp-2.1\SOFTWARE\drivers\ism\64
```

**3 From an administrator command shell (DOS), run the following command:**

```
F:\ >isminst load ism.inf *ism
```

A window might appear requesting that the unsigned driver be installed.



**4 Click Yes to install the driver.**

## ▼ How to Verify ipmitool Installation

**1 Navigate to the directory containing the correct ism.if file:**

- For the 32-bit driver:

```
F:\ > cd \extraction-directory\oracle-hmp-2.1\SOFTWARE\drivers\ism\32
```

- For the 64-bit driver:

```
F:\ >cd \extraction-directory\oracle-hmp-2.1\SOFTWARE\drivers\ism\64
```

**2 To obtain the status, run the following command:**

```
F:\>isminst.exe status *ism
```

You should see the following output:

```
ROOT\SYSTEM\0003: SUN IPMI System Management Driver v2.3 Driver is running.
```

If the driver is not running, the following output appears:

```
No matching devices found.
```

## ▼ How to Uninstall the Sun IPMI System Management Driver 2.1

### 1 Navigate to the directory containing the correct ism.if file:

- For the 32-bit driver:

```
F:\> cd \extraction-directory\oracle-hmp-2.1\SOFTWARE\drivers\ism\32
```

- For the 64-bit driver:

```
F:\> cd \extraction-directory\oracle-hmp-2.1\SOFTWARE\drivers\ism\64
```

### 2 Run the following command:

```
F:\> isminst remove *ism
```

## Installing the Local ILOM Interconnect (LAN Over USB) Driver

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

You do not need to install this driver if:

- You have installed the Oracle Hardware Management Pack 2.1 using the instructions in [“Installing Components Using the Oracle Hardware Management Pack Installer” on page 17](#) and enabled the Local ILOM Interconnect (LAN Over USB) during the installation.
- You have installed the Oracle Hardware Management Pack 2.1 using the manual instructions in [“Installing Components Manually” on page 47](#) and chosen to install the Local ILOM Interconnect features.
- You are running a Linux operating system or Solaris version other than Solaris 10 10/09 (Solaris 10 9/10 contains the driver and Solaris 10 5/09 does not support this feature).

This section covers the following procedures:

- [“How to Install Local ILOM Interconnect Drivers on a Solaris Server” on page 66](#)
- [“How to Uninstall Local ILOM Interconnect Drivers on a Solaris Server” on page 67](#)
- [“How to Install the Local ILOM Interconnect Drivers on a Windows Server” on page 67](#)

## ▼ How to Install Local ILOM Interconnect Drivers on a Solaris Server

### 1 Check that your system is running Solaris 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-2.1/SOFTWARE/package
```

- 3 Install the driver using the following command:

```
# pkgadd -d . ORCLhmp-drvs
```

## ▼ How to Uninstall Local ILOM Interconnect Drivers on a Solaris Server

- 1 Navigate to the packages directory in the management pack distribution.

```
# cd /extraction-directory/oracle-hmp-2.1/SOFTWARE/package
```

- 2 Uninstall the driver using the following command:

```
# pkgrm ORCLhmp-drvs
```

## ▼ How to Install the Local ILOM Interconnect Drivers on a Windows Server

- Depending on the Windows architecture, run one of the following commands:

- For a 32-bit system:

```
C:\> \extraction-directory\SOFTWARE\drivers\rndis\32\installrndis ..\USB2SP.INF
```

- For a 64-bit system:

```
C:\> \extraction-directory\SOFTWARE\drivers\rndis\64\installrndis\ ..\USB2SP.INF
```



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