

Sun Server Hardware Management Pack User's Guide



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Preface

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

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

- “Related Books” on page 5
- “About This Documentation (PDF and HTML)” on page 6
- “Related Third-Party Web Site References” on page 6
- “Sun Welcomes Your Comments” on page 6
- “Change History” on page 6

Related Books

The following is a list of documents related to single server management for your Sun server. These and additional support documents are available on the web at:

<http://docs.sun.com/app/docs/prod/svrmgmt.pack>

Document	Description
<i>Sun Server Hardware Management Pack User's Guide</i>	Overview of Sun Server Hardware Management Pack and how to install components
<i>Sun Server Management Agent User's Guide</i>	How to install, configure, and work with Sun Server Management Agents
<i>Sun Server CLI Tools and IPMItool User's Guide</i>	How to install, configure, and work with Sun Server CLI Tools and IPMItool

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, appendixes or section numbering.

Related Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

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Sun Welcomes Your Comments

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Change History

The following changes have been made to the documentation set.

- December 2009, initial publication.

Introduction to the Sun Server Hardware Management Pack

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

The section contains:

- “Sun Server Hardware Management Pack Features” on page 7
- “Sun Server Management Agents Features” on page 8
- “Sun Server CLI Tools” on page 10
- “IPMItool” on page 10

Sun Server Hardware Management Pack Features

Sun Server Hardware Management Pack (Hardware Management Pack) provides tools to help you manage and configure your Sun servers. Hardware Management Pack consists of components that you install on your Sun server using Sun SSM Component Manager, 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 Sun server hardware over Simple Network Management Protocol (SNMP). You can use this information to integrate your Sun servers into your data centre management infrastructure.
- Use a management agent to enable in-band monitoring of your Sun server's storage devices, including RAID arrays. You can view this information from the Integrated Lights Out Manager (ILOM) web interface or command-line interface (CLI).
- Use a BIOS configuration tool, which runs on the host's operating system and configures the host's BIOS CMOS settings, host boot order, and some service processor (SP) settings.
- Use IPMItool to access Sun server service processors via the IPMI protocol and perform management tasks.

The Hardware Management Pack components are installed using the Sun SSM Component Manager (Component Manager), 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:

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

Sun Server Management Agents Features

Sun Server Management Agents provide operating-system-specific agents to enable management of your Sun servers.

The Sun Server Management Agents component provides the following software:

- Sun Server Hardware Management Agent
- Sun Server Hardware SNMP Plugins
- Sun Server Storage Management Agent
- Sun Server Storage Access Libraries

Sun Server Hardware Management Agent

The Sun Server Hardware Management Agent (Hardware Management Agent) and associated Sun Server Hardware SNMP Plugins (Hardware SNMP Plugins) provide a way to monitor your Sun x64 Server and server module's hardware. With the Hardware Management Agent and Hardware SNMP Plugins you can use SNMP to monitor the Sun x64 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 your Sun x64 servers and server modules.

The Hardware Management Agent and Hardware SNMP Plugins run on the host operating system of Sun x64 servers and use the keyboard controller-style (KCS) interface to communicate with the service processor. By regularly polling the service processor, information about the current state of the Sun server is fetched automatically by the Hardware Management Agent. This information is then made available through SNMP, using the Hardware SNMP Plugins.

The Hardware Management Agent polls the service processor for hardware information over the KCS interface. The Hardware Management Agent is visible on the network through the Hardware SNMP Plugins. The SUN-HW-MONITORING-MIB Net-SNMP plugin communicates over a socket to the Hardware Management Agent daemon service, called `hwmgmtd`. 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.. 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.

Sun Server Hardware SNMP Plugins

The Sun Server Hardware SNMP Plugins consist of two Net-SNMP plugins. These Net-SNMP plugins are compiled versions of two Sun-specific hardware Management Information Bases (MIB) that have been designed to enable you to monitor your Sun x64 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
- Control the system locator
- Inventory including basic manufacturing information
- Product and chassis information such as serial number, part number, and so on
- Per-sensor alarm status

The Sun HW Trap MIB describes a set of traps for hardware events that can be generated by a Sun x64 Server and provides the following information:

- Conditions affecting the environmental state of the server, such as overheating of a server or its components, voltage or current for components being out of range, and so on
- Error conditions affecting the hardware components in the server such as FRU insertion/removal, security intrusion notification and so on

Sun Server Storage Management Agent

The Sun Server Storage Management Agent includes an operating-system-level daemon that gathers information about storage devices such as hard drives and RAID arrays, and sends it to the ILOM service processor. Once the Storage Management Agent daemon is installed and running, it operates without user intervention. The ILOM service processor allows you to view the information provided by Storage Management Agent using the CLI. See your ILOM service processor documentation for details.

Sun Server CLI Tools

Sun Server CLI Tools (CLI Tools) provides command-line interface tools that configure Sun servers. CLI Tools is a Hardware Management Pack component and is installed using Sun SSM Component Manager.

CLI Tools consists of BIOSconfig, which is an application that runs on the host operating system (OS) and configures the following on the host:

- BIOS CMOS settings
- Host boot order

BIOSconfig allows you to manipulate BIOS configurations from the OS command line. The configuration files and command-line interfaces are compatible with multiple operating systems.

IPMItool

Provided as part of the Hardware Management Pack is a version of IPMItool, which 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/>

Installing Components

This section describes how to install and uninstall Hardware Management Pack components on a Sun x64 server using the supplied Sun Server Component Manager. This section contains the following:

- [“Getting Started” on page 11](#)
- [“Prerequisites” on page 12](#)
- [“Getting the Software” on page 12](#)
- [“Sun SSM Component Manager Overview” on page 13](#)
- [“\(Linux and Solaris Operating Systems\) Using Component Manager” on page 13](#)
- [“\(Linux and Solaris Operating Systems\) Using Component Manager in Interactive Mode” on page 14](#)
- [“\(Linux and Solaris Operating Systems\) Using Component Manager in Unattended Mode” on page 17](#)
- [“\(Windows Operating Systems\) Using Component Manager” on page 19](#)

Getting Started

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

- Use the Sun Server Component Manager in interactive mode. This enables you to choose the installation options from a command-line interface.
- Use the Sun Server Component Manager in unattended mode. This enables you to perform an unattended installation.

Regardless of the installation method you choose, the installation must be carried out as a user with administrative privileges, such as root.

Prerequisites

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 supported platforms information available at the following web site:

http://www.sun.com/systemmanagement/managementpack_supportmatrix.jsp

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

- Solaris operating system - For the Sun Server 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 Sun Server 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 Sun x64 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 Sun Server 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.

Note – If you have installed an earlier version of Hardware Management Pack on a Linux or Solaris operating system, you must manually uninstall the earlier version before installing the latest version.

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 Sun server from:

<http://www.sun.com/system-management/os-hw-mgmt>

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:

`sun-ssm-mgmt-pack-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 Sun x64 server that you want to manage.

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

Sun SSM Component Manager Overview

Sun SSM Component Manager (Component Manager) is supplied as part of the Hardware Management Pack. Component Manager is a command-line application that enables you to install and uninstall the Hardware Management Pack components, as well as inspect the currently installed and available components. Depending on the operating system you are using there are different methods of working with Component Manager.

On Linux and Solaris operating systems Component Manager is installed. You should follow these procedures:

- “(Linux and Solaris Operating Systems) How to Install Component Manager” on page 13
- Install components by either “(Linux and Solaris Operating Systems) Using Component Manager in Interactive Mode” on page 14 or “(Linux and Solaris Operating Systems) Using Component Manager in Unattended Mode” on page 17

On Windows operating systems Component Manager is an executable which is copied to the install directory when at least one component is installed. You should follow this procedure “(Windows Operating Systems) Using Component Manager” on page 19.

(Linux and Solaris Operating Systems) Using Component Manager

To use the Component Manager on Linux and Solaris operating systems, you must first install the Component Manager. Once the Component Manager is installed, you can choose to either install components interactively using a command-line interface or automatically using command-line switches, which enables unattended installs.

▼ (Linux and Solaris Operating Systems) How to Install Component Manager

Before You Begin

You must download and uncompress the Hardware Management Pack on the target server before proceeding. The following procedure must be carried out as a user with root privileges.

- 1 **Open a terminal.**
- 2 **Navigate to the directory where you uncompressed the Hardware Management Pack package, then navigate to the SOFTWARE subdirectory .**

- 3 **Type the following:**

```
./setup.sh
```

The Component Manager installer starts.

- 4 **To confirm that you want to install Component Manager, type Y at the following message:**

```
Install the Sun SSM Component Manager? [Y]es, [N]o>
```

Component Manager is installed on to the server at the following path:

```
/usr/sbin/sunssmcompmgr
```

When the installation of Component Manager is finished, the installer asks if you want to automatically start Component Manager in interactive mode.

Next Steps Once you have installed Component Manager you can choose to either use the interactive mode or unattended mode. For more information see:

- [“\(Linux and Solaris Operating Systems\) Using Component Manager in Interactive Mode” on page 14](#)
- [“\(Linux and Solaris Operating Systems\) Using Component Manager in Unattended Mode” on page 17](#)

(Linux and Solaris Operating Systems) Using Component Manager in Interactive Mode

When using Component Manager in interactive mode, you can work with components from a interactive command-line interface.

Note – On Windows operating systems interactive mode is not available. See [“\(Windows Operating Systems\) Using Component Manager” on page 19](#)

The following table shows the available functions when using the Component Manager interactively.

Option	Functionality
[L]ist	Displays the list of currently available components

Option	Functionality
[D]etailed list	Displays detailed information about the list of currently available components
[I]ninstall	Enables you to install some or all of the available components
[U]ninstall	Enables you to uninstall some or all of the currently installed components
[H]elp	Displays information about how to use Component Manager
[Q]uit	Exits Component Manager

Options are chosen in the Component Manager by typing the letter shown between the [] characters.

▼ (Linux and Solaris Operating Systems) How to Install Interactively Using Component Manager

Before You Begin You must install the Component Manager before proceeding. The following procedure must be carried out as a user with root privileges. If you have installed a previous version of Hardware Management Pack, you must manually uninstall the earlier version before installing the latest version. Component Manager detects older versions of Hardware Management Pack during the install procedure, but does not upgrade the system due to changes in the packaging of this release.

- 1 **Open a terminal.**
- 2 **Within the directory where you uncompressed the Hardware Management Pack download, navigate to the Packages subdirectory in the SOFTWARE subdirectory.**
- 3 **Start the Component Manager in interactive mode by typing the following command:**

```
/usr/sbin/sunssmcompmgr
```

Component Manager starts and displays a list of currently installed components and available components in the Packages subdirectory.

Tip – The option `-d directory` specifies a directory that Component Manager searches for available components.

- 4 **To install the components shown in the list of available components, type I at the following message:**

```
[L]ist, [D]etailed list, [I]ninstall, [U]ninstall, [H]elp or [Q]uit >
```

A numbered list of the available components is displayed.

5 Choose one of the following options:

- To install a single specific component, type the number listed to the right of the component name.
- To install all of the listed components, type A.
- To return to the previous menu, type R.

6 Depending on the component you chose to install in step 5, you might need to specify further options, such as these:

- Do you wish to start the hwmgmt service ? [Y]es, [N]o >
To start or restart the named service, type Y.
- Do you wish to enable the hwmgmt service on startup by default ? [Y]es, [N]o >
To start the named service each time the server starts, type Y.

▼ (Linux and Solaris Operating Systems) How to Uninstall Interactively Using Component Manager

1 Open a terminal.

2 Start the Component Manager in interactive mode by typing the following command:

```
/usr/sbin/sunssmcompmgr
```

Component Manager starts and displays a list of currently installed components.

3 To uninstall the components shown in the list of available components, type U at the following message:

```
[L]ist, [D]etailed list, [I]ninstall, [U]ninstall, [H]elp or [Q]uit >
```

A numbered list of the available components is displayed.

4 Choose one of the following options:

- To uninstall a single specific component, type the number listed to the right of the component name.
- To uninstall all of the listed components, type A.
- To return to the previous menu, type R.

(Linux and Solaris Operating Systems) Using Component Manager in Unattended Mode

Component Manager provides an unattended mode that enables you to work with Hardware Management Pack components from the command-line.

On Linux and Solaris operating systems Component Manager provides the following command line options.

Options and Actions	Functionality
-h	Display help on using the Component Manager.
-v	Display the Component Manager's version information.
-d <i>directory</i>	Specify a custom directory for the component packages. The default option is to search for component packages in the current directory.
-l <i>log</i>	Specify a custom file for logging.
-s	Disable service manipulation (start, restart, or stop) during component installation and uninstallation.
-C	Print information on both the already installed and available components.
-D	Print detailed information on both the already installed and available components.
-I <i>COMPONENT1:COMPONENT2</i>	Install components. Component names are separated by a colon (:). If "ALL" is given as the component list, all available components are installed.
-U <i>COMPONENT1:COMPONENT2</i>	Uninstall components. Component names are separated by a colon (:). If "ALL" is given as the component list, all available components are installed.

When using the -I or -U options to list components to install or uninstall, you should separate the component names using the colon (:) character. Component names are shown when using the -C or -D options and are listed in square brackets.

▼ (Linux and Solaris Operating Systems) How to Install Using Component Manager in Unattended Mode

When using the Component Manager in unattended mode, components can be installed separately or all components can be installed. Component Manager can provide a list of available components found in the Packages subdirectory. You can also configure whether Component Manager automatically starts the services associated with components.

- 1 **Open a terminal.**
- 2 **Within the directory where you uncompressed the Hardware Management Pack download, navigate to the Packages subdirectory in the SOFTWARE subdirectory.**

Tip – Use the `-d directory` option to pass Component Manager an alternative directory to use for the component packages instead of navigating to the Packages subdirectory.

- 3 **List the available components by typing the following command:**

```
/usr/sbin/sunssmcompmgr -C
```

The list of available components is displayed in the terminal. The exact name of the component to use in the next step is shown in square brackets, for example `[component name]`.

- 4 **Choose one of the following options:**

- **To install selected components in unattended mode, type the following command:**

```
sunssmcompmgr -I COMPONENT1:COMPONENT2
```

Where `COMPONENT1:COMPONENT2` is the list of components to install, separated by colons (:).

- **To install all available components in unattended mode, type the following command:**

```
sunssmcompmgr -I ALL
```

The selected components are installed.

▼ (Linux and Solaris Operating Systems) How to Uninstall using Component Manager in Unattended Mode

- 1 **Open a terminal.**
- 2 **List the currently installed components by typing the following command:**

```
/usr/sbin/sunssmcompmgr -C
```

Tip – Use the `-D` option to get detailed information on the currently installed components.

The currently installed components are listed. The exact name of the component to use in the next step is shown in square brackets, for example `[component name]`.

3 Choose one of the following options:

- **To uninstall selected components in unattended mode, type the following command:**

```
/usr/sbin/sunssmcompmgr -U COMPONENT1:COMPONENT2
```

Where *COMPONENT1:COMPONENT2* is the list of components to install, separated by a colon (:) character.

- **To uninstall all installed components in unattended mode, type the following command:**

```
/usr/sbin/sunssmcompmgr -U ALL
```

The selected components are uninstalled.

(Windows Operating Systems) Using Component Manager

When using Component Manager on Windows operating systems only the unattended mode is available. When passing options and actions to Component Manager in unattended mode, observe the following conventions:

```
sunssmcompmgr.exe [/h /v /s] [/r dir] [/d dir] [/l log] [ACTION]
```

The following table lists the functionality of the unattended mode options and actions.

Options and Actions	Functionality
/h	Display help on using the Component Manager.
/v	Display the Component Manager's version information.
/d <i>directory</i>	Specify a custom directory for the component packages. The default option is to search for component packages in the current directory.
/l <i>log</i>	Specify a custom file for logging.
/s	Disable service manipulation (start, restart or stop) during component installation and uninstallation.
/C	Print information on both the already installed and available components.
/D	Print detailed information on both the already installed and available components.
/I <i>COMPONENT1</i> <i>COMPONENT2</i>	Install components. Component names are separated by a space character. If "ALL" is given as the component list, all available components are installed.
/U <i>COMPONENT1</i> <i>COMPONENT2</i>	Uninstall components. Component names are separated by a space character. If "ALL" is given as the component list, all available components are installed.

When using the /I or /U options to list components to install or uninstall, you should separate the component names using the space character. Component names are shown when using the /C or /D options.

▼ (Windows Operating Systems) How to Install Using Component Manager

When using the Component Manager in unattended mode, components can be installed separately or all components can be installed. Component Manager can provide a list of available components found in the Packages subdirectory. You can also configure whether Component Manager automatically starts the services associated with components or not.

- 1 **Open a terminal.**
- 2 **Within the directory where you uncompressed the Hardware Management Pack download, navigate to the SOFTWARE subdirectory.**

Tip – you can use the /d *Directory* option to pass component manager an alternative directory to use for the component packages instead of navigating to the Packages subdirectory.

- 3 **List the available components by typing the following command:**

```
sunssmcompmgr /C
```

The list of available components is displayed in the terminal.

- 4 **Choose one of the following options:**

- **To install selected components, start the Component Manager in unattended mode by typing the following command:**

```
sunssmcompmgr /I COMPONENT1 COMPONENT2
```

Where *COMPONENT1 COMPONENT2* is the list of components to install, separated by spaces.

Note – if any components are already installed you must use this method rather than using the ALL flag.

- **To install all available components, start the Component Manager in unattended mode by typing the following command:**

```
sunssmcompmgr /I ALL
```

The selected components are installed.

▼ (Windows Operating Systems) How to Uninstall Using Component Manager

1 Open a terminal.

2 List the currently installed components by typing the following command:

```
sunssmcompmgr /C
```

The available and currently installed components are listed.

Tip – You can also use the /D option to get detailed information on the currently installed components.

3 Choose one of the following options:

▪ To uninstall selected components in unattended mode, type the following command:

```
sunssmcompmgr /U COMPONENT1 COMPONENT2
```

Where *COMPONENT1 COMPONENT2* is the list of components to install, separated by space characters.

▪ To uninstall all available components in unattended mode, type the following command:

```
sunssmcompmgr /U ALL
```

The selected components are uninstalled.

Release Notes

This section contains the release notes for the Hardware Management Pack. For the release notes of each Hardware Management Pack component, see the following individual component documents:

- *Sun Server Management Agents User's Guide*
- *Sun Server CLI Tools and IPMItool User's Guide*

Component Manager Issues

This section provides information on potential issues you could encounter when using Component Manager.

Windows Component Manager Incorrect Parameter Error

When passing options and actions to Component Manager on Windows you must ensure that you enter the options and action in the correct order. This is related to CR6914302.

Windows Component Manager Issues Using /I ALL

When using the Windows Component Manager on a server that already has a component installed, the /I ALL action does not install all remaining available components. This is related to CR 6914563. A workaround is to install the remaining components by listing their names explicitly.

Storage Management Agent Service Running on Unsupported Platforms

The Storage Management Agent service runs on unsupported servers, the data is not utilized by ILOM Storage Viewer. This is related to CR6909880.

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