Sun Server Hardware Management Pack 2.0 User's Guide

Contents

Preface

The Sun Server Management documentation provides detailed information about 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

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
Sun Server Hardware Management Pack User's Guide	Overview of Sun Server Hardware Management Pack and how to install components
Sun Server Management Agent User's Guide	How to install, configure, and work with Sun Server Management Agents
Sun Server CLI Tools and IPMItool User's Guide	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.
- April 2010.

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

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 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 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 2.0 User's Guide*
- *Sun Server CLI Tools and IPMItool 2.0 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 x86 Server and server module's hardware. With the Hardware Management Agent and Hardware SNMP Plugins you can use SNMP to monitor the Sun x86 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 x86 servers and server modules.

The Hardware Management Agent and Hardware SNMP Plugins run on the host operating system of Sun x86 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 x86 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 x86 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 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.
- FWupdate enables you to upgrade the firmware of your server components.

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 x86 server using the supplied Sun Server Component Manager. This section contains the following:

- "Getting Started" on page 11
- "Prerequisites" on page 11
- "Getting the Software" on page 12
- "Sun SSM Component Manager Overview" on page 13
- "Upgrading from Previous Versions" on page 13
- "(Linux and Solaris) Using Component Manager" on page 14
- "(Windows) 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.
- Use the Sun Server Component Manager in unattended 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

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:

- Oracle 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 x86 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.

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 x86 server that you want to manage.

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.

Sun SSM Component Manager Overview

Sun SSM Component Manager (Component Manager) is supplied as part of the Hardware Management Pack. Component Manager 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, then you can install components. Follow this procedure: "(Linux and Solaris) Using Component Manager" on page 14.

On Windows operating systems Component Manager is run from the download folder and copied to the install directory when at least one component is installed. Follow this procedure: "(Windows) Using Component Manager" on page 19.

Upgrading from Previous Versions

If you have installed a version of Hardware Management Pack prior to version 1.3 on your system, you must manually uninstall the earlier version before installing the latest version. If Component Manager detects these older versions of Hardware Management Pack during the install procedure it does not upgrade the system due to changes in the packaging of releases using Component Manager.

Management Agents 2.0 is not compatible with CLI Tools 1.0, available as part of Hardware Management Pack version 1.3. If Component Manager detects this conflict, you have to approve the upgrade of the CLI Tools component. CLI Tools 2.0 is not compatible with Management Agents 1.3 available as part of Hardware Management Pack version 1.3. When you are using Component Manager in interactive mode and a conflict is detected, you have to approve the upgrade of the Management Agents component. When you are using Component Manager in unattended mode and a conflict is detected, the Management Agents component is automatically upgraded.

In either case, check the supported server matrix at the following web site to ensure that your system is supported by the upgraded component:

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

(Linux and Solaris) 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 install components either interactively using a command-line interface or automatically using command-line switches, which enables unattended installs.

▼ (Linux and Solaris) How to Install Component Manager

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

1 **Open a terminal.**

2 **Navigate to the directory where you uncompressed the Hardware Management Pack package, and 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 use either the interactive mode or unattended mode. For more information see:

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(Linux and Solaris) Using Component Manager in Interactive Mode

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

Note – On Windows operating systems command-line interactive mode is not available, use the Windows graphical installer. See "(Windows) Using Component Manager Command-line Interface" on page 22.

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

Option	Functionality
[L]ist	Displays the list of currently available components.
[D]etailed list	Displays detailed information about the list of currently available components.
[I]nstall	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.

Choose options in the Component Manager by typing the letter shown between the [] characters.

Once you have installed the Component Manager, you can use either the interactive or unattended modes of the Component Manager to work with Hardware Management Pack components. For more information, see:

- "(Linux and Solaris) Using Component Manager in Interactive Mode" on page 14
- "(Linux and Solaris) Using Component Manager in Unattended Mode" on page 17

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

Before You Begin   You must install the Component Manager before proceeding. You must carry out the following procedure as a user with root privileges.

Note – If you are upgrading from a previous version, see "Upgrading from Previous Versions" on page 13.

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.

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

`[L]ist, [D]etailed list, [I]nstall, [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 hwmgmtd service ? [Y]es, [N]o >`
  To start or restart the named service, type Y.

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

▼ (Linux and Solaris) 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]nstall, [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) 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 *directory*	Specify a custom directory for the component packages. The default option is to search for component packages in the current directory.
-l *log*	Specify a custom file for logging.
-s	Disable service manipulation (start, restart, or stop) during component installation and uninstallation.
-C	Print information about both the already installed and available components.
-D	Print detailed information about both the already installed and available components.
-I *COMPONENT1:COMPONENT2*	Install components. Component names are separated by a colon (:). If "ALL" is given as the component list, all available components are installed.

Options and Actions	Functionality
-U *COMPONENT1:COMPONENT2*	Uninstall components. Component names are separated by a colon (:). If "ALL" is given as the component list, all available components are uninstalled.

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 you use the -C or -D options and are listed in square brackets.

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

When using the Component Manager in unattended mode, you can install components separately, or you can install all components. 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.

Note – If you are upgrading from a previous version, see "Upgrading from Previous Versions" on page 13.

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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.

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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) 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 about 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) Using Component Manager

When using the Component Manager on Windows operating systems you can choose between a command-line interface and a graphic user interface. The Component Manager graphic user interface provides an easy-to-use wizard to manage SSM components. The Component Manager command-line interface provides a text-based interface that can be used for unattended deployments.

This section provides the following information:

(Windows) Using the Component Manager Graphic Interface

The Component Manager graphic interface provides a graphical wizard for working with components. Component Manager provides a list of available components found in the Packages subdirectory, as well as any previously installed components. You can also control how Component Manager configures the services associated with components.

▼ (Windows) How to Install Using Component Manager Graphic Interface

When using the graphic interface Component Manager, components can be installed separately or all components can be installed . You can choose whether Component Manager automatically starts or restarts the services associated with components or not.

Note – If you are upgrading from a previous version, see "Upgrading from Previous Versions" on page 13.

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1 Navigate to the folder where you downloaded and unpacked the Hardware Management Pack and open the SOFTWARE **folder.**

2 Double-click sunssmcompmgr_gui**.**

The Component Manager graphic interface opens.

3 Click Deploy component from the local installation source.

Information about the components available to deploy opens.

On the right side of the screen there is a list of components available to deploy, as well as any components currently installed on the system. The left side of the screen provides information about the currently selected component.

4 From the Available components to deploy list, select the check box of one or more components you want to install on this server. When you have finished, click Next.

The list of pre-deployment tasks opens. Depending on the components you have chosen to install, the list of pre-deployment tasks might be empty or contain optional tasks Component Manager can carry out before you deploy the SSM components.

5 (Optional) If there are any tasks you want Component Manager to carry out before deploying SSM components, click one or more of the tasks from the list of pre-deployment tasks. Once you have chosen the pre-deployment tasks, click Next.

The list of post-deployment tasks opens. Depending on the components you have chosen to install, the list of post-deployment tasks may be empty or contain optional tasks Component Manager can carry out after deploying the SSM components.

6   (Optional) If there are any tasks you want Component Manager to carry out after deploying SSM components, click one or more of the tasks from the list of post-deployment tasks. Once you have chosen the post-deployment tasks, click Next.

The Deployment configuration summary opens.

7   Once you have reviewed the Deployment configuration summary, click Deploy to install the chosen SSM components.

Component Manager installs and configures the components you selected. Once the installation has finished, a log of the actions taken is displayed.

▼ (Windows) How to Uninstall using Component Manager Graphic Interface

When using the Component Manager graphic interface, you can uninstall components using a graphical wizard. You can also configure whether Component Manager automatically stops the services associated with components or not.

1   Navigate to the Control Panel and open Add or Remove Programs.

Tip – You can also open the Component Manager graphic interface by running the `sunssmcompmgr_gui` from the directory where you installed the Hardware Management Pack components.

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2   In the list of Currently installed programs, click the component you want to remove.

The clicked component becomes selected and the Change / Remove button appears.

3   Click Change / Remove.

The Component Manager graphical interface opens.

4   In the Component Manager graphical interface, click Remove deployed component.

The list of Available components to remove opens.

5   Select the component you want to remove, and then click Next.

The list of pre-removal tasks opens. Depending on the components you have chosen to install, the list of pre-removal tasks may be empty or contain optional tasks Component Manager can carry out before removing the SSM components.

6   **(Optional) If there are any tasks you want Component Manager to carry out before removing SSM components, click one or more of the tasks from the list of pre-removal tasks. Once you have chosen the pre-removal tasks, click Next.**

The list of post-removal tasks opens. Depending on the components you have chosen to install, the list of post-removal tasks may be empty or contain optional tasks Component Manager can carry out after removing the SSM components.

7   **(Optional) If there are any tasks you want Component Manager to carry out after removing SSM components, click one or more of the tasks from the list of post-removal tasks. Once you have chosen the post-removal tasks, click Next.**

The Removal configuration summary opens.

8   **Once you have reviewed the Removal configuration summary, click Remove to uninstall the chosen SSM components.**

Component Manager uninstalls and configures the components you selected. Once the uninstallation has finished, a log of the actions taken is displayed.

(Windows) Using Component Manager Command-line Interface

The command-line Component Manager on Windows operating systems provides the same functionality as the unattended mode available on Linux and Solaris operating systems. When passing options and actions to Component Manager at the command line, observe the following conventions:

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

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

Options and Actions	Functionality
/h	Display help about using the Component Manager.
/v	Display the Component Manager's version information.
/d *directory*	Specify a custom directory for the component packages. The default option is to search for component packages in the current directory.
/l *log*	Specify a custom file for logging.
/s	Disable service manipulation (start, restart, or stop) during component installation and uninstallation.
/C	Print information about both the already installed and available components.

Options and Actions	Functionality
/D	Print detailed information about both the already installed and available components.
/I *COMPONENT1 COMPONENT2*	Install components. Component names are separated by a space character. If "ALL" is given as the component list, all available components are installed.
/U *COMPONENT1 COMPONENT2*	Uninstall components. Component names are separated by a space character. If "ALL" is given as the component list, all available components are uninstalled.

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 you use the /C or /D options.

▼ (Windows) How to Install Using Component Manager Command-line Interface

When using the command-line Component Manager, you can install components separately or you can install all components. 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.

Note – If you are upgrading from a previous version, see "Upgrading from Previous Versions" on page 13.

1 Open the Command Prompt window.

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 Command Prompt window.

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) How to Uninstall Using the Component Manager Command-line Interface

When using the Component Manager command-line interface, you can uninstall components separately, or you can uninstall all components. Component Manager provides a list of currently installed components. You can also configure whether Component Manager automatically stops the services associated with components or not.

1   Open a Command Prompt window.

2   Navigate to the directory where you installed the Hardware Management Pack components.

3   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 about the currently installed components.

---

4   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 uninstall, separated by space characters.

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

  `sunssmcompmgr /U ALL`

  The selected components are uninstalled.

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