



Sun Management Center 3.5 Installation and Configuration Guide

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Preface

The *Sun Management Center 3.5 Installation and Configuration Guide* provides instructions on how to install and start the Sun™ Management Center system software.

Sun Management Center software can be deployed in two different environments:

- Production environment
- Developer environment

The *Production environment* is the runtime environment in which you manage and monitor your hardware, including subsystems, components, and peripheral devices.

The *Developer environment* is an environment in which developers can create and test customized modules for the Sun Management Center software. For more information on the Developer environment, refer to the *Sun Management Center 3.5 Developer Environment Reference Manual*.

Who Should Use This Book

This book is intended for use by system administrators who understand networking terminology, and who have experience working with and maintaining networks.

How This Book Is Organized

This book contains the following information:

Chapter 1 provides an overview of Sun Management Center 3.5 installation and licensing.

Chapter 2 provides information about compatibility with prior versions, and about system requirements.

Chapter 3 provides information that should be considered before installing Sun Management Center 3.5, including security, and Sun Management Center domain management approaches.

Chapter 4 provides procedures for preparing your systems before you upgrade to Sun Management Center 3.5, or or install Sun Management Center 3.5.

Chapter 5 provides procedures for upgrading previous versions of Solstice SyMON™ or Sun Management Center to Sun Management Center 3.5.

Chapter 6 provides the procedures for installing and setting up Sun Management Center 3.5 on the Solaris™ platform using the graphical interface, and procedures for installing the Sun Management Center console on Microsoft Windows.

Chapter 7 provides the procedures for post-installation tasks such as setting up users, installing multiple agents, upgrading agents, and installing separately released add-on products.

Chapter 8 provides the procedures for starting and stopping Sun Management Center.

Chapter 9 provides procedures for post-installation administration tasks, such as regenerating security keys, stopping and disabling the SNMP daemon, and reconfiguring port addresses.

Chapter 10 provides information that should be considered if you plan to integrate Sun Management Center with other management platforms.

Appendix A provides the procedures for uninstalling Sun Management Center 3.5 from the Solaris platform and the Microsoft Windows platform.

Appendix B provides the procedures for uninstalling, installing, and setting up Sun Management Center.

Appendix C provides information for determining the hardware resources needed by Sun Management Center.

Appendix D provides information about Network Address Translation (NAT) configuration and limitations, and provides configuration examples.

Product Information

Information about this product is available at the Sun Management Center Web site at <http://www.sun.com/solaris/sunmanagementcenter>.

The Sun Management Center 3.5 product includes open source software. To view license terms, attribution, and copyright statements for open source software included in this release, see the copyright file located at the following default path:

```
/cdrom/cdrom0/image/Webserver/Solaris_8/SUNWtcatr/install/copyright.
```

If you are using Solaris 9 software, substitute Solaris_9 for Solaris_8 in the path.

Using UNIX Commands

This document does not contain information about basic UNIX[®] commands and procedures such as shutting down the system, booting the system, and configuring devices.

For more information about UNIX commands and procedures, see the following documents:

- *Solaris Handbook for Sun Peripherals*
- Online documentation for the Solaris operating environment
- Other software documentation that you received with your system

Typographic Conventions

TABLE P-1 Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>%</code> You have mail.

TABLE P-1 Typographic Conventions (Continued)

Typeface	Meaning	Examples
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized Command-line variable: replace with a real name or value	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

Shell Prompts

TABLE P-2 Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#
Microsoft DOS, Microsoft Windows	c:\

Related Documentation

For details on Sun Management Center 3.5 documentation and related Sun Management Center hardware platform documentation, refer to the *Sun Management Center 3.5 Software Release Notes*.

Sun Welcomes Your Comments

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Include the part number of your document in the subject line of your email.

Installation Overview

This chapter provides overviews of Sun Management Center 3.5, the installation and setup process, and the base hardware and software requirements. Specific requirements are provided in Chapter 2. Sizing information is provided in Appendix C.

This chapter discusses the following topics:

- “Sun Management Center Overview” on page 19
- “Sun Management Center Installation Overview” on page 23

Sun Management Center Overview

Sun Management Center software is an open and extensible system management tool. The Sun Management Center product is divided into a set of three base components. Four base Sun Management Center add-on products provide additional system management support. Other add-ons that provide platform-specific support are also available as described in “Additional Add-on Products” on page 21.

This section discusses the following topics:

- “Sun Management Center Architecture and Base Components” on page 20
- “Sun Management Center Base Add-on Products” on page 21
- “Additional Add-on Products” on page 21
- “Developer Environment” on page 22

The installation and setup of all Sun Management Center software, including add-on products, can be performed with a single installation command as described in Chapter 6.

Sun Management Center Architecture and Base Components

The Sun Management Center software management framework is based on a three-tier architecture consisting of the Sun Management Center console, server, and agent components, which provide the core Sun Management Center functions.

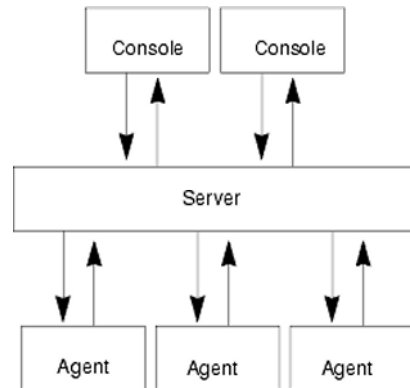


FIGURE 1-1 Sun Management Center Basic Architecture

- The Sun Management Center Server executes management tasks, and sends requests to Sun Management Center agents to perform management tasks. The server stores network hardware and software information as well as network and Sun Management Center configuration in a database. The Sun Management Center server is normally installed on a single dedicated machine, and only one Sun Management Center server is required on a network.
- The Sun Management Center Agent responds to the Sun Management Center Server directives, accesses management information on the local machine, provides alarm determination, and monitors local resources. The agent is automatically installed on the Sun Management Center server machine, and is optional for all other machines on your network. Installing the Sun Management Center agent on each machine provides thorough management and reporting capabilities that are otherwise not available.
- The Sun Management Center Java Console is the graphical user interface that you use to monitor your network and run network management tasks.
- The Sun Management Center Web server is installed with the server layer on the same host as the server layer.

The Web Server enables you to access the Sun Management Center Web server console from any system that supports either one of the following Web browsers.

- Netscape Navigator™ 4.5.1 or higher
- Internet Explorer 5.0 or higher

Sun Management Center initiates operations by sending requests to the Sun Management Center agents installed on each system. Based on SNMP technology, the agents process server requests. The agents also act autonomously, collecting and processing data locally. Agents can act on observed conditions to send SNMP traps or execute management operations. The agents can raise alarms or initiate specific actions through customized rules and thresholds even when connection to the manager is severed. For further information about SNMP, see “Security Keys and SNMP Community String” on page 50 and “SNMP Daemons and Legacy Agents” on page 168.

Management and monitoring functions of the Sun Management Center agent are structured into loadable modules. The agent modules provide flexibility, enabling you to establish as little or as much monitoring and management as required on a per system basis. Additional modules can be dynamically loaded into Sun Management Center agents from the Sun Management Center console without disruption of the management or agent systems. For further information about Sun Management Center modules, see “Sun Management Center Software Modules” in *Sun Management Center 3.5 User’s Guide*

Sun Management Center Base Add-on Products

Sun Management Center provides four add-ons that are distributed as part of the Sun Management Center distribution on CD or the Web download image:

- **Advanced System Monitoring** — Provides full kernel reader functionality, Solaris health monitoring, file system monitoring, directory size monitoring, process monitoring, IPv6 protocol monitoring, MIB-II Instrumentation, and log viewing.
- **Performance Reporting Manager** — Adds analysis, reporting, and graphing capabilities.
- **Service Availability Manager** — Tests and measures the availability of network services including DNS and NIS naming services, Web server, directory, LDAP, Telnet, FTP, mail, and Solaris calendar services.
- **System Reliability Manager** — Enhances reliability, helping to increase service levels and decrease administrative costs.

For detailed information about base add-on and additional add-on products, see the Sun Management Center Web site at

<http://www.sun.com/software/solaris/sunmanagementcenter/>.

Additional Add-on Products

Depending on the hardware platform on which you are installing Sun Management Center software, your system might require additional platform-specific add-ons. The add-on products provide additional functionality such as additional support for

specific Sun hardware architectures, configuration readers, and new agent management. For information about a specific hardware platform, see the Sun Management Center supplement for your hardware platform. For information about additional add-ons for Sun Management Center, see the Sun Management Center Web site.

Note – You should always read your Sun Management Center supplement for architecture-specific installation instructions before installing Sun Management Center software on a particular hardware platform. Refer to the documentation subdirectory on the Sun Management Center 3.5 CD (2 of 2).

Add-on products are released in one of two ways:

- As part of the Sun Management Center distribution (CD or Web download image)
- Separately (add-on product only)

Add-on products released as part of the Sun Management Center distribution are installed during the installation process. The basic components are installed first, followed by installation of the add-on products.

Many add-on products offer architecture-specific support. Therefore, the installation checks your hardware. For example, if an add-on product supports workstation systems, you are given the opportunity to install the workstation add-on when you install Sun Management Center on a workstation host. In most cases, user confirmation is required prior to installing an add-on product.

If the add-on product is released separately from the Sun Management Center CD distribution, the add-on product includes its own installation instructions in the accompanying supplement.

Developer Environment

The developer environment enables you to extend Sun Management Center software functionality in various ways. You can perform the following tasks:

- Create custom management modules
- Create client programs that interface with Sun Management Center
- Integrate applications with the Sun Management Center console

Note – If you are installing the developer environment, you should run the Sun Management Center 3.5 developer environment and the Sun Management Center 3.5 production environment on separate, dedicated servers.

For further information about the Sun Management Center 3.5 developer environment, see the *Sun Management Center 3.5 Developer Environment Reference Manual*.

Sun Management Center Installation Overview

You can install and set up Sun Management Center 3.5 software by using either a graphical user interface or an installation script. During installation, you can install the console, server, and agent layers either separately or in combination. You can also choose specific add-on products for the features that you want to install.

Sun Management Center software can be installed in any location on your system where the minimum required disk space is available. The default location for installation is `/opt/SUNWsymon`.

Before you can use Sun Management Center, you must install the following product layers:

- Server – On at least one machine.

Note – When the server is installed, the Sun Management Center agent is installed on the server machine as well.

- Agent – On any machine you want to monitor.
- Java console – On any machine from which users will log into Sun Management Center.

Note – You must be running the Solaris 8 or Solaris 9 operating environment on a SPARC™ platform machine to install all three component layers (agent, server, and console). The Sun Management Center server requires Solaris version 8 or Solaris version 9. The agent and console can run on Solaris version 2.6, Solaris version 7, Solaris version 8 and Solaris version 9. The console can run on Solaris version 2.6, Solaris version 7, Solaris version 8, Solaris version 9, and on Microsoft Windows 98, Microsoft Windows NT, and Microsoft Windows 2000.

Sample Installation Scenarios

The following sample scenarios provide summaries of the major steps required to install Sun Management Center 3.5 for the first time, and to upgrade previous versions of Sun Management Center to Sun Management Center 3.5.

Note – To install, upgrade, and set up Sun Management Center, you must log in as root on each machine.

Sun Management Center 3.5 Fresh Install

In this example, the Sun Management Center server, agent, console, and the Advanced System Monitoring (ASM) add-on are to be installed on three machines as follows:

- The console is to be installed on machine A. The ASM add-on is to be installed machine A.
- The server is to be installed on machine B. The ASM add-on is to be installed machine B.
The agent is automatically installed with the server.
- The agent is to be installed on machine C. The ASM add-on is to be installed machine C.

Sun Management Center has not been installed on any of the machines.

The following procedure summarizes the major steps required to install Sun Management Center and ASM.

▼ *To Install Sun Management Center and ASM*

1. **Make sure each machine is a supported platform.**
See “Supported Platforms” on page 38.
2. **Make sure each machine has the required resources.**
See “Preinstallation Checklist” on page 55.
3. **Determine whether you will install from the CDs or from a CD image.**
See “Determining the Installation Source” on page 65.
4. **Install the server on machine B as described in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.**

During installation:

- Select the production environment.
- Select the server layer only. The agent layer is automatically selected.

- Select the Advanced System Monitoring add-on.

Advanced System Monitoring enables advanced monitoring capabilities for the server machine. For further information, see “Additional Add-on Products” on page 21.

When installation is finished, you are informed that the `/etc/system` file has been updated, and that the system must be rebooted. Exit the installation process, and reboot the system.

5. Set up the Sun Management Center server on machine B.

When the system has rebooted, type the command `/opt/SUNWsymon/sbin/es-guissetup` to set up the Sun Management Center server.

When setting up the server:

- Provide a password to generate the security key.
The password must be the same for all Sun Management Center machines.
- Provide an SNMPv1 security string.
The security string must be the same for all Sun Management Center machines.

When server setup is finished, the Advanced System Monitoring setup is performed.

When Advanced System Monitoring setup is finished, you are given the option to start Sun Management Center components. Start all components.

6. Install the agent on machine C as described in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.

During installation:

- Select the production environment.
- Select the agent layer only.
- Select the Advanced System Monitoring add-on.
Advanced System Monitoring enables advanced monitoring capabilities for the agent machine. For further information, see “Additional Add-on Products” on page 21.

Note – If you need to install the agent on several machines, you can create an agent-update image and install the agent using the image as described in “Using Agent-Update to Upgrade Agents to Sun Management Center 3.5” on page 31.

When the agent installation is finished, you are given the option to run setup. Run setup.

7. Set up Sun Management Center agent on machine C.

When setting up the agent:

- Provide the same security key password that you provided in Step 5.

- Provide the same SNMPv1 community string that you provided in Step 5.
- Provide the name of the Sun Management Center server machine.

When agent setup is finished, you are given the option to start the Sun Management Center agent. Start the agent.

8. Install the console on machine A as described in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.

During installation:

- Select the production environment.
- Select the console layer only.
- Select the Advanced System Monitoring add-on.

Advanced System Monitoring includes console components and menus.

When the console installation is finished, you are given the option to run setup. Run setup.

When setup is finished, start the console by typing the command
`/opt/SUNWsymon/sbin/es-start -c.`

Sun Management Center 3.0 to Sun Management Center 3.5 Upgrade

In this example, the Sun Management Center 3.0 server, agent, and console are installed on three machines as follows:

- The Sun Management Center 3.0 console is installed on machine A.
- The Sun Management Center 3.0 server is installed on machine B.
- The Sun Management Center 3.0 agent is installed on machine C.

The following procedure summarizes the steps required to upgrade the Sun Management Center 3.0 installation to Sun Management Center 3.5 on all three machines.

Note – If your Sun Management Center 3.0 installation includes the Performance Reporting Manager, the upgrade process enables you to migrate the Sun Management Center data and your Performance Reporting Manager data. Make sure the machine on which the Performance Reporting Manager is installed has sufficient resources for the Sun Management Center 3.5 as described in Table 2–4.

▼ *To Upgrade Sun Management Center 3.0 to Sun Management Center 3.5*

- 1. Make sure each machine is a supported platform.**
See “Supported Platforms” on page 38.
- 2. Make sure each machine has the required resources.**

See "Preinstallation Checklist" on page 55.

3. Determine whether you will install from the CDs or from a CD image.

See "Determining the Installation Source" on page 65.

4. Install the Sun Management Center 3.5 server on machine B as described in "Upgrading the Server" on page 75.

During the installation:

- Uninstall the previous Sun Management Center version when prompted.
- Choose whether to migrate the Sun Management Center version data.
 - Select migrate data to save your Sun Management Center 3.0 data and use the data in Sun Management Center 3.5.
 - Select discard data if you do not want to save your Sun Management Center 3.0 data.
- Select the production environment.
- Select the server layer only. The agent is automatically installed.

When server installation is finished, you are given the option to run setup. Run setup.

5. Set up the server on machine B.

During server setup:

- Provide a password to generate the security key.

The password must be the same password you provided when you set up Sun Management Center 3.0.
- Provide an SNMPv1 security string.

The security string must be the same security string you provided when you set up Sun Management Center 3.0.
- If you chose to migrate the Sun Management Center 3.0 data to Sun Management Center 3.5, choose whether to restore the Sun Management Center 3.0 data.

Note – If you provide a different password for security seed generation on the server than you provided for Sun Management Center 3.0, then you must use the new password to generate the same security seed when setting up the agents. If you do not upgrade a Sun Management Center 3.0 agent to Sun Management Center 3.5, you must regenerate the security key for the Sun Management Center 3.0 agent machine as described in "Regenerating Security Keys" on page 166.

When server setup is finished, you are given the option to start Sun Management Center components. Start all components.

6. Install the Sun Management Center 3.5 agent on machine C as described in "Upgrading Agents" on page 77.

During agent installation:

- Choose whether to migrate the Sun Management Center version agent data.
 - Select migrate data to save your Sun Management Center 3.0 data and use the data in Sun Management Center 3.5.
 - Select discard data if you do not want to save your Sun Management Center 3.0 data.
- Select the production environment.
- Select the agent layer only

7. Set up the agent on machine C.

During agent setup:

- Provide a password to generate the security key.

The password must be the same password you provided when you set up the Sun Management Center 3.5 server.
- Provide an SNMPv1 security string.

The security string must be the same security string you provided when you set up the Sun Management Center 3.5 server.
- If you chose to migrate the Sun Management Center 3.0 agent data to Sun Management Center 3.5, choose whether to restore the Sun Management Center 3.0 data.

When agent setup is finished, you are given the option to start the Sun Management Center agent. Start the agent.

8. Install the Sun Management Center 3.5 console on machine A.

- a. Type the command `/opt/SUNWsymon/sbin/es-uninst` to uninstall the Sun Management Center 3.0 console.
- b. Install and set up the Sun Management Center 3.5 console as described in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.

When the console setup is finished, start the console by typing the command `/opt/SUNWsymon/sbin/es-start -c`.

Sun Management Center 2.1.1 to Sun Management Center 3.5 Upgrade

In this example, the Sun Management Center 2.1.1 server, agent, and console are installed on three machines as follows:

- The Sun Management Center 2.1.1 console is installed on machine A.
- The Sun Management Center 2.1.1 server is installed on machine B.
- The Sun Management Center 2.1.1 agent is installed on machine C.

The following procedure summarizes the steps required to upgrade the Sun Management Center 2.1.1 installation to Sun Management Center 3.5 on all three machines.

▼ *To Upgrade From Sun Management Center 2.1.1 to Sun Management Center 3.5*

1. Make sure each machine is a supported platform.

See “Supported Platforms” on page 38.

2. Make sure each machine has the required resources.

See “Preinstallation Checklist” on page 55.

3. Determine whether you will install Sun Management Center 3.5 from the CDs or from a CD image.

See “Determining the Installation Source” on page 65.

4. Upgrade the Sun Management Center 2.1.1 server on Machine B.

a. Make sure each machine has the required resources.

See “Preinstallation Checklist” on page 55.

b. Download the migration utility from <http://www.sun.com/sunmanagementcenter>.

c. Run the migration utility and upgrade from Sun Management Center 2.1.1 to Sun Management Center 3.5.

See “Upgrading From Sun Management Center 2.1 or 2.1.1” on page 73.

During the Sun Management Center 3.5 installation stage of the upgrade process:

- Select the production environment.
- Select the server layer only. The agent is automatically installed.
- Choose whether to migrate the Sun Management Center 2.1.1 data.
 - Select migrate data to save your Sun Management Center 2.1.1 data and use the data in Sun Management Center 3.5.
 - Select discard data if you do not want to save your Sun Management Center 2.1.1 data.

During the Sun Management Center 3.5 setup stage of the upgrade process:

- Provide a password to generate the security key.

The password must be the same for all Sun Management Center machines.
- Provide an SNMPv1 security string.

The security string must be the same for all Sun Management Center machines.
- If you chose to migrate the Sun Management Center 2.1.1 data to Sun Management Center 3.5, choose whether to restore the Sun Management Center 2.1.1 data.

When server setup is finished, you are given the option to start the Sun Management Center components. Start all components.

5. Upgrade the Sun Management Center 2.1.1 agent on machine C.

Install the Sun Management Center 3.5 agent on machine C as described in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.

During agent installation:

- Select Migrate Data if you want to save your the Sun Management Center 2.1.1 agent data and use the data in Sun Management Center 3.5.
- Select the production environment.
- Select the agent layer only

When the agent installation is finished, you are given the option to run setup. Run setup.

6. Set up the agent on machine C.

During agent setup:

- Provide the same security key password that you provided in Step 4.
- Provide the same SNMPv1 community string that you provided in Step 4.
- Provide the name of the Sun Management Center server machine.
- If you chose to migrate the Sun Management Center 2.1.1 agent data to Sun Management Center 3.5, choose whether to restore the Sun Management Center 2.1.1 data.

Note – If you provide a different password for security seed generation on the server than you provided for Sun Management Center 3.0, then you must use the new password to generate the same security seed when setting up the agents. If you do not upgrade a Sun Management Center 3.0 agent to Sun Management Center 3.5, you must regenerate the security key for the Sun Management Center 3.0 agent machine as described in “Regenerating Security Keys” on page 166.

When agent setup is finished, you are given the option to start the Sun Management Center agent. Start the agent.

7. Install the Sun Management Center 3.5 console on machine A.

- a. **Uninstall the Sun Management Center 2.1.1 console as described in the Sun Management Center 2.1.1 Installation Guide.**
- b. **Install and set up the Sun Management Center 3.5 console as described in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.**

When console setup is finished, start the console by typing the command
`/opt/SUNWsymon/sbin/es-start -c.`

Using Agent-Update to Upgrade Agents to Sun Management Center 3.5

In this example, the systems in the network have Sun Management Center 3.5 and Sun Management Center 3.0 installed as follows:

- The Sun Management Center 3.5 console and agent are installed on machine A.
- The Sun Management Center 3.5 server and agent is installed on machine B.
- The Sun Management Center 3.0 agent is installed on machines C through Z.

The following procedure summarizes the major steps required to upgrade machines C through Z to the Sun Management Center 3.5 agent.

▼ *To Upgrade Agents to Sun Management Center 3.5 Using Agent-Update* *Sun Management Center 3.5*

1. **Make sure the all Sun Management Center components on the Sun Management Center server machine B are running as described in “Starting Components on the Solaris Platform” on page 155.**
2. **Create an agent-update image as described in “To Create an Agent-Update Image Using `es-gui-imagetool`” on page 96.**
3. **Apply the agent-update image to machines C through Z as described in “To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`” on page 114.**

While applying the agent-update image on each machine:

- Provide a password to generate the security key.
The password must be the same password you provided when you set up Sun Management Center 3.5 server.
- Provide an SNMPv1 security string.
The security string must be the same security string you provided when you set up Sun Management Center 3.5.

Performance Reporting Manager Install

The Performance Reporting Manager has server, agent, and console layer components.

- The server layer component should be installed on the same machine as the Sun Management Center server. Performance Reporting Manager version 3.5 provides three configurations:
 - Small - requires 5 Gbytes of free disk space
 - Medium - requires 12 Gbytes of free disk space
 - Large - requires 24 Gbytes of free disk space

Make sure that the Sun Management Center server machine has sufficient resources as described in Table 2–4.

- The agent component must be installed on machines for which you want to collect performance, package, patch and hardware configuration data.

Make sure that each Sun Management Center agent machine has sufficient resources as described in Table 2–4.

- The console component must be installed on each console machine. The console component updates menus and selections in the Sun Management Center console to support the Performance Reporting Manager.

Note – To collect hardware configuration data, the agent and server machines should have the hardware-specific module installed.

The Performance Reporting Manager can be installed on each machine as follows:

- If you are upgrading machines from Sun Management Center 3.0 to Sun Management Center 3.5, follow the instructions in “Upgrading the Server” on page 75. The Sun Management Center 3.5 upgrade process enables you to migrate the Sun Management Center data and your Performance Reporting Manager data.

Note – Make sure you select the Performance Reporting Manager add-on Sun Management Center 3.5 during the installation process.

- If you are performing a fresh install of Sun Management Center 3.5, make sure you select the Performance Reporting Manager add-on of Sun Management Center 3.5 during the installation process.
- If you have already installed and set up Sun Management Center 3.5 on each of your machines, install and set up the Performance Reporting Manager as directed in *Performance Reporting Manager Installation and Setup* in the *Sun Management Center 3.5 Performance Reporting Manager User’s Guide*.

Note – During Sun Management Center 3.5 setup on the Sun Management Center server, you are prompted to enter the paths to three different directories for the configuration you have chosen. If possible, specify directories on three different file systems. This separation of directories reduces disk contention and improves performance.

To Install the Sun Management Center Console on Microsoft Windows

If a previous Sun Management Center console version is installed on the Microsoft Windows machine, uninstall the console as described in “Uninstalling Sun Management Center From the Microsoft Windows Platform” on page 193.

To install the Sun Management Center 3.5 console, install the console as described in “Installing Sun Management Center 3.5 on Microsoft Windows” on page 143.

Sun Management Center Directories

After a successful installation and setup on the Solaris platform, directories are created as shown in Table 1-1.

On Microsoft Windows, only the `C:\Program Files\SunMC` directory is created.

TABLE 1-1 Sun Management Center Default Solaris Directories

Directory	Description
<code>/opt/SUNWsymon</code>	Root directory that contains the infrastructure and applications of Sun Management Center
<code>/etc/opt/SUNWsymon</code>	Contains the <code>init</code> scripts for Sun Management Center software applications
<code>/var/opt/SUNWsymon</code>	Contains the Sun Management Center configuration and data files for your system
<code>/usr/apache/tomcat</code>	Contains the Web server. The Web server is installed with the Sun Management Center server
<code>/var/apache</code>	Web server documentation and examples

Sun Management Center System Files

This section describes the system files modified by installation of Sun Management Center, and provides an overview of operating system patches.

`/etc/system` File

The values listed in the `/etc/system` file are the default values for Sun Management Center system parameters. The `shmmax` value is computed based on the available RAM on the machine.

The Sun Management Center software installation checks whether the limits in the `/etc/system` file are sufficient for the services layer to perform as expected. For example, the following entries are added to the `/etc/system` file if the entries are absent. If the values present are inadequate, the values are updated accordingly.

```
*****
* This file has been modified by Sun MC 3.5 setup. *
*   DO NOT REMOVE THESE TWO COMMENT LINES.   *
*****
set shmsys:shminfo_shmmax=201326592
set shmsys:shminfo_shmmin=1
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=10
set semsys:seminfo_semmni=100
set semsys:seminfo_semmsl=115
set semsys:seminfo_semns=200
set semsys:seminfo_semopm=100
set semsys:seminfo_semvmx=32767
```

If any of the `/etc/system` entries are changed by the Sun Management Center software installation, then the system must be rebooted before proceeding further. After the system has rebooted, you must rerun the setup process using either `es-setup` or `es-guisetup`.

If `/etc/system` was changed by a previous installation of the Sun Management Center software, a system reboot is not necessary.

`/etc/group` File

The Sun Management Center software installation program adds the groups `esadm`, `esdomadm`, and `esops` to the local `/etc/group` file on the machine. A group entry is created for the database group `smcorag` in `/etc/group` on the machine where the Sun Management Center server is installed.

The user specified as the administrator during Sun Management Center setup is added to the `esadm` and `esdomadm` groups. For example, if the root user account is specified as the Sun Management Center administrator, the installation program appends the following lines to `/etc/group`:

```
smcorag::101011:
esadm::1000:root
esdomadm::1001:root
esops::1002:
```

`/etc/passwd` File

The Sun Management Center software installation adds the user `smcorau` to the `/etc/passwd` file. The `smcorau` user account is needed to run the database on the Sun Management Center server layer.

`/var/opt/SUNWsymon/cfg/esusers` File

The `/var/opt/SUNWsymon/cfg/esusers` file is used to define authorized Sun Management Center users. For further information, see “Users, Groups, and Roles Overview” on page 47.

Sun Management Center 3.5 Requirements

The information in this chapter will help you determine what operating system, storage and computational resources must be allocated or acquired to implement a specific Sun Management Center software solution.

This chapter discusses the following topics:

- “Compatibility With Prior Versions” on page 37
- “Supported Platforms” on page 38
- “Sun Management Center Base Layer Requirements” on page 40
- “Sun Management Center Base Add-on Requirements” on page 41
- “JDK Version Requirements” on page 42

Note – If you plan to install the Sun Management Center 3.5 development environment, you should install the developer environment on a separate, dedicated machine. The Sun Management Center server, agent, and console layers are automatically installed on a developer environment machine. A machine used for Sun Management Center development must meet the minimum hardware and software requirements for the Sun Management Center server layer. The developer environment machine must also meet the requirements for the agent layer, console layer, and any add-ons you install.

Compatibility With Prior Versions

Sun Management Center 3.5 software is compatible with the following software:

- Any Simple Network Management Protocol (SNMP) v1, v2 and v2 usec entities, regardless of the operating environment and architecture.

- Solstice Enterprise Agents™ software for Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 operating environment versions. Solstice agents can co-exist with Sun Management Center agents on the same host system if you configure the Solstice agents as subagents of the Sun Management Center agent. See “Configuring a Legacy SNMP Agent as a Subagent of an Agent” on page 169.

Sun Management Center software does *not* offer the following features:

- Backward compatibility with the Solstice SyMON™ 1.x software
- SunVTS™ support in the Sun Management Center 3.5 software

The following table lists prior Sun Management Center version compatibility by Sun Management Center base product layer. Sun Management Center versions 2.0 and 2.0.1 are referred to as Sun Enterprise SyMON™ software. Versions 2.1, 2.1.1, 3.0, and 3.5 are referred to as Sun Management Center.

TABLE 2-1 Sun Management Center Prior Version Compatibility by Base Product

Console	Server	Agent
3.0	3.0	2.0.1, 2.1, 2.1.1, 3.0
3.5	3.5	2.0.1, 2.1, 2.1.1, 3.0, 3.5

Supported Platforms

For the latest information on supported hardware platforms, refer to the Sun Management Center Web site at <http://www.sun.com/sunmanagementcenter>. The Config-Reader module is required for hardware configuration information.

The following table provides examples of supported platforms.

TABLE 2-2 Examples of Supported Platforms

Operating System	Sun Management Center Layers	Example Hardware
Solaris	Agent, console, add-ons Note – Some add-ons are platform-specific.	<ul style="list-style-type: none"> ■ SPARCStation 1, 2, 5, 10, 20 ■ Ultra 1, 2, 5, 10, 30, 60, 80, 450 ■ Sun Blade™ 100, 1000 ■ Netra™ T1 100, T1 105, T1 AC200, X1, T1 1120, T1 1125, T1 1400, T1 1405 ■ Sun Enterprise 2, 150, 220R, 250, 420R, 450, 3000, 3500, E3500, 4000, 4500, E4500, 5000, 5500, E5500, 6000, 6500, E6500, 10000 ■ Sun Ultra Enterprise 2, 5, 10, 150, 220R, 250, 420R, 450, 3000, 3500, E3500, 4000, 4500, 5000, 5500 ■ Sun Fire 280R, V880, 3800, 4800, 4810, 6800, 15000 ■ SPARCcenter® 2000, 2000E, 1000, 1000E
Solaris	Agent, console, server, add-ons Note – Some add-ons are platform-specific.	<ul style="list-style-type: none"> ■ Small server: Up to 350 nodes under management. Netra X1, Netra T1, or Sun Blade 100 with a single 500 MHz UltraSPARC® IIe CPU or better ■ Medium server: Up to 600 nodes under management. Sun Enterprise 420R or Ultra 60 with two 450 MHz UltraSPARC II CPUs or better ■ Large server: Up to 750 nodes under management. Sun Fire 280R, Netra T4, or Sun Blade 1000 with two 750 MHz UltraSPARC III CPUs or better ■ Extra-large server: Up to 1,000 nodes under management. Sun Fire 480R or equivalent with 4 900 Mhz UltraSPARC III CPUs or better.
Windows 98, Windows NT, and Windows 2000	Console layer and some add-ons	Pentium 233 MHz or better

The Config-Reader and the Dynamic Reconfiguration modules are not supported on all Sun hardware platforms. However, all other base Sun Management Center modules are supported on Sun hardware platforms.

For more information on base modules, refer to the *Sun Management Center 3.5 User's Guide*.

Sun Management Center Base Layer Requirements

The following table provides a summary of Sun Management Center 3.5 base layer requirements. For specific information about determining the total amount of resources needed, see Appendix C.

TABLE 2-3 Sun Management Center 3.5 Base Layer System Requirements

Base Layer	Operating System	Disk Space	RAM	Swap
Server	Solaris 8, Solaris 9 Solaris Developer Software Group installation	800 Mbytes total: 300 Mbytes in /opt, 500 Mbytes in /var/opt	512 Mbytes minimum 1 Gbyte recommended for small to large servers 2 Gbytes recommended for extra-large servers.	1 Gbyte recommended
Agent	Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases	18 Mbytes per agent in /opt/SUNWsymon. 2 Mbytes per agent in /var/opt/SUNWsymon.	10 to 29 Mbytes per agent depending on modules loaded and system type	
Java Console	Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases	Solaris platform: 62 Mbytes	Solaris platform: 256 Mbytes	Solaris platform: 130 Mbytes

TABLE 2-3 Sun Management Center 3.5 Base Layer System Requirements *(Continued)*

Base Layer	Operating System	Disk Space	RAM	Swap
	Microsoft Windows 98, Microsoft Windows NT SP 4 or later, Microsoft Windows 2000 Professional	Microsoft Windows platform: 35 Mbytes	Microsoft Windows platform: 256 Mbytes	Microsoft Windows platform: 768 Mbytes

The default maximum heap size for the console and server is 64 Mbytes apiece. You can customize the maximum heap size for the console and server as described in “Starting Components Using `es-start`” on page 156.

Sun Management Center Base Add-on Requirements

The following table shows the minimum disk space necessary for each Sun Management Center layer to install the base add-ons. For specific information about determining the total amount of resources needed, see Appendix C.

TABLE 2-4 Base Add-on Disk Space Requirements by Base Component

Base Add-on	Operating System	Disk Space
Advanced System Monitoring	Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases	Server: 3300 Kbytes Agent: 2020 Kbytes
	Windows 98, Windows NT, Windows 2000	Console: 270 Kbytes
Service Availability Manager	Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases	Server: 1600 Kbytes Agent: 1000 Kbytes Console: 500 Kbytes
System Reliability Manager	Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases	Server: 3000 Kbytes Agent: 1000 Kbytes Console: 0 Kbytes

TABLE 2-4 Base Add-on Disk Space Requirements by Base Component (Continued)

Base Add-on	Operating System	Disk Space
Performance Reporting Manager	Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases Windows 98, Windows NT, Windows 2000	Server: depends on reporting options selected. <ul style="list-style-type: none">■ Small configuration: 5 Gbytes■ Medium configuration: 12 Gbytes■ Large configuration: 24 Gbytes Agent: 8000 Kbytes minimum. For 1000 properties logged at five minute intervals, 80 Mbytes are needed. Console: 3 Mbytes

Note – The Performance Reporting Manager requires 1 Gbyte of RAM and 1 Gbyte of swap space.

JDK Version Requirements

JDK requirements for Sun Management Center 3.5 are listed in the following table.

TABLE 2-5 JDK Requirements

Component	JDK Version
Command-line install and setup	Not required
Agent graphical user interface install and setup	JDK 1.2.2
Console graphical user interface install and setup	JDK 1.3.1
Server graphical user interface install and setup	JDK 1.4
Run the Sun Management Center agent	Not required.
Run the Sun Management Center console	JDK 1.3.1
Run the Sun Management Center server	JDK 1.4

▼ To Determine the Installed Java Version

1. Type the command `which java` to determine where Java is installed.

The path to the Java executable is displayed, for example:

```
> which java
/bin/java
```

Note – The path shown might be a symbolic link.

2. Type the command `java -version`.

The Java version is displayed.

```
>java -version
Java(TM) 2 Runtime Environment, Standard Edition (build 1.2.0_01-b03)
Java HotSpot(TM) Client VM (build 1.2.0_01-b03, mixed mode)
```

In the above examples, the version of Java installed in `/bin/java` is not sufficient for installing Sun Management Center 3.5 using the graphical user interface. The Java version is also not sufficient for running the Sun Management Center console and server.

To use the graphical user interface to install, setup, and run the Sun Management Center console and server, you must install the required version of the Java software, which is included on the Sun Management Center 3.5 installation CD 1 of 2.

▼ To Install the Required JDK Version

1. Log in as root (`su - root`).

2. Remove the path to the current version of the Java software.

Assume that `/bin/java` is where the current version of the Java software is installed, and that `/bin/java` is a symbolic link to `/usr/j2se`.

Edit your `.login` or `.cshrc` file, and remove `/bin/java` from the `PATH` statement.

3. Rename the current Java directory.

Assume the current Java version is 1.2. You could rename the current Java directory to Java version 1.2 using the command `mv j2se java1.2`. For example:

```
# cd /usr
# mv j2se java1.2
# ls java1.2
COPYRIGHT      README.html    jre/           opt/
LICENSE        bin/           lib/           src.zip
README         include/       man/
```

Note – If needed, you can still use the current version of the Java software for other projects by resetting the `JAVA_HOME` environment variable.

4. Delete the symbolic link.

For example, if `/bin/java` is a symbolic link to `/usr/j2se`, you would type the command `rm /bin/java`.

5. Install the JDK from Sun Management Center 3.5 installation CD 1 of 2.

a. Insert Sun Management Center 3.5 CD 1 of 2 in your CD-ROM drive.

List the contents of the CD.

```
# ls -p /cdrom/cdrom0
Copyright                classes/                 lib/
JDK1.4.1_02/            image/                  sbin/
ThirdPartyLicenseReadMe  install/
```

The JDK directory on your Sun Management Center 3.5 machine might show a different version.

b. Go to the JDK directory on the CD.

List the contents of the JDK directory.

```
# cd /cdrom/cdrom0/JDK*
/cdrom/cdrom0 # ls -p
Solaris/  Windows/
```

c. Install the JDK packages using pkgadd.

Type the command `pkgadd -d /cdrom/cdrom0/jdk_dir/Solaris`, where *jdk_dir* is the name of the JDK directory on the CD.

A list of packages is displayed, and you are prompted to select the packages you want to install.

Press Return to install all of the packages. The JDK packages are installed in the `/usr/j2se` directory.

6. Reset the `JAVA_HOME` environment variable to `/usr/j2se`.

- In a C shell environment:

```
# setenv JAVA_HOME /usr/j2se
```

- In a Bourne or Korn shell environment:

```
# JAVA_HOME=/usr/j2se
# export JAVA_HOME
```

Tip – Set the `JAVA_HOME` environment variable in your `.login` or `.cshrc` file.

Determining Free Disk Space

This section describes how to determine the amount of free disk space on Solaris platforms and Microsoft Windows platforms.

▼ To Determine Free Space on a Solaris System

1. **Open a terminal window.**
2. **Type `df -ak` to list the used and free space for each file system on the machine.**

▼ To Determine Free Space on a Microsoft Windows System

1. **Choose Start → Programs → Windows Explorer.**
The Explorer window appears.
2. **Click the plus sign (+) to the left of My Computer.**
The list expands to show the hard drives on the system.
3. **Press mouse button 3 on the drive name.**
A pop-up menu appears.
4. **Choose Properties from the pop-up menu.**
The Disk Properties window appears, listing the amount of used space and free space.
5. **Click OK to close the Disk Properties window.**

Configuration Considerations

This chapter discusses items that can adversely affect your Sun Management Center installation or upgrade. This chapter provides the following topics:

- “Security Recommendations” on page 47
- “Management Strategies” on page 50

Security Recommendations

This section provides security recommendations for Sun Management Center access, server and agent components, and security keys.

Users, Groups, and Roles Overview

Before you set up Sun Management Center users and user groups, you should understand the types of management operations that are possible so you can assign these operations to the appropriate user classes. Careful planning of user groups and roles helps ensure proper configuration management, and data integrity and security of management information and system resources.

No user may gain access to Sun Management Center without first being explicitly identified in the master access file `/var/opt/SUNWsymon/cfg/esusers`. To grant access to Sun Management Center, the user’s UNIX user name must be added to `/var/opt/SUNWsymon/cfg/esusers`. The user may then log into Sun Management Center using the standard UNIX user name and password.

When a user logs in, Sun Management Center controls access and defines the user privileges based on the following functional roles:

- **Domain Administrators** – This role is the highest-level role, which permits members to create top-level domains in a server context and to assign privileges for other Sun Management Center users within these domains. The domain administrator can create customized configurations for specific topology environments by creating specific domains and assigning user privileges for those domains. Users are considered domain administrators if the users are members of the `esdomadm` UNIX user group.
- **Administrators** – This role is the administration role for all operations outside the topology system. Administrators can perform privileged operations, including the loading of modules and the configuration of managed objects and data properties. Administrators can also specify access control at the agent and module level. This control makes this role instrumental in the establishment and maintenance of entitlement policies. Users are considered administrators if the users are members of the `esadm` UNIX user group.
- **Operators** – This role allows system users to configure their own domains and topology containers. The operator role also allows the users to configure managed objects with respect to their data acquisition and alarms, and to view management information. Although operators may enable or disable management modules, operators cannot, by default, load modules or alter access control privileges. Operators therefore represent a class of user that can effectively use the product and fine-tune its operation but who cannot affect major configuration or architectural changes. Users are considered operators if the users are members of the `esops` UNIX user group.
- **General Users** – This role is for users who are not explicitly members of the above three groups. General users are not granted extensive privileges, and can by default only view management information and acknowledge alarms. The general user role is well suited for first-level support, in which problem identification, remediation, and escalation are the primary goals.

In large organizations, the Sun Management Center security roles are likely to map directly onto existing systems administration and support functions. For others, the process could be more involved, as the mapping between a corporate function and a product role could be less clear. In some cases, assignment of all logical roles to a single user could be warranted.

Note – Specification of privileges is flexible, and does not need to be confined to the four Sun Management Center security roles.

Sun Management Center privileges can be explicitly specified at the domain, topology container, agent, and module levels. The privileges specification can reference any arbitrary UNIX user or group, with the groups named above being used only by convention. The Sun Management Center privileges groups allow the use of existing account configurations when assigning functional roles. Although naming explicit users when assigning privileges is not recommended, the use of UNIX groups can be convenient in environments where such UNIX groups are already established.

For further information on security roles, groups, and users, see “Setting Up Users” on page 147 and “Sun Management Center Security” in *Sun Management Center 3.5 User’s Guide*.

Sun Management Center Internal Security

This section describes the security process that is used between Sun Management Center components.

Server-to-Agent Security

Communication between the Sun Management Center server and its managed nodes is primarily performed using the industry standard Simple Network Management Protocol version 2, employing the User Security model SNMP v2usec. The SNMPv2 mechanism is well suited to mapping the user credentials from the server layer to agent-side operations. SNMPv2 is the primary mechanism for ensuring that access control policies cannot be circumvented.

Sun Management Center also supports SNMP v1 and v2 with community-based security. Although not as robust from a security standpoint, support for SNMP v1 and v2 is important for integration with other devices and other management platforms. In environments where the use of these mechanisms is undesirable, the access control specification mechanism can be used to restrict or forbid access to processes using the SNMP v1 and v2 protocols.

For customized operations where data streaming could be a requirement, a probe mechanism is also employed. The probe mechanism is initiated by SNMP operations. When initiated, probe operations use a streaming TCP connection to implement bidirectional, potentially interactive services on the managed node, for example, log file viewing. Since the probe mechanism uses SNMP communication, no encryption of the packet payload is performed.

Cross-Server Context Security

When Sun Management Center communicates with managed nodes outside the local server context, the security model ensures that operations are performed as the generic `espublic` SNMPv2 usec user. Use of `espublic` greatly restricts privileges, and limits users to the perusal of management data.

Client-to-Server Security

Communication between the Sun Management Center server layer and clients such as consoles and command-line interfaces is performed using Java Technology Remote Method Invocation (RMI) in conjunction with a comprehensive product-specific security model. The security model allows clients to operate in either low, medium or high security modes, which affects the level of message authentication that is performed.

- **Low:** No message authentication. Only the user password is checked at time of login.
- **Medium (default):** Console-to-server authentication only, for example, server authentication of incoming console messages.
- **High:** Both console and server authenticate messages.

Because of the potential performance impact of the higher security levels, you should carefully consider your message authentication requirements.

Security Keys and SNMP Community String

When you install and then set up the Sun Management Center agent on a separate machine, you are prompted to provide a password that is used to generate the security key for the agent. The password should be the same password as the password you specified during setup of the Sun Management Center server. The Sun Management Center server and agent cannot communicate with each other if the server and agent have different security keys. For information on how to regenerate security keys, see “Regenerating Security Keys” on page 166.

During setup, you are also prompted to either accept the default SNMP community string (public), or specify a private community string. The SNMP community string is essentially a password for a privileged internal account. As such, this string potentially can be used to mimic the server layer if used with generic SNMPv2 usec tools. Therefore, do not use the default community string. Specify a separate, private community string for each server context.

Treat the security password and the SNMP community string with the same significance as a superuser password.

Management Strategies

This section provides an overview of Sun Management Center management approaches. Understanding the systems under management and their implementation can contribute to the successful deployment and use of Sun Management Center.

Server Contexts

The highest-level building block for the organization of management information is the server context. Each Sun Management Center server provides only one server context. Each server context might have one or more managed systems that report to the server context. A managed system can report to only one server context.

Communication between server contexts is typically restricted, and management events are not forwarded between servers. The use of server contexts should parallel the structure of the groups within the organization using Sun Management Center. Server contexts should also parallel the responsibilities of these groups with respect to systems management. The administrative group that owns the server also owns the management data within the server. This group controls all access to all system and network resources managed by the Sun Management Center server.

Domain Strategies

Domains are the highest-level construct within a server context. Domains provide individual environments within which you can create custom topology configurations. Domains are very generic. You can create a domain to represent information specific to users, environments, or any other logical division. Managed systems may appear in more than one domain, enabling multiple, overlapping domains to exist. You can therefore construct several different representations of the same management information and system resources.

Domains typically contain a hierarchical collection of Sun Management Center groups that you can use to aggregate sets of managed systems, Sun Management Center management modules, or managed objects. This hierarchy defines the visible breakdown of information in the user interface. This hierarchy also defines the rules for aggregating management status and providing this status to high-level summaries. This capability and flexibility makes domains, and the containers within them, a powerful tool for the construction of logical management models of a specific environment.

Organization Strategies

Sun Management Center contains a powerful Discovery Manager, which can be used to automatically and periodically examine the local environment to identify all managed nodes. While instrumental in the configuration of Sun Management Center, the Discovery Manager structures management information along physical, network-based lines.

Depending on the nature of your environment, using the Discovery Manager might not be the most useful way to view management information and aggregate status information. Conversely, using the Discovery Manager is very useful for identifying

all managed systems prior to organizing your Sun Management Center environment. For further information about the Discovery Manager, see “Adding Objects to the MIB Using the Discovery Manager” in the *Sun Management Center 3.5 User’s Guide*.

Other ways to organize the Sun Management Center environment include:

- Physical
- Environmental
- Application
- Service

In each of the Sun Management Center environments, emphasis should be placed on completeness. The breadth of coverage must be sufficient to proactively or at least immediately identify system problems. Failures in devices, hosts, services, or processes that are critical to an environment but that are not being monitored by Sun Management Center can cause gaps in the coverage that will affect the overall effectiveness of an implementation. To this end, you should consider customized modules, proxy solutions, and even information from other server contexts when building your Sun Management Center management environments.

Physical Organization

The physical locations of managed systems might not correspond to the networks on which the systems reside. In this case, you might want to create a new domain in which the Sun Management Center groups are structured on physical lines. Cities, sites, buildings, floors, server rooms and even equipment racks can easily be represented. The systems at these locations can be copied and pasted from the domain in which discovery was performed using the Discovery Manager.

To configure a Sun Management Center environment along physical lines requires you to know where the systems are physically located. This organization can become a valuable and easily accessed reference. A physical organization also defines a status roll-up path, enabling problems to be isolated on physical lines and assisting in the identification of common-mode failures. For example, a localized power outage might affect systems that reside on several networks but will only appear in one physical area.



Caution – You must keep the information up-to-date yourself. This information is not automatically updated when discoveries are performed. The discovery process does not automatically track assets that are physically relocated.

Environmental Strategies

Your organization might have several logical environments whose locations and resources overlap, but whose logical functions are distinct. Logical environments include corporate groups such as sales versus engineering, functional groups such as retail versus institutional, and even logical software environments such as user acceptance versus production.

In all of these cases, consider producing separate Sun Management Center topology groups that isolate the elements of each group. Separate topology groups prevent problems in one group from raising alarms in another group. This isolation is particularly important when configuring the Sun Management Center environment for systems that include multi-domain servers. The different domains might be performing functions for completely different groups or environments. The inclusion of the different domains in a single topology group could result in misleading information and alarm notifications.

Application Organization

Applications are complex entities in systems management. Determining what constitutes an application from a management perspective can be difficult, particularly when applications are distributed and rely on many external services to operate properly. For this reason, you should organize applications before installing Sun Management Center. Do not defer consideration of the cause and effect relationships until a problem is actually encountered. Some initial analysis contributes to increasing the efficiency with which application-level problems are resolved.

When configuring an application-oriented Sun Management Center environment, the topology containers typically contain a mix of hosts, modules, and specific objects. Some hosts might be completely dedicated to that application, while other hosts might only be partially responsible for the application's proper operation. For example, in the case of an application that makes use of a corporate directory service, the health of the directory service is critical to the operation of the application, but the health of other services on the server are not critical to or needed by the application.

Services Responsibilities

In some circumstances, a group or administrator might be responsible for a specific service but not the underlying resources. For example, a database administrator might be responsible for the database service availability and data integrity, but not responsible for the hardware or operating system administration. A Sun Management Center domain that is created specifically for the database services can assist the database administrator in performing the necessary tasks. General user role privileges can assist the administrator by providing access to general system and network status.

Managing Large Enterprises

Several facilities in Sun Management Center can help you to simplify management of large enterprises. One facility is Reference Domains, which allow groups to share management information across server contexts. Another feature is the Grouping Operations system, which facilitates performing large, highly distributed management operations.

The grouping system enables you to set data property values, and modify data property attributes. You can also load, unload, enable, and disable modules in your Sun Management Center server environment. All of these operations can be applied to a large group of managed systems and nodes. These groups can be defined using existing topology structures or flexible, discovery-style filters. Grouping operations can be saved and performed multiple times. A scheduler is available to automate grouping operations. Grouping operations also include Module Configuration Propagation (MCP), a facility in which a reference node's entire configuration can be cloned by pulling it to the server and then pushing it to all similar nodes.

For further information about Reference Domains, see "Monitoring Remote Administrative Domains" in the *Sun Management Center 3.5 User's Guide*. For further information about group operations, see "Managing Group-related Jobs" in the *Sun Management Center 3.5 User's Guide*.

Preparing Systems for Sun Management Center Upgrade and Installation

This chapter provides procedures for preparing your Solaris and Microsoft Windows systems for Sun Management Center 3.5 installation.

This chapter discusses the following topics:

- “Preinstallation Checklist” on page 55
- “Prerequisite Packages” on page 57
- “Solaris Systems With More Than 4 Gbytes RAM” on page 57
- “Java Environment Variables and Path” on page 58
- “Microsoft Windows 98 Swap Space and Environment Space” on page 60
- “Sun StorEdge A5x00 Patches” on page 62
- “T3 Storage Devices” on page 62
- “Determining the Installation Source” on page 65

Preinstallation Checklist

The following list describes the tasks that you need to perform before you can install Sun Management Center 3.5, or upgrade an existing SyMON or Sun Management Center installation to Sun Management Center 3.5.

- If the Solstice SyMON server, or the Enterprise SyMON server is installed, you must upgrade the SyMON installation to Sun Management Center 2.1 or Sun Management Center 2.1.1 before you can upgrade to Sun Management Center 3.5. See “Upgrading from Solstice SyMON 1.x and Sun Enterprise SyMON 2.x Software” on page 72.

If you customized the `email.sh` script that Sun Enterprise SyMON software uses to send email notification of alarm conditions, save the `email.sh` script to another directory, then move the script back after your upgrade is complete. The `email.sh` script is overwritten when you upgrade SyMON software to version Sun Management Center 3.5.

Note – If you do not want to migrate your SyMON configuration data, you must uninstall the SyMON software as described in “Uninstalling Solstice SyMON 1.x or Enterprise SyMON 2.x” on page 188 before you can install Sun Management Center 3.5.

- ❑ Determine which components of Sun Management Center 3.5 and which product add-ons you want to install on each machine on your network.
 - Make sure the platforms on which you want to install Sun Management Center or Sun Management Center components are supported platforms. See “Supported Platforms” on page 38.
 - For minimum RAM and disk space requirements, see Chapter 2. Also, refer to the Sun Management Center add-on product supplements in the Sun Management Center documentation CD (2 of 2), and the Sun Management Center Web site at <http://www.sun.com/solaris/sunmanagementcenter>.
Total the amount of RAM and disk space needed for the selected components and add-on products.
 - Ensure that each machine is running the correct operating system for the components you want to install. See Table 2–3 and Table 2–4.
- ❑ Ensure that the correct JDK version is installed on machines that are designated for the Sun Management Center server and console components. See Table 2–3. You can download the JDK software from <http://java.sun.com/>.
- ❑ Set the `PATH` and the `JAVA_HOME` environment variables.
 - For the Solaris platform:
Make sure that the `DISPLAY` and `JAVA_HOME` environment variables are set in any account that is used to run the Sun Management Center Web or Java™ console.
The default location for JDK versions 1.3.1 and 1.4 is `/usr/j2se`. See “To Set `JAVA_HOME` and `PATH` on the Solaris Platform” on page 58.
 - For the Microsoft Windows platform:
Ensure the path to the JDK `bin` directory is added to the Microsoft Windows `%PATH%` environment variable. See “To Set `PATH` on Microsoft Windows 98” on page 59.
- ❑ If any machine on your network has 4 Gbytes of RAM or more, install the 64-bit compatibility patch `SUNWScpux` on the machine. See “Solaris Systems With More Than 4 Gbytes RAM” on page 57.
- ❑ If your network includes StorEdge A5X00 devices, install the required patches. See “Sun StorEdge A5x00 Patches” on page 62.

- ❑ If your network includes T3 storage devices, you must update the `/etc/hosts` and `/etc/ethers` files on the machine to which the devices are attached. You must also update the `/etc/hosts` and `/etc/ethers` files on the machine where you will install the Monitoring and Management of A5X00 and T3 Devices add-on product. See “T3 Storage Devices” on page 62.
- ❑ If you are upgrading an older version of Sun Management Center and you use the older version to monitor and manage T3 devices, you must remove Sun Management Center T3 device configuration before performing the upgrade to Sun Management Center 3.5. See “Removing T3 Device Configuration If Present” on page 64.
- ❑ Select the installation source.
You can install from a CD-ROM disk or from CD images. See “Determining the Installation Source” on page 65.

Prerequisite Packages

The following Solaris operating environment packages are required by the Sun Management Center 3.5 server layer, and are included as part of the Solaris development environment installation.

- `SUNWsprot` - Solaris Bundled tools
- `SUNWtoo` - Programming Tools
- `SUNWbtool` - CCS tools included with SunOS

Solaris Systems With More Than 4 Gbytes RAM

The `SUNWscpx` 64-bit source compatibility package must be installed on systems that have more than 4 Gbytes of RAM before you can install Sun Management Center 3.5. If the package is not installed, the command-line installation process will report the following messages and fail.

```
ps: read() on /proc/551/as: Value too large for defined data type
ps: read() on /proc/542/as: Value too large for defined data type
```

The `SUNWscpx` package is installed automatically during Solaris installation when any of the following Solaris environments are selected.

- Entire +OEM

- Entire
- Developer

To determine if the package is installed on the system, type the command `pkginfo SUNWscpx` in a terminal window.

- If the package is installed, information about the package is displayed.

```
# pkginfo SUNWscpx
system      SUNWscpx      Source Compatibility (Usr) (64-bit)
```

- If the package is not installed, an error message is displayed.

```
# pkginfo SUNWscpx
ERROR: information for "SUNWscpx" was not found
To install the SUNWscpx package:
```

1. Log in as root (`su - root`).
2. Locate the package on the Solaris installation CD.
3. Install the package using the `pkgadd` command.

Java Environment Variables and Path

The `JAVA_HOME` and `PATH` environment variable must be set on Solaris systems in order for the Sun Management Center 3.5 installation wizards, the setup wizards and the Java console to function properly. Similarly, the Microsoft Windows `%PATH%` must be modified to include the path to the JDK software for the Sun Management Center Java console to work properly on Microsoft Windows.

If the environment variables and path are not set properly, installation and setup of Sun Management Center 3.5 can fail.

▼ To Set `JAVA_HOME` and `PATH` on the Solaris Platform

If JDK 1.3.1 or JDK 1.4 software has been installed in the default location:

1. Log in as root by typing `su - root`.
2. Set `JAVA_HOME` to `/usr/j2se`.
 - In a C shell environment:

```
# setenv JAVA_HOME /usr/j2se
```
 - In a Bourne or Korn shell environment:

```
# JAVA_HOME=/usr/j2se
# export JAVA_HOME
```

Tip – Add the appropriate statement to your `.login` or `.cshrc` file.

3. Add `/usr/j2se/bin` to your system path.
4. Place `/usr/j2se/bin` in your `PATH` before `/usr/bin`.
5. Place `/usr/bin` in your `PATH` before `/usr/ucb`.

▼ To Set PATH on Microsoft Windows 98

The following procedure assumes that JDK 1.3.1 or JDK 1.4 software has been installed to the default location `C:\jdk $version\ number$` , for example, `C:\jdk1.4`.

1. Edit the file `c:\autoexec.bat`.
2. Add the location of the JDK `bin` directory to the `PATH` statement.
For example, if the `PATH` statement in the `autoexec.bat` file is
`PATH=c:\windows;c:\windows\command`, the new `PATH` statement would then be `PATH=c:\windows;c:\windows\command;c:\jdk $version-number$ \bin` where $version-number$ is the JDK version.
For example:
`PATH=c:\windows;c:\windows\command;C:\jdk1.4\bin`
Separate each directory in the `PATH` statement with a semicolon as shown.
3. Save and close the file.

▼ To Set PATH on Microsoft Windows NT or Microsoft Windows 2000

1. Choose `Start` → `Settings` → `Control Panel`.
2. Double-click `System`.
3. On Microsoft Windows NT, select the `Environment` tab. On Microsoft Windows 2000, select the `Advanced` tab and then `Environment Variables`.
The `Environment Variables` window is displayed.
4. Click `Path` in the `User Variables and System Variables`.
5. Click `Edit`.

The Edit System Variable window is displayed.

Note – The Edit System Variable window shows the Microsoft Windows root directory using the environment variable `%SystemRoot%`.

6. Add the location of the JDK `bin` directory to the `PATH` statement.

For example, if the `PATH` statement shown in the Edit System Variable window is `%SystemRoot%\system32;%SystemRoot%`, the new path statement would then be `%SystemRoot%\system32;%SystemRoot%;c:\j2version-number\bin` where *version-number* is the JDK version.

For example:

```
%SystemRoot%\system32;%SystemRoot%;c:\jdk1.4\bin
```

Separate each directory in the `PATH` statement with a semicolon as shown.

7. Click OK to successively close each window.

Microsoft Windows 98 Swap Space and Environment Space

Microsoft Windows 98 requires a minimum of 768 Mbytes of swap space or *virtual memory* to run the Sun Management Center 3.5 console. 4096 bytes of environment space are required for the Microsoft Windows 98 and the Sun Management Center environment variables. If the swap space and environment space are not set correctly, Sun Management Center installation could fail and your machine could run out of environment space. Set the minimum swap space and environment space for Microsoft Windows 98 as described in the following procedures.

Note – The following procedures are applicable only to Microsoft Windows 98. Microsoft Windows NT and Microsoft Windows 2000 do not require you to set minimum swap space and environment space.

▼ To Set Microsoft Windows 98 Minimum Swap Space Size

1. **Log in as administrator, or as the user account that has full administration privileges.**

2. **Choose Start → Settings → Control Panel.**
3. **Double-click the System icon.**
The System Properties window appears.
4. **Select the Performance tab.**
The Performance Options window is displayed.
5. **Select Virtual Memory.**
6. **Select Let me specify my own virtual memory settings.**
7. **Type 768 in the Minimum field.**
The value in the Maximum field must be at least three times the amount of total system RAM.
For example, if your Microsoft Windows 98 machine has 512 Mbytes of RAM, the Maximum field value should be 1536.
8. **Click OK.**
The Confirm Virtual Memory Settings dialog box appears.
9. **Click Yes in the Confirm Virtual Memory Settings dialog box.**
The dialog box closes.
10. **Click Close in the System Properties window.**
The System Properties window closes, and you are prompted to reboot the system.
11. **Click Yes to reboot the system.**
The virtual memory settings that you specified are applied and used when the system completes rebooting.

▼ To Set Microsoft Windows 98 Minimum Environment Space Size

1. **Add the following line to the `config.sys` file if the line is not present.**

```
SHELL=C:\COMMAND.COM /P /E:4096
```
2. **If you added the `shell` line to the `config.sys` file, or if you modified the existing `shell` line, reboot the system.**

Sun StorEdge A5x00 Patches

If you want to use the Sun StorEdge A5x00 module, you must install either the SUNWluxop storage patch, or the SUNWluxox storage patch, or both storage patches for the corresponding operating environment. If you load the A5x00 module and did not install the appropriate patch, the Sun Management Center agent cannot run. You can obtain either patch at <http://www.sun.com>.

Install the patches on the server to which the A5x00 storage device is attached.

T3 Storage Devices

This section provides the procedures for preparing T3 devices for Sun Management Center 3.5, and procedures for removing T3 device configuration data from existing Sun Management Center 2.x or Sun Management Center 3.x installations.

Note – T3 device configuration data must be removed from existing Sun Management Center installations before you can upgrade to Sun Management Center 3.5.

Preparing a T3 Storage Device

Before you install and set up the Sun Management Center T3 Add-on, you must modify the `/etc/hosts` and `/etc/ethers` files on the system where the Sun Management Center add-on Monitoring and Management of A5x00 and T3 Devices is to be installed.

The following procedure assumes that you have installed and configured the T3 storage device as described by the *Sun StorEdge T3 Disk Tray Installation, Operation, and Service Manual*.

When the `/etc/hosts` and `/etc/ethers` files have been updated on the machine where the Sun Management Center add-on Monitoring and Management of A5X00 and T3 Devices will be installed, you can proceed with installing and setting up the T3 add-on.

▼ To Prepare a T3 Storage Device

1. Determine the IP address and ethernet address for each T3 storage device.

Open a terminal window and type the command `arp t3-device-name` where `t3-device-name` is the name of the T3 storage device. For example:

```
# arp T3-001
T3-001 (10.100.20.300) at 1:2:30:ab:ba:45 permanent published
```

In the above example, `10.100.20.300` is the IP address, and `1:2:30:ab:ba:45` is the Ethernet address of the T3 storage device T3-001.

2. Repeat Step 1 for each T3 device on your network.

When you have recorded the IP address, Ethernet address, and name for each T3, go to the next step.

3. Log in as root on the machine where you will install the Sun Management Center add-on Monitoring and Management of A5X00 and T3 Devices.

This machine can be either the machine where you install the Sun Management Center server or the machine that you have allocated as dedicated platform agent server.

4. Record each T3 IP address and name in the `/etc/hosts` file.

For example, assume that three T3 devices are attached to your network. Assume that you used the `arp` command to determine the IP address, and Ethernet address of each T3 device, and recorded the information as follows:

storage-t3-1	172.16.100.10	0:20:f2:0:59:48
storage-t3-2	172.16.100.11	0:20:f2:0:5f:40
storage-t3-3	172.16.100.12	0:20:f2:0:7f:a8

The entries in the server `/etc/hosts` file would then be as follows:

```
172.16.100.10 storage-t3-1
172.16.100.11 storage-t3-2
172.16.100.12 storage-t3-3
```

5. Record each T3 storage device Ethernet address and name in the `/etc/ethers` file.

Create the `/etc/ethers` file if the file does not already exist.

Using the example given in Step 4, the entries in the server `/etc/ethers` file would then be as follows:

```
0:20:f2:0:59:48 storage-t3-1
0:20:f2:0:5f:40 storage-t3-2
0:20:f2:0:7f:a8 storage-t3-3
```



Caution – If you include the domain name as part of the T3 device name, make sure the domain name is identical in both the `/etc/hosts` and `/etc/ethers` files. The entries are case sensitive.

For example, assume that the `/etc/hosts` file contains:

```
0:20:f2:0:59:48    storage-t3-1.sun.com
```

Also assume that the `/etc/ethers` files contains

```
0:20:f2:0:59:48    storage-t3-1.Sun.Com
```

In this example, the T3 storage device cannot be set up using the Sun Management Center setup tools because the domain name case is different.

Removing T3 Device Configuration If Present

If you monitor and manage T3 storage devices using the Monitoring and Management of A5x00 and T3 Devices add-on, remove T3 device configuration information before you uninstall Sun Management Center 2.x or Sun Management Center 3.x. The `es-uninst` command does not remove T3 device configuration information.

▼ To Remove T3 Device Configuration

1. **Log in as root by typing `su - root` on the machine where the Sun Management Center 2.x or Sun Management Center 3.x server is installed.**

2. **Stop the Sun Management Center agent.**

Type the command `/opt/SUNWsymon/sbin/es-stop -a`.

3. **Run the pre-uninstall script to remove T3 device configuration information.**

Type the command `/opt/SUNWsymon/addons/storage/sbin/pre-uninst.sh`.

You are asked if you want to stop the T3 from sending syslog messages. Type `y`. You are then prompted for the root password for the T3 device. Type the password.

You are notified that the T3 device has been removed from the T3 module.

- If you do not run the `pre-uninst.sh` script before you install Sun Management Center 3.5, you will have to manually remove T3 configuration information before you can set up the new Sun Management Center 3.5 installation.
- If you run the `pre-uninst.sh` script but then decide to keep your Sun Management Center 2.x or Sun Management Center 3.x installation, type `/opt/SUNWsymon/es-setup -F` to set up your T3 devices again.

Determining the Installation Source

You can install, set up, and configure Sun Management Center 3.5 using either the Sun Management Center installation CDs or a Sun Management Center installation image located on your network. CD images eliminate the need to install Sun Management Center on each machine from the CDs.

This section provides the procedures for creating Sun Management Center installation images.

- “Creating Installation CD Images” on page 65
- “Creating CD Images From the Download Tar File” on page 67

There are two methods for capturing an installation image. You can copy Sun Management Center installation CDs to a location on your network. You can also download and unpack the Sun Management Center installation image from the Sun Management Center Web site.

Note – To install, set up, and configure , you must be logged in as root on Solaris machines, and as administrator on Microsoft Windows.

Creating Installation CD Images

To create the Sun Management Center CD images, you create a directory to contain the images, copy each CD to the directory, and then share the directory using network file system mounting.

▼ To Create CD Images

1. In a terminal window, log in as root by typing `su - root`.
2. Create a directory to which you will copy each CD.
For example:

```
# mkdir /SunManagementCenter
```
3. Go to the directory you created for the CD images.
For example:

```
# cd /SunManagementCenter
```
4. Create a `disk n` directory for each CD, where n is the sequence number of the disk.

For example:

```
/SunManagementCenter# mkdir disk1 disk2
```

5. Make sure the vold daemon is running.

```
/SunManagementCenter# ps -eaf | grep vold
root 19033 19000 0 08:37:55 pts/9 0:00 vold
/SunManagementCenter#
```

If the `grep` command returns only the system prompt, then the `vold` daemon is not running, and must be started as follows:

```
/SunManagementCenter# /usr/sbin/vold &
```

6. Insert Sun Management Center 3.5 CD 1 of 2 in your CD-ROM drive.

7. List the contents of the Sun Management Center 3.5 installation CD 1. Then copy the contents to the `disk1` subdirectory.

When the copy completes, list the contents of the CD and the directory to verify the contents of the disk image.

For example:

```
/SunManagementCenter# ls -p /cdrom
cdrom0          sunmc_3_5_sparc/
/SunManagementCenter# cp -r /cdrom/sunmc_3_5_sparc/. * disk1
/sunmanagementcenter > ls -acp /cdrom/cdrom0sunmc_3_5_sparc
.               .CD          Copyright  image/      lib/
..             .CD01       classes/   install/    sbin/
/sunmanagementcenter > ls -acp disk1
.               .CD          Copyright  image/      lib/
..             .CD01       classes/   install/    sbin/
```



Caution – `cdrom0` is a symbolic link. Copy *only* the Sun Management Center directory as shown in the above example.

8. Eject CD.1 of 2.

```
SunManagementCenter# eject
```

9. Insert Sun Management Center 3.5 CD 2 of 2 in your CD-ROM drive.

10. List the contents of the Sun Management Center 3.5 installation CD 2. Then copy the contents to the `disk2` subdirectory.

When the copy completes, list the contents of the CD and the directory to verify the contents of the disk image.

For example:

```
/SunManagementCenter# ls -p /cdrom
cdrom0          sunmc_3_5_sparc_2/
/SunManagementCenter# cp -r /cdrom/sunmc_3_5_sparc_2/. * disk2
```

```

/sunmanagementcenter > ls -acp /cdrom/cdrom0sunmc_3_5_sparc_2
.      ..      .CD      .CD01     .CD02     Copyright image/
/sunmanagementcenter > ls -acp disk2
.      ..      .CD      .CD01     .CD02     Copyright image/

```

11. Eject CD 2 of 2.

12. Make the Sun Management Center 3.5 CD image directory NFS-shared.

Using NFS to share the CD image directory enables you to install Sun Management Center 3.5 from other machines by using the CD installation images instead of manually installing from the CDs.

a. Stop the Network File System daemon `mountd`:

```
/SunManagementCenter# /etc/init.d/nfs.server stop
```

b. Add the following line to the `/etc/dfs/dfstab` file.

```
share -F nfs -o ro cd-image-dir
```

where *cd-image-dir* is the Sun Management Center 3.5 cd-image directory that you created in “Java Environment Variables and Path” on page 58.

For example: `share -F nfs -o ro /SunManagementCenter`

c. Save and close `/etc/dfs/dfstab`.

d. Start the Network File System daemon `mountd`:

```
/SunManagementCenter# /etc/init.d/nfs.server start
```

The Sun Management Center 3.5 cd-image directory is now accessible from other machines.

You can now use the Sun Management Center CD images to install Sun Management Center 3.5, or to upgrade previous versions of Sun Management Center as described in the following chapters.

Creating CD Images From the Download Tar File

You can download the Sun Management Center Sun Management Center compressed tar file from the Web to a Solaris machine on your network. You then decompress and untar the tar file to a cd-image directory.

To download Sun Management Center, you must be registered with Sun as a Sun Web site user, and log in using your registered user ID. The download software Web page provides a link for registration.



Caution – Before you download the tar file, ensure that you have at least 1.6 Gigabytes of free disk space for the tar file and for the CD image files that are created when you uncompress and unpack the tar file.

▼ To Download the Tar File From the Web Site

1. In a terminal window, log in as root on the system where you want to create the Sun Management Center installation image.

2. Go to the Sun Management Center Web site at <http://www.sun.com/sunmanagementcenter/>.

3. Click **Get the Software**.

4. Click **Sun Management Center 3.5**.

Follow the instructions and download the Sun Management Center 3.5 tar file to a location that is accessible by root.

5. Go to the location where the tar file has been downloaded:

```
# cd /download-directory
```

6. Extract the Sun Management Center packages:

```
# zcat downloaded-filename | tar xvf -
```

The cd-image source directory is created, containing the subdirectories `disk1` and `disk2`.

7. Make the Sun Management Center 3.5 cd-image directory NFS-shared.

Using NFS to share the CD image directory enables you to install Sun Management Center 3.5 from other machines by using the CD installation images instead of manually installing from the CDs.

For example, if you extracted the cd-images to the directory `SunManagementCenter`, you would make the directory NFS-shared as follows.

a. Stop the Network File System daemon mountd:

```
/SunManagementCenter# /etc/init.d/nfs.server stop
```

b. Edit the `/etc/dfs/dfstab` file.

Add the following line:

```
share -F nfs -o ro cd-image-dir
```

where `cd-image-dir` is the Sun Management Center 3.5 cd-image directory.

For example: `share -F nfs -o ro /SunManagementCenter`

c. Save and close `/etc/dfs/dfstab`.

d. Start the Network File System daemon mountd:

```
/SunManagementCenter# /etc/init.d/nfs.server start
```

The Sun Management Center 3.5 cd-image directory is now accessible from other machines.

You can now use the Sun Management Center CD images to install Sun Management Center 3.5, or to upgrade previous versions of Sun Management Center as described in the following chapters.

Upgrading Previous Versions of SyMON and Sun Management Center on the Solaris Platform

This chapter describes how to upgrade Solstice SyMON 1.x, Sun Enterprise SyMON 2.x, Sun Management Center 2.x, and Sun Management Center 3.0 software to Sun Management Center 3.5 on a single machine.

This chapter discusses the following topics:

- “Upgrade Considerations” on page 71
- “Upgrading from Solstice SyMON 1.x and Sun Enterprise SyMON 2.x Software” on page 72
- “Upgrading From Sun Management Center 2.1 or 2.1.1” on page 73
- “Upgrading From Sun Management Center 3.0” on page 75

Note – If you do not want to migrate your SyMON or Sun Management Center data, you must uninstall the existing SyMON or Sun Management Center software before you can install Sun Management Center 3.5. To uninstall existing SyMON or Sun Management Center software without saving your data, see Appendix A

Upgrade Considerations

When upgrading from any version of Sun Enterprise SyMON software, or upgrading from any version of Sun Management Center software, the server and console layers must be upgraded first.

As shown in Table 2–1, Sun Management Center 3.5 servers and consoles support previous versions of Sun Management Center agents and Sun Enterprise SyMON 2.0.1 agents. Consequently, Sun Management Center agents can be upgraded when time or circumstances permit.

All Sun Management Center software components should be upgraded to version 3.5 to take advantage of the improved monitoring and management capabilities provided by Sun Management Center 3.5.

Note – When upgrading, make sure you use the same port number for the agent as you used in the previous installation. This advice is applicable to both an agent upgrade and a server upgrade.

Upgrading from Solstice SyMON 1.x and Sun Enterprise SyMON 2.x Software

If you are upgrading from Sun Enterprise SyMON 1.x or Sun Enterprise SyMON 2.x, you must first upgrade to Sun Management Center 2.1 or Sun Management Center 2.1.1 before you can upgrade to Sun Management Center 3.5. For upgrade procedures, see *Upgrading from Sun Enterprise SyMON 2.x to Sun Management Center 2.1 Software* in the *Sun Management Center 2.1 Software User's Guide*.



Caution – If you have modified SyMON 1.x or 2.x rules, back up the rules before you install Sun Management Center 3.5. The 3.5 installation and setup process could overwrite your SyMON 1.x or 2.x files. Depending on where you modified your event rules, back up the `/etc/opt/SUNWsymon` directory, the `/opt/SUNWsymon/etc` directory, or both directories.

When you have completed the upgrade to Sun Management Center 2.1 or Sun Management Center 2.1.1, follow the procedures in “Upgrading From Sun Management Center 2.1 or 2.1.1” on page 73 to upgrade to Sun Management Center 3.5.

The coexistence of the Solstice SyMON 1.x or Sun Enterprise SyMON 2.x software with Sun Management Center 3.5 software is not supported on the same server. In addition, you may have Sun Management Center sessions running on different servers or server contexts. For more information on server context, see “Sun Management Center Architecture” in *Sun Management Center 3.5 User's Guide*.

Upgrading From Sun Management Center 2.1 or 2.1.1

If you want to migrate your Sun Management Center 2.x server data and use it with Sun Management Center 3.5, use the migration utility as described below.

If you do not want to migrate your Sun Management Center 2.x server data, you must uninstall Sun Management Center 2.x before you can install Sun Management Center 3.5. To uninstall Sun Management Center 2.x, follow the procedures in “Uninstalling Sun Management Center 2.x” on page 188.

Note – If you want to migrate or upgrade your Sun Management Center 2.x agent to Sun Management Center 3.5, you do not need to run the migration utility. For agent upgrade procedures, see “Creating Agent Installation and Update Images” on page 95 and “Applying Agent Installation, Update, and Patch-Only Images” on page 113.

▼ To Upgrade From a Sun Management Center 2.x Server

1. Log in as root on the machine where the Sun Management Center 2.x server is installed.
2. Prepare the system for Sun Management Center 3.5 as described in Chapter 4.
3. Download the tar file `sunmc_2x_server_upgrade.tar` from <http://www.sun.com/solaris/sunmanagementcenter/>.

- a. Uncompress the tar file:

```
# tar xvf sunmc_2x_server_upgrade.tar
```

- b. Read and follow the migration instructions in the file `sunmc_2x_server_upgrade_README.txt`.

The migration utility saves your Sun Management Center 2.x data in the directory `/var/opt/SUNWsymon/2x`.

4. Uninstall the Sun Management Center 2.x software.

Type the command `/opt/SUNWsymon/sbin/es-uninst` and press Return.



Caution – Do not delete the Sun Management Center 2.x directories. The Sun Management Center 2.x uninstall process removes the Sun Management Center 2.x software, but does not remove the Sun Management Center 2.x data.

5. Upgrade the Solaris operating environment if necessary.

If you are upgrading the Sun Management Center 2.x server, the machine must be running either the Solaris version 8 or Solaris version 9 developer environment. For additional information, see “Prerequisite Packages” on page 57



Caution – If you need to upgrade to Solaris version 8 or Solaris version 9, make sure you perform a Solaris upgrade. A fresh Solaris installation reformats the hard drive, which deletes your Sun Management Center 2.x configuration data. If you perform a fresh Solaris installation, you will not be able to migrate your Sun Management Center 2.x configuration data to Sun Management Center 3.5.

- a. **Back up the `/var/opt/SUNWsymon/2x` directory and subdirectories to a different machine or backup device.**
- b. **Upgrade the Solaris operating environment.**
Refer to your Solaris documentation for procedures.
- c. **If necessary, restore the `/var/opt/SUNWsymon/2x` directory and subdirectories to the machine.**

6. Install Sun Management Center 3.5.

Use either the Sun Management Center 3.5 graphical user interface command `es-guiinst` or the command-line script `es-inst` to install Sun Management Center 3.5.

You will be notified that the exported Sun Management Center 2.x data has been detected, and that the data will be migrated to the new release.

- To upgrade Sun Management Center 3.5 using `es-guiinst`, see “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81.
- To upgrade Sun Management Center 3.5 using `es-inst`, see “Installing on the Solaris Platform Using `es-inst`” on page 199.

Upgrading From Sun Management Center 3.0

As described in the following sections, Sun Management Center 3.5 provides several methods for upgrading the Sun Management Center 3.0 server and agent.

Upgrading the Server

You can upgrade the Sun Management Center 3.0 server to the Sun Management Center 3.5 using any of the following methods.

- Run the Sun Management Center 3.5 graphical user interface installation command `es-guiinst`.
- Run the Sun Management Center 3.5 command-line installation script `es-inst`.
- Uninstall Sun Management Center 3.0 and save the configuration data, then run either the Sun Management Center 3.5 `es-guiinst` command or the `es-inst` command.

The Sun Management Center 3.5 installation process detects the existing 3.0 installation and runs the Sun Management Center 3.0 `es-uninst` command-line script. The Sun Management Center `es-uninst` script gives you the option to save your Sun Management Center 3.0 data.

After you have installed Sun Management Center 3.5, if you saved your Sun Management Center 3.0 data the Sun Management Center 3.5 setup process detects the saved Sun Management Center 3.0 data and gives you the option to migrate the data to Sun Management Center 3.5.

▼ To Upgrade From Sun Management Center 3.0

Note – This procedure assumes that you installed Sun Management Center server in the default directory `/opt`. If you installed Sun Management Center in a different directory, substitute `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

1. **Log in as root on the machine where the Sun Management Center 3.0 server is installed.**
2. **Stop Sun Management Center processes.**

Type the command `es-stop -A`. Wait until all Sun Management Center processes have been stopped.

3. Prepare the system for Sun Management Center 3.5 as described in Chapter 4.

4. Upgrade the Solaris operating environment if necessary.

If you are upgrading the Sun Management Center 3.0 server, the machine must be running either the Solaris version 8 or Solaris version 9 developer environment. For additional information, see “Prerequisite Packages” on page 57



Caution – If you need to upgrade to Solaris version 8 or Solaris version 9, make sure you perform a Solaris upgrade. A fresh Solaris installation reformats the hard drive, which deletes your Sun Management Center 3.0 configuration data. If you perform a fresh Solaris installation, you will not be able to migrate your Sun Management Center 3.0 configuration data to Sun Management Center 3.5.

a. Back up all Sun Management Center 3.0 directories.

Tip – Use `ufsdump` to back up the Sun Management Center 3.0 directories to a different machine or backup device. `ufsdump` preserves symbolic links.

Sun Management Center 3.0 software is installed by default in `/opt/SUNWsymon`, `/var/opt/SUNWsymon`, and `/etc/opt/SUNWsymon` directories.

- If Sun Management Center 3.0 software has been installed to non-default locations, examine the Sun Management Center 3.0 installation logs in `/var/opt/SUNWsymon/install` to determine where Sun Management Center 3.0 software has been installed.
- If `/var/opt/SUNWsymon/install` does not contain the installation logs, or if `/var/opt/SUNWsymon` does not exist, you must determine where the Sun Management Center 3.0 software has been installed.

Sun Management Center software is installed as *install-path*/`SUNWsymon`, where *install-path* is the parent directory hierarchy.

For example, the Sun Management Center 3.0 core software could be installed in `/export/applications/SUNWsymon`. In this example, `/export/applications` is the *install-path*.

To determine where the Sun Management Center 3.0 software has been installed, search for all `SUNWsymon` directories on the system as follows:

i. Type the command `pkgparam SUNWescom BASEDIR` to determine the Sun Management Center 3.0 base directory. For example:

```
# pkgparam SUNWescom BASEDIR
/system/opt
```

- ii. Type the command `find / -name "SUNWsymon" -print` to locate the Sun Management Center configuration directories.
 - b. Upgrade the Solaris operating environment.
Refer to your Solaris documentation for procedures.
 - c. If necessary, restore the Sun Management Center 3.0 directories to the machine.
5. Upgrade the Sun Management Center 3.0 server to Sun Management Center 3.5 using any one of the following methods.
- To upgrade to Sun Management Center 3.5 using `es-guiinst`, follow the procedures in "Installing Sun Management Center 3.5 on the Solaris Platform" on page 81.
 - To upgrade to Sun Management Center 3.5 using `es-inst`, follow the procedures in "Installing on the Solaris Platform Using `es-inst`" on page 199.
 - To upgrade to Sun Management Center 3.5 by first uninstalling the Sun Management Center 3.0 configuration data, follow the procedures in "Uninstalling Sun Management Center 3.0" on page 189.

Upgrading Agents

You can upgrade the Sun Management Center 3.0 agent to the Sun Management Center 3.5 agent using either of the following methods.

- Create an agent-only installation image on the Sun Management Center server as described in "To Create an Agent-Only Installation Image Using `es-makeagent`" on page 111. When you have created the agent-only installation image, apply the image to the agent hosts using the `es-inst -a` command as described in "To Install Agents From an Agent-Only Installation Image Using `es-inst -a`" on page 116.
- Create an agent-update image using either `es-gui-imagetool` as described in "To Create an Agent-Update Image Using `es-gui-imagetool`" on page 96, or by using `es-imagetool` as described in "To Create an Agent-Update Image Using `es-imagetool`" on page 101. When you have created the agent-update image, apply the image to the agent hosts using the `agent-update.bin` executable file as described in "To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`" on page 114.

Sun Management Center 3.5 Installation and Setup

This chapter provides the procedures for installing and setting up Sun Management Center software on your Solaris and Microsoft Windows systems.

This chapter discusses the following topics:

- “Preinstallation Information” on page 79
- “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81
- “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87
- “Creating Agent Installation and Update Images” on page 95
- “Applying Agent Installation, Update, and Patch-Only Images” on page 113
- “Installing Agents Using JumpStart” on page 118
- “Configuring Server and Agent on Multi-IP Machines” on page 138
- “Installing Sun Management Center 3.5 on Microsoft Windows” on page 143



Caution – Before you install Sun Management Center 3.5 using `es-guinst`, ensure that you have completed all the tasks listed by “Preinstallation Checklist” on page 55.

Preinstallation Information

The following table lists the prerequisite information that you need before installing the Sun Management Center 3.5 software.

TABLE 6-1 Information Needed Prior to Installing Sun Management Center

Item	Description
Administrator user name	A valid Solaris user name is required for assignment as the Sun Management Center administrator on Sun Management Center server machines.
Network Addressing Mode	Sun Management Center uses two types of addressing for communication between the server and agent: IP addressing, and Network Address Translation (NAT). You must have the following information: <ul style="list-style-type: none">■ Which addressing mode is used in your network■ The name of each machine that is to be managed by Sun Management Center■ The IP addresses and names for all machines that have been assigned static IP addresses See Appendix D for further information.
Sun Management Center Security Key	First time install - Sun Management Center requires an encrypted security key for communication between processes. The security key is generated based on a unique password you provide. Store the password securely. You need the password if you modify your Sun Management Center installation. Upgrade Install – If you are upgrading a prior version of Sun Management Center, you must supply the password used in the previous version of Sun Management Center.
SNMPv1 Community String	Sun Management Center 3.5 requires an SNMPv1 community string for security. The default is <code>public</code> . You have the option of specifying a more secure custom string. Store the SNMPv1 string securely. You need the SNMPv1 security string if you modify your Sun Management Center installation.
Web Server Security Key	The Sun Management Center Web server requires an encrypted security key. The security key is generated based your organization name and location. Store the organization name and location securely. You need this information if you modify your Sun Management Center Web server.
Base Components	First Time Install – Determine the machines on which you will install each component, for example, server, agent, and console. See Chapter 2. Upgrade Install – Make sure that the current machines have sufficient capacity for the upgrade to the new version of the component installed on each machine.

TABLE 6-1 Information Needed Prior to Installing Sun Management Center (Continued)

Item	Description
Add-on Products	<p>Review the add-on supplements to determine which add-ons you want to install.</p> <p>Add-on products are installed on the same machine as the Sun Management Center server. Make sure that the machine selected for the server has sufficient resources. See “Sun Management Center Base Add-on Requirements” on page 41.</p>
Space Needed	<p>If the machine does not have enough space in the default <code>/opt</code> directory, you might need to make one of the following adjustments:</p> <ul style="list-style-type: none">■ Specify an alternate file system that has sufficient space■ Select a machine with sufficient resources■ Make more space in <code>/opt</code> <p>See “Sun Management Center Base Layer Requirements” on page 40, “Sun Management Center Base Add-on Requirements” on page 41, and the add-on supplements for information on the space required in <code>/opt</code> and <code>/var/opt</code>.</p>
Permissions	<p>You must have permission to write to the <code>/var/opt</code> and <code>/opt/SUNWsymon</code> directories as <code>root</code> on each machine. You also need privileges to run commands such as <code>chmod</code>.</p>
Languages	<p>Determine which, if any, additional languages you need for online help.</p>
Ports	<p>Determine the assignments for the following ports:</p> <ul style="list-style-type: none">■ SNMPv1 Port: default 161■ Database port: default 2521■ Web server port: default 8080■ Web server secure port: 8443 <p>See “Default Ports” on page 171 for further information.</p>

Installing Sun Management Center 3.5 on the Solaris Platform

This section describes how to install Sun Management Center 3.5 on the Solaris platform using the `es-guiinst` command. During installation, you can install the console, server, and agent layers either separately or in combination. You can also choose specific add-on products for the features that you want to install. When the install process is completed, the setup wizard `es-guisetup` is run, enabling you to set up the base and add-on components.

This installation procedure assumes that you are installing Sun Management Center from a cd-image directory on your network. See “Creating Installation CD Images” on page 65 for further information. Depending on the choices you make during installation, some steps might be skipped.

Note – If you plan to install the Sun Management Center 3.5 development environment, you should install the developer environment on a separate, dedicated machine. The Sun Management Center server, agent, and console layers are automatically installed on a developer environment machine.

A machine used for Sun Management Center development must meet the minimum hardware and software requirements for the Sun Management Center server layer. The developer environment machine must also meet the requirements for the agent layer, console layer, and any add-ons you install. For more information, see Chapter 2.

▼ To Install Sun Management Center 3.5 on the Solaris Platform

1. **Open a terminal window, then type the command `xhost +` in the terminal window.**
Also, ensure that the `DISPLAY` environment variable is set to the machine’s display.
2. **Log in as root on the machine where you want to install the Sun Management Center 3.5 base components and add-ons.**
3. **Make sure that the group entry in the `/etc/nsswitch.conf` has `files` as the first token.**

```
group: files nis
```

4. **Review `/disk1/sbin/INSTALL.README` and `disk1/sbin/INSTALL_README.HWDS` before continuing with installation.**
To access the README files, go to the installation cd-image directory `disk1/sbin`. For example:

```
# cd  
/net/machine-name/cd-imagedir/disk1/sbin
```

where *machine-name* is the machine where you created the installation image, and *cd-imagedir* is the root directory containing the installation CD images.

5. **Go to the cd-image `disk1/sbin` directory.**
6. **Run the `es-guiinst` script:**

```
# ./es-guiinst
```

The welcome screen appears. Ensure that you have the information listed, and then click Next.

- If a previous version of Sun Management Center exists on the machine, the Previous Version of Sun Management Center Detected screen is displayed. Go to Step 7.
- If a previous version of Sun Management Center is not installed on the machine, or has been uninstalled, the Specify the Installation Destination Directory screen is displayed. Go to Step 8.

7. Click Next to uninstall the previous Sun Management Center version.

The `es-uninst` script from the previous Sun Management Center version is run in an Xterm window.

- If the previous Sun Management Center installation includes only the Sun Management Center console, you are asked whether you want to uninstall the previous version. Type **y** to uninstall the previous version.

When the previous version has been uninstalled successfully, type **y** to continue. The Xterm window is closed, and the Specify the Installation Destination Directory screen appears. Go to Step 8.

- If the previous Sun Management Center installation includes only the Sun Management Center server or agent, or both server and agent, you are asked whether you want to migrate your previous data.

- To save and migrate the previous Sun Management Center configuration data, alarms, and database for use in your new Sun Management Center 3.5 installation, type **y**.

Your previous Sun Management Center data is saved, and you are asked whether you want to uninstall the previous version.

Type **y**. The previous Sun Management Center version is uninstalled.

When the previous version has been uninstalled successfully, type **y** to continue. The Xterm window is closed, and the Specify the Installation Destination Directory screen appears. Go to Step 8.

- To discard all of the previous Sun Management Center data, type **n**.

You are informed that all data in `/var/opt/SUNWsymon` will be removed, and you are notified that you should move any custom scripts you might have to an alternate location. If desired, save your custom scripts before continuing.

You are asked whether you want to continue with removal of the existing data.

Type **y** to uninstall the previous Sun Management Center installation. The previous Sun Management Center version is uninstalled.

When the previous version has been uninstalled successfully, type **y** to continue. The Xterm window is closed, and the Specify the Installation Destination Directory screen appears. Go to Step 8.

8. Click Next to accept the default `/opt` installation directory, or type your preferred directory name and then click Next.

Sun Management Center 3.5 can be installed in any location on your system where the minimum required disk space is available. The default location is `/opt`.

The Select Environment screen appears.

9. Select either the Sun Management Center production environment or developer environment.

Note – If you are installing the developer environment, you should run the Sun Management Center 3.5 developer environment and the Sun Management Center 3.5 production environment on separate, dedicated servers.

- The production environment is preselected by default. To install the production environment, click Next. The Select Sun Management Center Components screen appears. Go to Step 10.
- To install the developer environment, select Developer Environment. The Sun Management Center server, agent, and console layers are automatically selected for installation. Click Next.

The server layer Binary Code License agreement is displayed. Go to Step 11.

10. Select the Sun Management Center components that you want to install and click Next.

Note – If you select Server, Agent is automatically selected for installation as well.

- If you selected Server, or selected Server, Agent, and Console, the Server layer Binary Code License is displayed. Go to Step 11.
- If you selected Console, or Agent and Console, the Select Language Support screen appears. Go to Step 12.
- If you selected Agent only, the Select Add-on Products screen appears. Go to Step 13.

11. Review the Server Layer Binary Code License.

Read the Server Layer Binary Code License carefully. To continue the installation, you must agree to the terms of the license.

Click I Agree to agree to the license and continue, or click I Disagree to exit the installation.

If you accept the license, the installation process checks for a valid JDK version.

- If a valid JDK version is not installed, you are informed of this fact, and the installation process exits to the system prompt.
- If a valid JDK version is installed, the Select Language Support screen appears.

12. Select language support.

You can install help and support files in additional languages. Select the additional languages that you want and then click Next. The Checking for Available Products

screen appears. When the check for available add-on products completes, the Select Add-on Products screen appears.

Note – The Sun Management Center online help, which is based on the *Sun Management Center Software User's Guide*, is a quick reference for specific topics. Sun Management Center online help is installed automatically with the Sun Management Center server in the `/opt/SUNWsymon/lib/locale/dir/help` directory, where *dir* represents a particular language version.

13. Select the Sun Management Center add-on products and hardware packages.

The Select Add-on Products screen provides a selectable list of add-on products that you can install. Select the add-ons that you want to install, and then click Next.

Note – Some of the add-ons and packages are platform-specific. For information about each add-on and package, refer to the Sun Management Center 3.5 Software Release Notes, the platform supplements provided with the Sun Management Center release kit, and the Sun Management Center Web site at <http://www.sun.com/solaris/sunmanagementcenter/>.

- If you did not select any add-on components, or no additional components are available for the add-on components that you selected, the installation process checks disk space. Go to Step 16.
- If any of the add-on products you selected have optional components, the Optional Add-on Components screen appears. Go to Step 14.
- If you selected one or more of the following base add-on components and did not select any other add-on components, the Add-on Products Binary Code License is displayed. Go to Step 15.
 - Advanced System Monitoring
 - Performance Reporting Manager
 - Service Availability Manager
 - System Reliability Manager

14. Select Optional Add-on components if desired.

Select the optional components that you want to install, if any, and then click Next.

- If you did not select any optional add-on components, the installation process checks disk space. Go to Step 16.
- If you selected any of the following add-on products, the Add-on Products Binary Code License is displayed.
 - Advanced System Monitoring
 - Performance Reporting Manager
 - Service Availability Manager
 - System Reliability Manager

15. Review the add-on products binary license.

Read the add-on products Binary Code License carefully. To continue the installation, you must agree to the terms of the license. Click I Agree to continue with the installation, or click I Disagree to exit the installation.

If you clicked I Agree, the installation process checks disk space.

16. Check disk space.

The installation process checks whether there is enough disk space to install the products that you selected.

- If there is enough disk space, the products you selected are listed and you are asked to confirm your selections. Go to Step 18.
- If there is not enough disk space, you are asked to provide an alternate file system. The amount of space that is available and the amount of space that is needed are displayed.

17. Provide the name of an alternate file system with enough disk space.

Type the name of a file system and directory that has enough free space.

Tip – In a terminal window on the machine where you are installing Sun Management Center, type `df -ak` to list the amount of used and free space for each file system on the machine.

The installation process checks disk space again. If there is enough disk space, the products that you selected are listed. You are asked to confirm your installation selections.

18. Confirm installation selections.

A list of Sun Management Center base components and add-on components appears.

- If the list is not correct, click Back to return to the Select Add-on Products screen to select the products that you want to install. Confirm the new selections.
- If the list is correct, click Next to start installation of Sun Management Center.

The Installation in Progress screen appears.

Note – The installation process can take from a few minutes to half an hour or more, depending on the products selected.

- When the installation process completes, you are given the opportunity to run the setup wizard as described in the next step.
- If installation failed, a summary screen is displayed.
Review the installation log in `/var/opt/SUNWsymon/install` to find out why the installation failed, and correct the problem.

19. Choose whether to run the setup wizard.

- Click Next to set up Sun Management Center components and any add-on products that you selected. The `es-guisetup` wizard is started, and the Setup Wizard Overview screen appears. Go to Step 5 in the procedure “To Set Up Sun Management Center 3.5 on the Solaris Platform” on page 87.
- Click Close to exit to the system prompt and run setup later. You cannot use Sun Management Center until you have run setup as described in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.



Caution – If you have used `gui-inst` to install only add-on products, click Close to exit the installation and setup process. You must set up the add-on products as described by “To Set Up an Add-on Product Using `es-setup`” on page 151. Otherwise, you will overwrite your security keys, and will then have to set up all of the agents on all of your machines for the agents to work properly.

Setting Up Base Products and Add-ons on the Solaris Platform

You can use the graphical setup wizard `es-guisetup` to set up, configure, and re-configure your Sun Management Center installation. For information on using the `es-setup` command-line setup script, see “To Set Up Sun Management Center Using the `es-setup` Script” on page 212.

▼ To Set Up Sun Management Center 3.5 on the Solaris Platform

Note – This procedure assumes that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

1. **Open a terminal window, then type the command `xhost +` in the terminal window.** Also, ensure that the `DISPLAY` environment variable is set to the machine’s display.
2. **Log in as root on the machine where you installed the Sun Management Center 3.5 base components and add-ons.**

3. Go to the Sun Management Center `sbin` directory. For example:

```
# cd /opt/SUNWsymon/sbin
```

If you installed Sun Management Center in a directory other than `/opt`, go to `/installdir/SUNWsymon/sbin`, where *installdir* is the directory you specified in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

4. Run the `es-guisetup` script:

```
# ./es-guisetup
```

The Welcome screen appears. Ensure that you have the information listed, and then click Next.

5. Review the information that is required for Sun Management Center setup.

Ensure that you have the information listed, and then click Next.

- If you installed only the console, the console is set up, and the setup status screen appears.
Click Cancel to exit. You can start the Sun Management Center console as described in “Starting the Console” on page 158.
- If you installed only the agent, or the agent and console, the Generate Security Key screen appears. Go to Step 7.
- If you installed only the agent or the agent and console, the Store Setup Response Data screen appears.

6. Store setup response data if desired.

You are given the opportunity to store all of your setup responses in the file `/var/opt/SUNWsymon/install/setup-responses-file`. The `setup-responses-file` file is useful if you need to duplicate the setup on the current machine on other machines.

- To continue setup without creating the response file, click Next.
- To create the response file, select Store Response Data and then click Next.

Your responses to each of the following steps are stored in `/var/opt/SUNWsymon/install/setup-responses-file`.

The Generate Security Key screen appears.

7. Generate the Sun Management Center security key.

Type a password in both fields and click Next to generate the security keys.

An encrypted security key is needed for communications between all Sun Management Center processes. The key is generated based on the password you provide, which must be between one and eight characters long and contain no spaces. Entries that are greater than eight characters are truncated to eight characters.

Note – Keep a record of the password you use to generate the security key for this machine in a secure location. You might need to regenerate the key for the machine at a later time. You can also change the security key later, if needed, as described in “Regenerating Security Keys” on page 166.

The SNMPv1 Community String screen appears.

8. Specify the SNMPv1 community security string.

The community string is used for SNMP security, and is set to `public` by default.

Set the community string to a value other than `public` or `private` to provide better SNMP security.



Caution – The same SNMP community string must be used on all of the machines on which you install Sun Management Center 3.5. If you use different community strings on each machine, SNMP communications between the machines and Sun Management Center components will not work.

- If you want to accept the community string default value of `public`, click Next.
- If you want to use a custom community string:
 - a. Select Use Custom Community String.

The community string can be up to 255 characters and must not contain any spaces or blanks.
 - b. Type the same community string in both fields, and then click Next.

The setup process checks which base components have been installed.

- If you installed only the agent or agent and console, the Specify Host Name screen appears. Go to Step 9.
- If you installed the server, or the server, agent, and console, the setup process checks for a valid UNIX administrator account name for the Sun Management Center `esadm` and `esdomadm` groups. See “Users, Groups, and Roles Overview” on page 47 for information about groups.
 - If a valid UNIX administrator account name does not exist, the Administrator Account Name screen appears. Go to Step 10.
 - If a valid UNIX administrator account name exists, the setup process checks whether the SNMP port is in use. Go to Step 11.

9. Specify the Sun Management Center server host name.

Type the name of the machine on which the Sun Management Center server was installed and click Next.

The setup process checks whether the SNMP port is in use. Go to Step 11.

10. Type a valid Solaris user name as the UNIX administrator account.

A valid Solaris user name is required for Sun Management Center administration. Type a valid Solaris user name.

The install process checks whether the SNMP port is in use.

- If the SNMP port is not in use, the install process checks whether the Sun Management Center ports are in use.
 - If you have installed only the agent, or the agent and console, the Confirmation screen appears. Go to Step 16.
 - If you have installed the server and any Sun Management Center port is in use, you must resolve the port conflict. Go to Step 13.
 - If you have installed the server and none of the Sun Management Center ports are in use, the Web Server Security Key screen appears. Go to Step 15.
- If the SNMP port is in use, the SNMP Port Conflict screen appears.

11. Resolve the SNMP port conflict.

You are notified that port 161 is in use by another process. In most cases, port 161 is the default port assigned to and used by the SNMP daemon. However, other processes or daemons could be using port 161. Several third-party replacements and enhancements for the SNMP daemon exist, and could be installed on your system. The Sun Management Center agent is such a daemon.

You can choose to use port 161 or to use a different port number.



Caution – If you chose to restore the configuration data from a previous Sun Management Center installation, make sure you use the same port number for the agent as you had in the previous Sun Management Center installation. This advice is applicable for both agent upgrade and server upgrade.

- To assign a different port number:
 - a. Select Use a Different Port Number.

For instructions on how to find out whether a port is unused, see “To Determine Whether a Port Is Used” on page 172.
 - b. Type the port number in the Port ID field and click Next.

Note – Keep a record of this alternate port number. You will need this number if you later install agents using JumpStart, or update the Sun Management Center agents using the agent update-image tools. For more information, see “Installing Agents Using JumpStart” on page 118 and “Creating Agent Installation and Update Images” on page 95.

- If you have installed only the agent or the agent and console, the Confirmation screen appears. Go to Step 16.

- If you have installed the server, the install process checks whether the Sun Management Center ports are in use.

If any Sun Management Center port is in use, you must resolve the port conflict. Go to Step 13.

If none of the Sun Management Center ports are in use, the Web Server Security Key screen appears. Go to Step 15.

- To use port 161, select Use Port 161 and click Next.
You are prompted to stop and disable the SNMP daemon `snmpdx`.

12. Stop and disable the SNMP daemon `snmpdx`.

- To stop and disable the SNMP daemon `snmpdx` automatically, make sure that Stop and Disable SNMP Daemon `snmpdx` has been selected, and then click Next.



Caution – Stopping and disabling the system SNMP daemon does not guarantee that you have stopped the actual process using port 161. To determine the actual daemon process that uses port 161, you must manually review all `/etc/rcN` and `/etc/rcN.d` files, where `N` is 0 through 6 and `S`. When you have identified the file that defines the process using port 161, you can disable the process by renaming the file. For example,

```
/etc/rc3.d# mv S76snmpdx s76snmpdx
```

You must stop all other processes that use port 161 before you can start Sun Management Center.

- To assign an unused port, click Back and follow the instructions in Step 11.
The setup process checks whether any Sun Management Center ports are in use.
 - If none of the Sun Management Center ports are in use, the Web Server Security Key screen appears. Go to Step 15.
 - If any Sun Management Center port is in use, you must resolve the port conflict.

13. Resolve Sun Management Center port conflicts.

The ports are checked in the following order: trap service, event service, topology service, configuration service, platform agent, cst service, metadata service, database, look-up service, Web server default port, and Web server secure port.

If any of the ports are in use, you are prompted to provide an unused port number. Type an unused port number in the field, and then click Next.

- If you have installed Sun Management Center for the first time or if you chose to delete the configuration data from a previous version of Sun Management Center, the Web Server Security Key screen appears. Go to Step 15.

- If you chose to migrate the configuration data from a previous version of Sun Management Center, you are prompted to restore the previous Sun Management Center configuration data.

14. Restore previous Sun Management Center configuration data.

The saved configuration data includes the graphs, topology objects, alarms, and other information that is displayed in the Sun Management Center console.



Caution – If you do not restore the configuration data from the previous installation of Sun Management Center, you will have to manually re-create the information.

- To restore the configuration data, select Restore Configuration Data and then click Next.
The configuration data from the previous Sun Management Center is restored.
- To discard the configuration data, select Do Not Restore Configuration Data and then click Next.
The configuration data from the previous Sun Management Center is deleted.
The Web Server Security Key screen appears..

15. Generate the Web server security key.

An encrypted security key is needed for the Sun Management Center Web server. The key is generated based on the name of your organization and the name of your location. The names that you provide must not contain any spaces or blanks.

Type the name of your organization and the name of your location to generate the Web server security key.

For example, you could type `administration` in the Name of Your Organization field, and `headquarters` in the Name of Your Location field.

Note – Keep a record of the entries you use to generate the security key in a secure location in case you need to regenerate the key for a particular machine at a later time.

Click Next. The Confirmation screen appears.

16. Confirm setup selections.

- If the selections are not correct, click Back to return to previous screens and change your choices.
- Click Next to accept the choices and start Sun Management Center setup. The Setup Progress panel appears.
The setup process can take from a few minutes to half an hour or more, depending on the products selected.

When the setup process completes, the Sun Management Center Core Product Setup Complete panel appears.

17. Verify the setup status.

The Sun Management Center Core Product Setup Complete panel lists the setup completion status.

- If base product setup failed, you are informed that the setup of the base products was not successful. You are directed to see the log file for more details. The name of the log file is provided.

Click Cancel to return to the system prompt. Review the log file to determine the cause of setup failure.

- If setup succeeded and you selected only one or more of the base products (console, agent, and server), you are informed that base product setup is complete. A list of the base products that you installed and set up is displayed.

Click Next. You are informed that there are no add-on products to set up. You can now either start Sun Management Center 3.5, or close the wizard so you can perform other tasks before starting Sun Management Center.

- If you want to start Sun Management Center now, click Next to run the Start Wizard. Go to Step 4 in “To Start Sun Management Center Using `es-guistart`” on page 156.
- If you want to start Sun Management Center later, click Close. See “To Start Sun Management Center Using `es-guistart`” on page 156 when you are ready to start Sun Management Center.

- If setup succeeded and you selected add-on products, you are informed that Sun Management Center base product setup is complete. If you selected any base products, a list of the base products that you installed and set up is displayed. A list of the add-on components that you selected for installation is also displayed.

- Click Cancel to exit setup and set up the add-on products later. See the documentation for individual add-on products for setup instructions.
- Click Next to set up the add-on products. The setup process runs the graphical user interface setup wizard for each add-on product that you selected.

Some add-on products are included with the Sun Management Center 3.5 installation CDs. These add-ons are the ones listed in the Select Add-on Products panel in Step 13 of “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82. For information on how to set up each add-on, refer to the Sun Management Center supplement for each add-on, which is included in your installation kit. Each supplement provides the setup procedure for the specific add-on. The setup procedure for add-ons is therefore not duplicated here.



Caution – If you selected the add-on Monitoring and Management of A5x00 and T3 Devices, ensure you apply the necessary patches to the server as described in “Sun StorEdge A5x00 Patches” on page 62. Also, add each T3 IP address, Ethernet address, and name to the server system files, as described in “T3 Storage Devices” on page 62.

When each add-on setup completes, an add-on setup status panel appears.

If add-on product setup failed, you are informed that the setup of the add-on products was not successful, and directed to see the log file for more details. The name of the log file is provided. Click Cancel to return to the system prompt, and review the log file to determine the cause of setup failure.

If all add-on setups succeeded, you are informed that Sun Management Center base product setup is complete. If you selected any base products, a list of the base products that you installed and set up is displayed. A list of the add-on components that you installed and set up is also displayed.

You are given the opportunity to start Sun Management Center.

18. Start Sun Management Center 3.5.



Caution – If your network uses Network Address Translation (NAT), click Close. Use the `es-config` command-line utility described in “To Enable NAT Support” on page 179 to configure the machine for NAT before you start Sun Management Center.

- To start Sun Management Center, click Next.
See “Starting the Console” on page 158 for instructions on how to start the Sun Management Center console.
- To close the setup wizard so you can perform other tasks before starting Sun Management Center, click Close.
See Chapter 8 when you are ready to start Sun Management Center.

Creating Agent Installation and Update Images

Sun Management Center provides three tools to create agent-update images that can be used to install or simultaneously update Sun Management Center agents on multiple systems. The two image tools also enable you to create patch-only update images that can be used to update multiple systems.

- `es-gui-imagetool` creates an agent-update image or a patch-only image using a graphical interface.
- `es-imagetool` creates an agent-update image or a patch-only image using a command-line interface.
- `es-makeagent` creates an agent-only installation image that includes support files for each version of the Solaris software and add-ons that were included on the installation CDs. The agent is installed on target machines by applying the agent-only image using the command, the `es-inst -a` command, or by using the JumpStart software.

`es-gui-imagetool` and `es-imagetool` enable you to select specific Solaris operating environments and add-ons, resulting in a much smaller installation image than the image created by `es-makeagent`. Images created using the image tools are applied by using the Sun Management Center Java console Manage Jobs task, or by using the `agent-update.bin` executable file.

Note – The Manage Jobs task enables you to apply the agent-update image to the target machines without performing any tasks on the target machines. Conversely, you must copy or ftp the `agent-update.bin` executable file to each target machine, and then run the `agent-update.bin` on each target machine to apply the agent-update image.

The image type that you create depends on the following factors.

- If you want to update the Sun Management Center 3.0 agent on the target machines, create an agent-update image using either `es-gui-imagetool` or `es-imagetool`. When the agent-update image has been created, use the `agent-update.bin` executable file to apply the agent-update image to the target machines.
- If you want to install add-on agent components, or add-on components and patches on Sun Management Center 3.5 agent machines, create an agent-update image using either `es-gui-imagetool` or `es-imagetool`. When the agent-update image has been created, use the Manage Jobs task or the `agent-update.bin` executable file to apply the agent-update image to the target

machines.

- If you want to apply patches only to the agent machines, create a patch-only update image using either `es-gui-imagetool` or `es-imagetool`. When the patch-only image has been created, use the Manage Jobs task or the `agent-update.bin` executable file to apply the patch-only image to the target machines.
- If you want to use JumpStart to install the Solaris operating environment and the Sun Management Center 3.5 agent on the target machines, create an agent-only update image using `es-makeagent`. When you have created the agent-only update image, install the Solaris operating environment and the Sun Management Center 3.5 agent on the target machines as described in “Installing Agents Using JumpStart” on page 118.

The following procedures describe how to create agent-update images and patch-only update images using `es-gui-imagetool` or `es-imagetool`, and how to create an agent-only image using `es-makeagent`.

▼ To Create an Agent-Update Image Using `es-gui-imagetool`

`es-gui-imagetool` enables you to create agent-update images containing any one of the following items.

- Base agent packages
- Add-on agent packages
- Base and add-on agent packages
- Base agent patches and add-on agent patches only

Note – This procedure assumes that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

1. **Log in as root on the Sun Management Center 3.5 server machine.**
2. **Run the Sun Management Center GUI image tool by typing the following command:**

```
# /opt/SUNWsymon/sbin/es-gui-imagetool
```

The Welcome screen appears. Click Next. The Overview screen appears, listing the information that you might need to provide. Click Next.
The Select Update-Image Components screen appears.
3. **Select the update-image components.**

Four choices are provided:

- Base Agent Packages
- Add-on Agent Packages
- Base and Add-on Agent Packages
- Base and Add-on Agent Patches Only

Note – Any patches needed for a selected package are automatically included when you select the package. If you want to install base agent patches and add-on agent patches only, select Base and Add-on Agent Patches Only.

Select the type of update-image that you want to create, and then click Next. The Specify the Installation Files Source Directory screen appears.

4. Provide the name of a valid Sun Management Center 3.5 source directory.

The installation source default `/cdrom/cdrom0/image` is displayed.

- If you are installing from CDs, insert Sun Management Center 3.5 CD 1 of 2 in the CD-ROM drive.

When the CD-ROM drive LED turns off, press Return to accept the default `/cdrom/cdrom0/image`.

- If you are installing from a Sun Management Center 3.5 installation image on disk, either click Browse to navigate to the Sun Management Center installation `disk1/image` directory, or type the path to the `disk1/image` directory in the Source Directory field.. For example:

Source Directory: `/net/machine/installdir/disk1/image`

where *machine* is the machine on which you created the installation image, and *installdir* is the directory containing the Sun Management Center 3.5 disk1 and disk2 CD images. See “Determining the Installation Source” on page 65 for further information about installation images.

Click Next.

- If you selected Base Agent Packages, or selected Base and Add-on Agent Packages, the Specify the Destination Directory screen appears. Go to Step 5.
- If you selected Add-on Agent Packages or Base and Add-on Agent Patches Only, the Update Image Name screen appears. Go to Step 6.

5. Provide the target directory for Sun Management Center 3.5 installation.

The target directory is the directory where the Sun Management Center 3.5 `SUNWsymon` directory is created if it does not already exist.

- If an agent is not installed, then the new agent is installed in the directory you specify.

- If an older version of an agent is already installed in a different directory, then the new agent is installed in the directory you specify.
- If the same version of an agent is already installed in a different directory and the update you are applying contains additional components such as add-ons, the agent is updated in the existing directory.

The following scenario provides an example.

Assume you have created a base and add-on agent packages update image, and you have specified `/opt` as the target directory. Also, assume that you want to apply the update image to five different machines in the following states:

- Sun Management Center 3.0 is installed in `/opt/SUNWsymon` on machine A.
- Sun Management Center 3.0 is installed in `/export/home/opt/SUNWsymon` on machine B.
- No Sun Management Center components are installed on machine C.
- The Sun Management Center 3.5 base agent only is installed in `/opt/SUNWsymon` on machine D.
- The Sun Management Center 3.5 base agent only is installed in `/export/home/opt/SUNWsymon` on machine E.

When you apply the Sun Management Center 3.5 base and add-on agent packages update image to the five machines, each machine is updated as follows.

- On machine A, the Sun Management Center 3.5 agent is reinstalled and replaces the version 3.0 agent in directory `/opt/SUNWsymon`.
- On machine B, the Sun Management Center 3.5 agent is installed in directory `/opt/SUNWsymon`.
- On machine C, the Sun Management Center 3.5 agent is installed in directory `/opt/SUNWsymon`.
- On machine D, the base agent is upgraded, with add-on packages, to version 3.5 in directory `/opt/SUNWsymon`.
- On machine E, the base agent is upgraded, with add-on packages, to version 3.5 in directory `/export/home/opt/SUNWsymon`.

Click Next. The Sun Management Center Update-Image Name screen appears.

6. Provide a name for the agent update-image.

Type a name for the update-image that reflects the update-image type, for example `Base-agents`, `add-ons` or `config-readers`.

The update-image is created in `/var/opt/SUNWsymon/agentupdate/update-image-name` where *update-image-name* is the name that you provide.

Click Next. The OS Selection screen appears.

7. Select the Solaris versions that the target machines are running.

The image tool will create images for all Solaris versions supported by Sun Management Center irrespective of the version of the machine on which the tool is running. You have a choice of selecting any of the Solaris versions, or all.



Caution – If you omit a Solaris version when you create an agent-update image, application of the update-image to the machine whose Solaris version is omitted will fail.

Click Next. The Checking for Available Products screen appears.

- If you selected Base Agent Packages, or Base and Add-on Agent Packages, the image tool verifies that all components of the base layer are available in the image source you specified.

When image source verification completes, the SNMP Port Assignment screen appears. Go to Step 11.

- If you selected Add-on Packages, the Select Add-ons for Package and Patch Updates screen appears. Go to Step 8.
- If you selected Base and Add-on Agent Patches, the Select Patches screen appears. Go to Step 9.

8. Select Add-ons.

Select the products that you want to add to the agent update-image, and then click Next.

The image tool checks whether setup responses are needed by any of the add-on products you selected for inclusion in the update-image. Go to Step 10.

- If the selected add-on products do not require setup responses, the SNMP Port Assignment screen appears. Go to Step 11.
- If any selected add-on product requires setup responses, the Add-on Setup screen appears.

9. Select patches.

You can select all patches, or you can select individual patches.

When you have finished selecting patches, click Next. The Confirmation screen appears. Step 12.

10. Provide add-on setup responses.

You are prompted to click Next to answer the setup questions for the selected add-on products. Click Next.

A terminal window appears, and the image tool process steps through each add-on product that you selected for agent update, and prompts you for the responses needed by each product. Refer to the documentation that is provided with each add-on for further information.

When you finish providing responses, the SNMP Port Assignment screen appears.

11. Specify an SNMP port for the Sun Management Center agent.

In most cases, port 161 is the default port assigned to and used by the SNMP daemon. However, other processes or daemons could be using port 161. Several third-party replacements and enhancements for the SNMP daemon exist, and could be installed on your system. The Sun Management Center agent is one such daemon. Also keep in mind that a port number other than 161 could have been specified during Sun Management Center setup on each target machine.

See “To Determine Whether a Port Is Used” on page 172 for procedures on how to determine if a port is unused.



Caution – If you select port 161, you must stop and disable any process that uses port 161 on each target machine before you can restart the agent on each machine. Stopping and disabling the SNMP daemon on each machine is not a guarantee that you have stopped the actual process using port 161. To determine which daemon process uses port 161 requires you to manually review all `/etc/rcN` and `/etc/rcN.d` files, where `N` is 0 through 6 and `S`. When you have identified the file that defines the process using port 161, you can disable the process by renaming the file. For example,

```
/etc/rc3.d# mv S76snmpdx s76snmpdx
```

You must disable any daemon that uses port 161 on each target machine.

- To use port 161 on each target machine, select Use Port 161, and then click Next. The Stop and Disable SNMP Daemon screen appears.
- To assign a different port number, select Use A Different Port Number. Type the port number in the Port ID field and then click Next. When the agent-update image is applied on the target client, the update process checks whether an agent is already installed.
 - If an agent was previously installed and configured, the update process uses the original port assignment. For example, if the previous agent uses port 2261, then the update process assigns port 2261 to the updated agent.
 - If an agent is not installed and port 161 is not in use, the update process assigns port 161 to the agent .
 - If an agent is not installed and port 161 is in use, the update process assigns the port you specified to the agent .

The image tool process now checks for sufficient disk space.

- If there is not enough space to create the image, you are notified. The amount of free space that is needed is listed. Click Cancel to exit the update-image tool. You must increase the amount of free space by the amount listed before you can create an update-image.
- If there is enough disk space, the Confirmation screen is displayed.

12. Confirm update-image selections

A list of the components that you selected for inclusion in the agent update-image is displayed.

- If the list is not correct, click Back repeatedly to return to either the Select Add-ons for Package and Patch Updates screen, or to the Select Update-Image Components screen. When the desired screen is displayed, select the products that you want to add to the update-image and confirm your new selections.
- If the list is correct, click Next.
The image tool creates the agent update-image in the directory `/var/opt/SUNWsymon/agentupdate` using the file name you specified in Step 6.

You are notified when the update image has been created. Click Close to return to the system prompt.

You can check the update image creation status by viewing the log file `/var/opt/SUNWsymon/install/es-gui-imagetool_host-name.date-and-time-string.process-id` where:

- *host-name* is the name of the Sun Management Center 3.5 server that you used to create the update image.
- *date-and-time-string* is the year, date, and time the image was created.
- *process-id* is the process ID of the imagetool session that created the agent-update image.

13. Apply the agent-update image.

You can now apply the update-image to the target machines.

- To upgrade Sun Management Center 3.0 agents, apply the image using the `agent-update.bin` executable file, see “To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`” on page 114.
- To upgrade Sun Management Center 3.5 agents, apply the image using the Sun Management Center task manager, see “To Create an Agent Update Task” in *Sun Management Center 3.5 User’s Guide*.

▼ To Create an Agent-Update Image Using `es-imagetool`

`es-imagetool` enables you to create agent-update images containing any one of the following.

- Base agent packages
- Add-on agent packages
- Base and add-on agent packages
- Base agent patches and add-on agent patches only

Note – This procedure assumes that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

1. **Log in as root on the Sun Management Center 3.5 server machine.**
2. **Run the Sun Management Center command-line image tool by typing the following command:**

```
# /opt/SUNWsymon/sbin/es-imagetool
```

3. **Select the components to update.**

You are prompted to select the components that you want to add to the update-image, for example:

```
Select the components you want to add to the update-image.
```

```
Do you want to upgrade components of Base Agent? [y|n|q] y
```

```
Do you want to install/upgrade components of Addons? [y|n|q] y
```

Type **y** to add the component to the update-image, or type **n** to exclude the component from the update-image.

You are prompted for a valid source directory.

4. **Provide the name of a valid Sun Management Center 3.5 source directory.**

- If you are installing from CDs, type the path to the Sun Management Center 3.5 installation CD 1 image directory. For example:

```
Enter a valid source directory: /cdrom/cdrom0/image
```

- If you are installing from a Sun Management Center 3.5 installation image on disk, type the path to the image `disk1/image` directory. For example:

```
Enter a valid source directory: /net/machine/installdir/disk1/image
```

where *machine* is the machine on which you created the installation image, and *installdir* is the directory containing the Sun Management Center 3.5 `disk1` and `disk2` CD images. See “Determining the Installation Source” on page 65 for further information about installation images.

- If you replied **y** to the prompt Do you want to upgrade components of the Base Agent?, you are prompted for the installation target directory. Go to Step 5.
- If you replied **n** to the prompt Do you want to upgrade components of the Base Agent?, and replied **y** to the prompt Do you want to install/upgrade components of Addons?, you are prompted for the installation target directory. Go to Step 6.

5. Provide the name of the target directory for Sun Management Center 3.5 installation.

The target directory is the directory where the Sun Management Center 3.5 SUNWsymon directory is created if it does not already exist.

- If an agent is not installed, then the new agent is installed in the directory you specify.
- If an older version of an agent is already installed in a different directory, then the new agent is installed in the directory you specify.
- If the same version of an agent is already installed in a different directory, and the update you are applying contains new software, the agent is updated in the existing directory.

The following scenario provides an example:

Assume that you have created a Base and Add-on Agent Packages update image, and that you have specified /opt as the target directory. Also, assume that you want to apply the update image to five different machines in the following states:

- Sun Management Center 3.0 is installed in /opt/SUNWsymon on machine A.
- Sun Management Center 3.0 is installed in /export/home/opt/SUNWsymon on machine B.
- No Sun Management Center components are installed on machine C.
- The Sun Management Center 3.5 base agent only is installed in /opt/SUNWsymon on machine D.
- The Sun Management Center 3.5 base agent only is installed in /export/home/opt/SUNWsymon on machine E.

When you apply the Sun Management Center 3.5 Base and Add-on Agent Packages update image to the five machines, each machine is updated as follows.

- On machine A, the Sun Management Center 3.5 agent is reinstalled and replaces the version 3.0 agent in directory /opt/SUNWsymon.
- On machine B, the Sun Management Center 3.5 agent is installed in directory /opt/SUNWsymon.
- On machine C, the Sun Management Center 3.5 agent is installed in directory /opt/SUNWsymon.
- On machine D, the base agent is upgraded, with add-on packages, to version 3.5 in directory /opt/SUNWsymon.
- On machine E, the base agent is upgraded, with add-on packages, to version 3.5 in directory /export/home/opt/SUNWsymon.

You are prompted for a name for the agent update image.

6. Provide a name for the agent update-image.

Provide a name for the update-image that reflects the update-image type, for example Ultra60agent, and then press Return.

The update-image is created in `/var/opt/SUNWsymon/agentupdate/update-image-name`, where `update-image-name` is the name that you provide.

You are then prompted to choose the Solaris versions for the target machines.

The image tool creates images for all Solaris versions supported by Sun Management Center irrespective of the Solaris version on the machine on which the tool is running. You have a choice of selecting any Solaris version or all versions.

7. Select the Solaris versions.

The supported Solaris versions are listed, and you are asked whether you want to select all versions.

- Reply **y** if the target machines include all Solaris versions.

The image tool process checks for available add-on products. Go to Step 8.

- Reply **n** if the target machines do not include all Solaris versions.

Each version of Solaris is listed, and you are asked whether you want to create an image for that version. Reply **y** or **n** as appropriate for the target machines. For example:

```
Do you want to select ALL OS versions ? [y|n|q] n
```

```
Do you want to create images for Solaris_2.6 ? [y|n|q] n
```

```
Do you want to create images for Solaris_7 ? [y|n|q] n
```

```
Do you want to create images for Solaris_8 ? [y|n|q] y
```

```
Do you want to create images for Solaris_9 ? [y|n|q] n
```



Caution – If you omit a Solaris version when you create an agent-update image, application of the update-image to the machine whose Solaris version is omitted will fail.

- If you selected only Upgrade Components of Base Agent in Step 3, go to Step 9.
- If you selected Install/upgrade Components of Addons in Step 3, the image tool process checks the add-on products and lists the products for which an agent update is available. Go to Step 8.

8. Select the agent add-on products that you want to upgrade.

The available add-on products are listed, and you are then sequentially asked whether you want to install each add-on product. Reply **y** to add the add-on software to the update-image, or reply **n** to exclude the add-on software from the image.

When you finish selecting the add-on products to upgrade, you are prompted for the Sun Management Center agent port.

9. Specify a port for the Sun Management Center agent.

In most cases, port 161 is the default port assigned to and used by the SNMP daemon. However, other processes or daemons could be using port 161. Several third-party replacements and enhancements for the SNMP daemon exist, and could be installed on your system. The Sun Management Center agent is such a daemon. A different port

number could have been specified during Sun Management Center on each target machine.



Caution – If you select port 161, you must stop and disable any process that uses port 161 on each target machine before you can restart the agent on each machine. Stopping and disabling the SNMP daemon on each machine is not a guarantee that you have stopped the actual process using port 161. Determining the actual daemon process that uses port 161 requires you to manually review all `/etc/rcN` and `/etc/rcN.d` files, where *N* is 0 through 6 and *S*. When you have identified the file that defines the process using port 161, you can disable the process by renaming the file. For example,

```
/etc/rc3.d# mv S76snmpdx s76snmpdx
```

You must disable the daemon that uses port 161 on each target machine.

Press Return to use port 161 on each target machine, or type a different port number.

- If you selected only Upgrade Components of Base Agent in Step 3, the image tool process checks for sufficient disk space. If there is enough space, the agent update-image is created.

If there is not enough space to create the image, you are notified. The amount of free space that is needed is displayed. The image tool exits. You must increase the amount of free space by the amount listed before you can create an update-image.

- If you selected `install/upgrade components` of Addons in Step 3, the image tool process checks whether setup responses are needed by any of the add-on products that you selected for inclusion in the update-image.

If any selected product requires setup responses, the image tool process steps through each add-on product that you selected for update, and prompts you for the responses needed by each product. Refer to the documentation that is provided with each add-on for further information.

When add-on product setup response collection is completed, the image tool checks disk space. If there is enough space, the agent update-image is created.

If there is not enough space to create the image, you are notified. The amount of free space that is needed is displayed. The image tool exits. You must increase the amount of free space by the amount listed before you can create an update-image.

You are notified when the update-image has been created. You can check the update image creation status by viewing the log file `/var/opt/SUNWsymon/install/es-imagetool_<host-name>.<date-and-time-string>.<process-id>` where:

- *host-name* is the name of the Sun Management Center 3.5 server that you used to create the update image.
- *date-and-time-string* is the year, date, and time that the image was created.
- *process-id* is the process ID of the imagetool session that created the agent-update image.

You can now apply the image to the target machines.

- To upgrade Sun Management Center 3.5 agents, apply the image using the Sun Management Center task manager, see “To Create an Agent Update Task” in *Sun Management Center 3.5 User’s Guide*.
- To upgrade Sun Management Center 3.0 agents, apply the image using the `agent-update.bin` executable file, see “To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`” on page 114.

▼ To Create a Patch-Only Image Using the Image Tools

Sun Management Center-specific patches are released periodically on the Sun Management Center website at <http://www.sun.com/sunmanagementcenter>. Sun Management Center enables you to create a patch-only image, and then apply the patch-only image to multiple agent machines.

1. Log in as root on the Sun Management Center 3.5 server machine.

2. Create a directory in which to download the Sun Management Center patches.

Go to the directory you just created. Create directories for each Solaris operating environment version for which you want to download patches.

For example, assume you created the directory `/sunmcpatches`. Furthermore, assume you plan to create patch-only update images for each supported Solaris version. You would create the directories as follows.

```
# mkdir /sunmcpatches
# cd /sunmcpatches
/sunmcpatches # mkdir Solaris_2.6 Solaris_7 Solaris_8 Solaris_9
```

The directories must be created using the names shown.

3. Determine which Sun Management Center patches are available for download.

Open a browser and go to <http://www.sun.com/sunmanagementcenter>. Click the `Patches` and `Support` link.

Review the list of available patches that is displayed at the bottom of the page. Print the page so that you can reference the patch numbers.

4. Log on to SunSolve.

Click the `Login` button to display the login screen, and then enter your SunSolve ID and password.

If you do not have a SunSolve ID, click the `Register` button to obtain a SunSolve ID.

5. Download the patches for each Solaris version.

Click the patch number corresponding to the Solaris version.

The SunSolve Online Web page is displayed.

a. Type the number of the patch you want to view, and then click Find Patch.

A description of the patch is displayed.

Make note of the supported Solaris versions. If the patch applies to more than one Solaris version, you must download the patch file for each Solaris version.

b. Click either the HTTP or FTP download link to download the patch.

The Save As panel appears.

Save the patch file to the applicable Solaris version directory you created in Step 2.

For example, assume patch 111222-33 is applicable to Solaris version 8 and Solaris version 9. Assume that you also created the subdirectories `Solaris_8` and `Solaris_9` within the root directory `sunmcpatches`. You would then download the patch file to both `/sunmcpatches/Solaris_8` and `/sunmcpatches/Solaris_9`.

If you want to download more patches, click Back to return to the SunSolve Online Web page. Repeat the previous two steps to download each patch you have selected. When you have completed downloading patches, go to the next step.

6. Uncompress the patch files.

Go to each directory where you downloaded the patch files and uncompress the files.

For example, assume you downloaded the patch file for patch 111222-33 and patch 111222-34 to `/sunmcpatches/Solaris_8`. Also assume that the patch file for patch 111222-33 is `111222-33.tar.Z`, and the patch file for 111222-34 is `111222-34.zip`. You would then uncompress the patch files as follows:

```
/sunmcpatches # cd Solaris_8
/sunmcpatches/Solaris_8 # ls
111222-33.tar.Z      111222-34.zip
/sunmcpatches/Solaris_8 # zcat 111222-33.tar.Z | tar xvf -
x 111222-33, 0 bytes, 0 tape blocks
x 111222-33/installpatch, 119239 bytes, 233 tape blocks
.
.
.
x 111222-33/README.111222-33, 136444 bytes, 267 tape blocks
/sunmcpatches/Solaris_8 # unzip 111222-34.zip
Archive: 111222-34.zip
  creating: 111222-34/
  ..inflating: 111222-34/prepatch
.
.
.
  inflating: 111222-34/README.111222-34
/sunmcpatches/Solaris_8 # ls -p
111222-33/      111222-33.tar.Z...111222-34/      111222-34.zip
```

You can create the patch-only image using either the graphical tool `es-gui-imagetool` as described next in Step 8, or by using the command-line tool `es-imagetool` as described in Step 9.

7. Move the download patch files to another directory.

If desired, either move the compressed download patch files to another directory for safekeeping, or delete the compressed patch files.

8. Create the patch-only image file using `es-gui-imagetool`.

Note – The following steps assume that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

a. Type the command `/opt/SUNWsymon/sbin/es-gui-imagetool`.

The Welcome screen appears. Click Next. The Overview screen appears. Click Next.

The Select Update-Image Options screen appears.

b. Select Base and Add-on Agent Patches Only.

Click Next.

The Specify the Installation Files Source Directory screen appears.

c. Specify the patch file source directory.

Type the name of the patch directory you created in Step 2, or Click Browse to navigate to and select the directory.

Click Next. The Update Image Name screen appears.

d. Provide a name for the patch-only image.

Type a name for the patch-only image that reflects the image type, for example `base-and-addon-patches`.

The image is created in `/var/opt/SUNWsymon/agentupdate/update-image-name` where *update-image-name* is the name that you provide.

Click Next. The OS Selection screen appears.

e. Select the Solaris versions that the target machines are running.

The image tool will create images for all Solaris versions supported by Sun Management Center irrespective of the version of the machine on which the tool is running. You have a choice of selecting any of the Solaris versions, or all versions.



Caution – If you omit a Solaris version when you create a patch-only image, application of the patches to the machine whose Solaris version is omitted will fail.

Click Next. The Checking for Patches screen appears. When the image tool has completed checking for patches, the Select Patches screen appears.

f. Select the patches you want to add to the patch-only update image.

You can select all patches, or you can select individual patches.

When you have finished selecting patches, click Next. The image tool checks for disk space.

- If there is not enough space to create the image, you are notified. The amount of free space that is needed is listed. Click Cancel to exit the image tool. You must increase the amount of free space by the amount listed before you can create a patch-only image.
- If there is enough disk space, the Confirmation screen is displayed.

g. Confirm Update-Image Selections

A list of the patches and the Solaris versions that you selected for the patch-only image is displayed.

- If the list is not correct, click Back twice to return to the Solaris version selection screen, or click Back once to return to the Select Patches screen. Select the Solaris versions and patches that you want to add to the patch-only image and confirm your new selections.
- If the list is correct, click Next.

The image tool creates the patch-only image in the directory `/var/opt/SUNWsymon/agentupdate` using the file name you specified in Step d.

You are notified when the update image has been created. Click Close to return to the system prompt.

You can check the update image creation status by viewing the log file `/var/opt/SUNWsymon/install/es-gui-imagetool_<host-name>.<date-and-time-string>.<process-id>` where:

- *host-name* is the name of the Sun Management Center 3.5 server that you used to create the update image.
- *date-and-time-string* is the year, date, and time the image was created.
- *process-id* is the process ID of the imagetool session that created the agent-update image.

h. Apply the patch-only image.

You can now apply the image to the target machines.

- To apply the image using the Sun Management Center task manager, see “To Create an Agent Update Task” in *Sun Management Center 3.5 User’s Guide*.
- To apply the image using `agent-update.bin` executable file, see “To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`” on page 114.

9. Create the patch-only image file using `es-imagetool`.

Note – The following steps assume that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

a. Type the command `/opt/SUNWsymon/sbin/es-imagetool`.

You are asked whether you want to upgrade components of the Base agent. Type **n** and press Return.

You are asked whether you want to install or upgrade components of add-ons. Type **n** and press Return.

You are asked whether you want to install patches. Type **y** and press Return.

You are prompted for the patch-only source directory.

b. Specify the patch file source directory.

Type the name of the patch directory you created in Step 2, and then press Return.

You are prompted to provide a name for the patch-only image.

c. Provide a name for the patch-only image.

Type a name for the patch-only image that reflects the image type, for example `base-and-addon-patches`.

The image is created in `/var/opt/SUNWsymon/agentupdate/update-image-name` where `update-image-name` is the name that you provide.

Press Return. The supported Solaris versions are listed.

d. Select the Solaris versions that the target machines are running.

The image tool will create images for all Solaris versions supported by Sun Management Center irrespective of the version of the machine on which the tool is running. You have a choice of selecting any Solaris version, or all versions.



Caution – If you omit a Solaris version when you create an patch-only image, application of the patches to the machine whose Solaris version is omitted will fail.

■ To select all Solaris versions, type **y**.

■ To select only specific Solaris versions, type **n**.

You are prompted to select each Solaris version sequentially. Type **y** to select a Solaris version, or type **n** to exclude the Solaris version from the image.

Press Return. The image tool lists the patches that are available for selection.

e. Select the patches that you want to add to the patch-only update image.

You are prompted to select each patch.

Type **y** to select a patch for inclusion in the patch-only image, or type **n** to exclude the patch from the image.

When you have completed selecting patches, press Return. The image tool checks for disk space.

- If there is not enough space to create the image, you are notified. The amount of free space that is needed is listed. Type **q** to exit the image tool. You must increase the amount of free space by the amount listed before you can create a patch-only image.
- If there is enough disk space, the patch-only image is created in the directory `/var/opt/SUNWsymon/agentupdate` using the file name that you specified in Step c.

You can check the update image creation status by viewing the log file `/var/opt/SUNWsymon/install/es-imagetool_host-name.date-and-time-string.process-id` where:

- *host-name* is the name of the Sun Management Center 3.5 server that you used to create the update image.
- *date-and-time-string* is the year, date, and time the image was created.
- *process-id* is the process ID of the imagetool session that created the agent-update image.

f. Apply the patch-only image.

You can now apply the image to the target machines.

- To apply the image using the Sun Management Center Task Manager, see “To Create an Agent Update Task” in *Sun Management Center 3.5 User’s Guide*.
- To apply the image using the `agent-update.bin` executable file, see “To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`” on page 114.

▼ To Create an Agent-Only Installation Image Using `es-makeagent`

Note – This procedure assumes that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

1. **Log in as root.**
2. **Place Sun Management Center 3.5 CD 1 of 2 in the CD-ROM drive.**

3. Type the command `/opt/SUNWsymon/sbin/es-makeagent`.

You are prompted for the installation source files directory.

4. Type `/cdrom/cdrom0/image`.

You are asked for a target directory in which to create the agent-only installation image.

5. Type the name of the target directory.

If the directory does not exist, you are asked whether you want to create it. Type **y** to create the directory, or type **n** or **q** to exit to the system prompt.

The directory you specify must have write permission for root.

For example:

```
# enter the target directory: /es-makeagent-image
Directory /es-makeagent-image does not exist
Do you want to create it (y|n|q) y
```

The `es-makeagent` script creates the subdirectories `disk1` and `disk2` in the directory you specified, and then copies the files required to the subdirectories.

When `es-makeagent` completes copying files from Sun Management Center 3.5 installation CD 1 of 2, the CD is ejected, and you are prompted to insert the second CD or specify the source directory for disk 2.

a. Remove the first Sun Management Center installation CD.

Place the Sun Management Center 3.5 CD 2 of 2 in the CD-ROM drive, then close the drive.

b. When the CD-ROM drive LED turns off, press Return.

`es-makeagent` copies the remaining files from the CD.

You are informed that the agent-only product is available in the directory you specified. The command required to install the agent on the local machine is also displayed.

Tip – Mount the target directory using NFS, so that the directory is accessible by other machines on your network. See Step 12 in “To Create CD Images” on page 65.

6. Type the command `eject` to eject the CD.

You can now install the Sun Management Center 3.5 agent using any of the following methods.

- Use the `es-inst -a` command as described in “To Install Agents From an Agent-Only Installation Image Using `es-inst -a`” on page 116. When prompted for the installation source directory, provide the name of the agent-only installation image that you specified in Step 5. Make sure that you have shared the agent-only installation image by using Network File Sharing.

- Apply the agent-only installation image using the JumpStart software as described in “Installing Agents Using JumpStart” on page 118.

Note – The agent-only installation image also contains a tar file that you can ftp to other agent machines and uncompress on each agent machine to create an installation image. The uncompressed installation image directory contains the subdirectories `disk1` and `disk2`. To install from the uncompressed image on each agent machine, change directory to the `disk1/sbin` directory, and use the `es-inst` command as described in “Installing on the Solaris Platform Using `es-inst`” on page 199.

Applying Agent Installation, Update, and Patch-Only Images

The following procedures describe how to install or update agents from agent-update images using the Manage Jobs task, and the `agent-update.bin` executable file, and how to install agent-only installation images using the `es-inst -a` command.

Note – If you want to use the JumpStart software to install the Solaris operating environment and the agent, see “Installing Agents Using JumpStart” on page 118.

▼ To Install Agents From an Agent-Update Image Using the Manage Jobs Task

If you want to upgrade Sun Management Center 3.0 agents, apply the agent-update image by using the `agent-update.bin` executable file as described in “To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`” on page 114. The Manage Jobs task is used to upgrade existing Sun Management Center 3.5 agents.

1. **Create an agent-update image using either of the image tools.**
 - To create an agent-update image using `es-gui-imagetool`, follow the instructions in “To Create an Agent-Update Image Using `es-gui-imagetool`” on page 96.
 - To create an agent-update image using `es-imagetool`, follow the instructions in “To Create an Agent-Update Image Using `es-imagetool`” on page 101.
2. **Start the Sun Management Center console, and then log in to the console as an authorized Sun Management Center user.**

See “To Start the Console on the Solaris Platform” on page 158.

3. Choose Tools → Manage Jobs.

The Manage Jobs window is displayed.

The Manage Jobs window enables you to propagate your agents on multiple hosts simultaneously. For further details on the Manage Jobs feature, refer to the *Sun Management Center 3.5 User's Guide*.

4. Create a multiple-agent upgrade task.

Note – Make sure the Sun Management Center agent is installed and running on the target hosts.

a. Select target hosts for upgrades, and then create a group.

b. Create a task of type Agent Update

Select an appropriate image name for the upgrade operation. This name should be the name of an image you created using either the `es-imagetool` or the `es-gui-imagetool`.

For detailed instructions, see “To Create an Agent Update Task” in the *Sun Management Center 3.5 User's Guide*.

The status displayed in the Job Manager window only shows the success or failure of the entire job. The job is marked Failed if the upgrade fails on a single agent in the entire group, even though the rest of the agent upgrades succeeded. Click View Log next to the Job list to check the status of individual upgrades.

To view the intermediate upgrade status while the job is in progress, click View Logs tab, and then click InstallServer.log.

▼ To Install or Update Agents From an Agent-Update Image Using `agent-update.bin`

The space requirements on the target machine `/tmp` directory are as follows depending on the contents of the update-image:

- Base agent only - 115 Mbytes to 125 Mbytes
- Base agent and Add-ons - 200 Mbytes to 210 Mbytes
- Add-ons or patches only - less than 100 Mbytes

1. Log in as root on the Sun Management Center server machine.
2. Create an agent-update image using either of the image tools.

- To create an agent-update image using `es-gui-imagetool`, follow the instructions in “To Create an Agent-Update Image Using `es-gui-imagetool`” on page 96.
 - To create an agent-update image using `es-imagetool`, follow the instructions in “To Create an Agent-Update Image Using `es-imagetool`” on page 101.
3. **Download the file `/opt/SUNWsymon/base/bin/agent-update.bin` from the Sun Management Centerserver to each target machine’s root directory.**
- If you installed Sun Management Center in a different directory than `/opt`, download `/installdir/SUNWsymon/base/bin/agent-update.bin`, where *installdir* is the directory you specified in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82. This step must be done for each target machine.
- When you have finished downloading the file `agent-update.bin` to each target machine, you must log in to each target machine and perform the following four steps on each machine.
4. **Log in as root on the target machine.**
5. **Go to the directory where you downloaded `agent-update.bin`.**
6. **Type `./agent-update.bin -s server -r http-port -p image-name`, where**
- *server* is the server that you logged into in Step 1
 - *http-port* is the Sun Management Center Web server port.
 - *image-name* is the name of the agent-only image you created in Step 2
- For example, assume that the Sun Management Center server name is `Production1` and that the Web server port is 8080. Also, assume that the agent-update image name is `baseagent`. You would then type:
- ```
./agent-update.bin -s Production1 -r 8080 -p baseagent
```
7. **Provide the security seed and the SNMPv1 community string.**
- The agent-update process prompts you for the security seed and the SNMPv1 community string.
- The security seed must be the same seed that you provided when you set up the Sun Management Center server and agent.  
Type the security seed password that you provided in Step 7, “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87. Type the password again to confirm the password.
  - The SNMPv1 community string must be the same community string you provided when you set up the Sun Management Center server and agent.  
If you specified a custom community string, make sure that you type the same community string that you provided in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87, Step 8. If you used the default community string of `public`, press Return.

The update process applies the update to the machine without prompting for further information.

When the update process completes, check the update status by viewing the log file `/var/opt/SUNWsymon/log/agent-update.log` on the target machine.

## ▼ To Install Agents From an Agent-Only Installation Image Using `es-inst -a`

1. Create an agent-only installation image as directed in “To Create an Agent-Only Installation Image Using `es-makeagent`” on page 111.

2. Log in as root on the machine where you want to install the agent.

3. Go to the agent-only install image `disk1/sbin` directory.

For example, if you created the agent-only image in the `/export/agentsource` directory on a machine that is named `appserver`, you would type:

```
cd /net/appserver/export/agentsource/disk1/sbin
```

4. Type the command `./es-inst -a` to install the Sun Management Center agent.

You are prompted for the target directory

5. Type the name of the directory in which to install Sun Management Center

The default location is `/opt`.

Sun Management Center software can be installed in any location on your system where the minimum required disk space is available. Press Return to accept the default location `/opt` or, if you want to install to a directory other than `/opt`, type the directory name.

---

**Tip** – The command `df -ak` lists the used space and free space for each file system on the machine.

---

The install process checks for any applicable add-ons.

6. Select the Sun Management Center add-on products.

The install process lists each add-on product, and asks whether you want to install the product.

---

**Note** – Only the agent component of a selected add-on is installed.

---

Type **y** to select the product for installation, or type **n** if you do not want to install the product.

If you did not select any add-on products, you are asked whether you want to proceed. Type **y** to continue. The install process checks disk space. Go to Step 8. If you selected any add-ons, your selections are listed.

**7. Review your selections.**

Type **y** to continue, or type **n** to repeat the selection process.  
The install process checks disk space.

**8. Check disk space.**

The installation process checks whether there is enough disk space to install the agent and the agent component of any add-on that you selected.

- If there is enough disk space, the agent is installed. You are asked whether you want to run setup. Go to Step 10.
- If there is not enough disk space, you are asked to provide an alternate file system. The amount of space available and the amount of space that is needed are displayed.

**9. Provide the name of an alternate file system with enough disk space.**

At the prompt requesting a different file system, type the name of a file system and directory that has enough free space.

---

**Tip** – In a terminal window on the machine where you are installing Sun Management Center, type **df -ak** to list the amount of used and free space for each file system on the machine.

---

The installation process checks disk space again. If there is enough disk space, the agent is installed. You are asked whether you want to run setup.

**10. Decide whether to set up the agent.**

To set up Sun Management Center agent and any add-on products that you selected, type **y**. Follow the instructions in “To Set Up Sun Management Center 3.5 on the Solaris Platform” on page 87.

If you chose to run setup later, you must set up the agent on the machine before you can run the agent. Use either `es-guisetup` or `es-setup` to set up the agent.

- To setup the agent using `es-guisetup`, follow the instructions in “To Set Up Sun Management Center 3.5 on the Solaris Platform” on page 87.
- To setup the agent using `es-setup`, follow the instructions in “Setting Up Sun Management Center 3.5 Using `es-setup`” on page 212.

---

# Installing Agents Using JumpStart

This section describes how to configure and use a Solaris JumpStart server to install and set up the Sun Management Center 3.5 base agent, and the Solaris version 8 or version 9 operating environment, on a large number of systems.

## JumpStart Concepts

The JumpStart software enables you to automatically install or upgrade the Solaris operating environment on several systems, and to perform pre-install and post-install tasks that can include installation and setup of additional software such as Sun Management Center.

The Solaris JumpStart software is a client-server application that consists of the following components:

- Boot server – Provides a mini-root Solaris operating system kernel to the install client using trivial file transfer protocol (*tftp*). The kernel is architecture-neutral, and provides base services to all hardware supported by the Solaris version running on the boot server.
- Install server – Provides the software packages, such as the Sun Management Center 3.5 base agent, that are to be installed on the target systems or *install clients*.
- Install clients – The target systems on which Solaris and specified software packages, such as the Sun Management Center 3.5 base agent, are to be installed.
- Profile or configuration server – Provides JumpStart *profiles*.

A JumpStart profile is a text file that defines how the Solaris operating environment software is to be installed on each install client in a group. The JumpStart profile can be used to specify which software groups to install, and the partition specifications, space allocations, and backup media to be used during software upgrades.

You can create more than one JumpStart profile, such as one for a fresh install of the Solaris operating environment, and another for an upgrade install of the Solaris operating environment. Each JumpStart profile is assigned to one or more install clients using the JumpStart *rules* file.

For detailed information about creating a JumpStart profile, see “Creating a Profile” in *Solaris 9 Installation Guide*.

- Rules file – Specifies the tasks that are to be performed on an install client, or on a group of install clients. Each rule within the rules file specifies the following items:
  - An install client or group of install clients, consisting of a rule keyword or general system attribute, and a rule value or specific system attribute.

- An optional begin script, which performs specific tasks before the Solaris operating environment is installed or upgraded
- The JumpStart profile that is to be applied to each install client or group of install clients.
- An optional finish script, which performs specific tasks after the Solaris operating environment has been installed or upgraded. A finish script is required to install the Sun Management Center base agent using the JumpStart software.

All install clients on which the Sun Management Center base agent is installed using a specific JumpStart rule will have an identical Sun Management Center configuration. The Sun Management Center root directory, server context, security seed, and SMNPv1 community string are identical.

You also need a separate machine, referred to as the *prototype* machine, on which to generate the Sun Management Center install and setup response files required by the JumpStart finish script. If Solstice SyMON 1.x, Sun Enterprise SyMON 2.x, Sun Management Center 2.x, or Sun Management Center 3.0 is installed on the prototype machine, uninstall the SyMON or Sun Management Center software from the prototype machine. For SyMON or Sun Management Center software uninstall procedures, see the installation manual for the SyMON or Sun Management Center software. Do not save the configuration data from the previous version of Sun Management Center.

For detailed information about the JumpStart software, see the *Solaris 9 Installation Guide*, Chapters 9 through 28.

## System Services Needed

The JumpStart software requires the following system services.

**TABLE 6-2** System Services Required for the JumpStart Software

| Service                                                                     | Used for                                                                               |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Network File System (NFS) daemons <code>mountd</code> and <code>nfsd</code> | Sharing the Solaris operating system image files                                       |
| <code>rarp</code>                                                           | IP address discovery                                                                   |
| <code>bootp</code>                                                          | Host definition and location of shared file systems                                    |
| <code>tftp</code>                                                           | Transfer of the Solaris initial boot kernel from the boot server to the install client |

## JumpStart Process Overview

Deployment of the Sun Management Center 3.5 base agent is performed by the JumpStart finish script, which is run on the install clients. After JumpStart installs the specified Solaris operating environment, the JumpStart finish script installs the base agent on the install client based on the contents of the Sun Management Center install response file.

The finish script also prepares the install client to set up the base agent after the install client reboots, based on the contents of the Sun Management Center setup response file.

The Sun Management Center response files are generated during the Sun Management Center 3.5 command-line installation and setup process on a separate or *prototype* system. The response files are then copied to the JumpStart profile directory. If desired, you can manually create the install and setup response files directly in the JumpStart profile directory.

JumpStart mounts the install client's file systems on the `/a` partition. The JumpStart finish script then installs the Sun Management Center base agent by running the Sun Management Center command `es-inst -R /a -T /a/target-directory`, where *target-directory* is the name of the directory on the install client in which the agent is installed. For information about the `es-inst` command and parameters, see "es-inst Options" on page 199

The finish script also creates an `rc3.d` file that runs after the install client reboots. The `rc3.d` file sets up the Sun Management Center base agent using the setup response file. When the base agent is set up, the `rc3.d` file is deleted. Output from the finish script is stored in `/var/sadm/system/logs/finish.log`.

## Security Considerations for Finish Scripts

During Sun Management Center setup, you provided a password to generate the security key, and you provided an SNMP community string. To ensure security, the security key and community string are not stored in the Sun Management Center setup response file.

To successfully install and set up the Sun Management Center base agent on an install client, you must provide the same password that was used to generate the security key in "Setting Up Base Products and Add-ons on the Solaris Platform" on page 87, Step 7. You must also provide the same SNMP community string that you specified in "Setting Up Base Products and Add-ons on the Solaris Platform" on page 87, Step 8. This can be done using either of the following two methods.

- Hard-code the password seed and community string in the JumpStart finish script. This method presents a security risk because the security password seed and the community string are visible in the finish script. The security risk can be reduced, but not eliminated, by setting the finish script file permission to 400.



- Configure the JumpStart finish script so that the password seed and community string are manually entered on the install client during base agent setup.

The finish script can be configured to prompt for the security password seed and SNMP community string responses on the install client. The answers are stored as variables in a temporary finish script. When the install client is rebooted, the `rc3.d` script executes the temporary finish script, and then restores the original finish script.

This method requires you to manually enter the security password seed and community string at each install client.



---

**Caution** – This method does not validate the password seed or the community string. Communication between the agent and server will fail if you enter the wrong password seed or community string. If base agent setup fails on any install client, or if the agent fails to communicate with the Sun Management Center server, you have to run `es-setup -F` individually on each install client.

---

Examples of JumpStart finish scripts for both methods are provided in “To Create the JumpStart Finish Script” on page 131.

## JumpStart Configuration and Use

The following list summarizes the major steps required to set up the JumpStart software and install the Solaris operating environment, and the Sun Management Center base agent, on one or more install clients.

- Create the JumpStart install and profile servers.
- Create the Sun Management Center 3.5 base agent image on the JumpStart install server.
- Generate the Sun Management Center 3.5 install and setup response files.
- Create the JumpStart profiles.
- Create the JumpStart finish scripts for Sun Management Center.
- Create the JumpStart rules file.
- Validate the JumpStart files.
- Add install client information to the JumpStart server.

When all of the above steps have been completed, you can use the JumpStart server to perform a fresh Solaris operating environment and Sun Management Center base agent install on one or more install clients.

The procedures in this section assume the following situation:

- The machine `bootserver01` has been configured as a boot server, and is to be used as the JumpStart boot server, install server, and profile server. Machine `bootserver01` has already been configured as the boot server.
- You are using `/export/home` as the base directory for all JumpStart files.

---

**Note** – You can specify any file system that has sufficient space for the Solaris operating environment install image, and for the Sun Management Center base agent install image. The file system should have a minimum of 500 Mbytes of free space.

---

If you have decided to use a different directory for the JumpStart base directory, replace `/export/home` in the following procedures with the name of the directory you have chosen for the JumpStart base directory.

- You have selected Solaris version 8 for JumpStart installations.  
If you are using Solaris version 9, replace `Solaris_9` with `Solaris_8` where appropriate in the following sections.
- You have chosen the default location of `/opt` for Sun Management Center base agent installation.

## ▼ To Create the JumpStart Install Server and Profile Directory

1. **Create the JumpStart install server and Solaris operating environment image.**
  - a. **Log in as root on the machine you want to use as the JumpStart install server.**
  - b. **Insert the Solaris installation CD 1 of 2 in your CD-ROM drive.**
  - c. **Go to the `Tools` directory on the CD.**  

```
cd /cdrom/cdrom0/Solaris_2.8/Tools
```
  - d. **Create the Solaris operating environment installation image.**  
Type the command `./setup_install_server /install-server-directory`, where `install-server-directory` is the directory that is to be used to serve the install images.  
For example:

```
./setup_install_server /export/home/JumpStart/Solaris_8
Verifying target directory...
Calculating the required disk space for the Solaris_8 product
Copying the CD image to disk...
Install Server setup complete
```
  - e. **Optional: Add the Solaris operating environment supplemental products to the JumpStart install server.**

Insert the Solaris installation CD 2 of 2 in your CD-ROM drive, and go to the `Tools` directory on the CD.

Type the command `./add_to_install_server /install-server-directory`, where *install-server-directory* is the directory that is to be used to serve the install images. For example:

```
cd /cdrom/cdrom0/s0/Solaris_8/Tools
./add_to_install_server /export/home/JumpStart/Solaris_8
```

**2. Create the JumpStart profile directory on the server.**

```
mkdir /export/home/JumpStart/jumpstart
```

**3. Insert the Solaris installation CD 1 of 2 in your CD-ROM drive.**

**4. Copy the JumpStart samples from the CD directory `Solaris_2.8/Misc/jumpstart_sample` to the JumpStart profile directory `/export/home/JumpStart/jumpstart`. For example:**

```
cd /cdrom/cdrom0/s0/Solaris_2.8/Misc
cp -r jumpstart_sample/* /export/home/JumpStart/jumpstart
```

**5. Stop the Network File System daemon `mountd`.**

```
/etc/init.d/nfs.server stop
```

**6. Make the JumpStart directory NFS-shared.**

The JumpStart directory must be NFS-shared so that the install clients can access the files on the JumpStart server. Add the following line to the `/etc/dfs/dfstab` file, then save and close the file.

```
share -F nfs -o ro,anon=0 /export/home/JumpStart
```

**7. Start the Network File System daemon `mountd`.**

```
/etc/init.d/nfs.server start
```

## ▼ To Create the Base Agent Image on the JumpStart Install Server

**1. Log in as root on the machine where you created the JumpStart install server.**

**2. Insert the Sun Management Center 3.5 installation CD 1 of 2 in your CD-ROM drive.**

Go to the directory `/cdrom/cdrom0/sbin`.

**3. Type the command `./es-makeagent` to create the Sun Management Center base agent image.**

You are prompted for the installation files source directory, and for the agent image target directory.

The source directory is `/cdrom/cdrom0/image`. The target directory is the directory on the JumpStart install server where the agent image is to be created, for example, `/export/home/JumpStart/AgentImage`.

---

**Note** – If the target directory that you specify does not exist, you are asked whether you want to create the directory. Type **y** to create the directory.

---

Example:

```
./es-makeagent
Installation files source directory: /cdrom/cdrom0/image
Please enter the target directory: /export/home/JumpStart/AgentImage
```

---

**Note** – The image creation process can take over half an hour to complete.

---

#### 4. Exclude add-on agents.

If you do not want to include the add-on agent components, rename the agent-image Addons directory.

```
cd /export/home/JumpStart/AgentImage/disk1/image
ls -p
Addons/ PE/ Patches/ Webserver/ db/
mv Addons Addons-temp
```

## ▼ To Generate the Sun Management Center 3.5 Install and Setup Response Files

### 1. Select a machine on which to install and set up the Sun Management Center base agent, and log in as root.

This is the prototype machine.

---

**Tip** – Select a machine on which Sun Management Center has not been installed. If such a machine is not available, uninstall the SyMON or Sun Management Center software from the prototype machine as directed by the installation manual for the SyMON or Sun Management Center software. Do not save the configuration data from the previous version of Sun Management Center.

---

### 2. Insert the Sun Management Center 3.5 installation CD 1 of 2 in your CD-ROM drive.

Go to the directory `/cdrom/cdrom0/sbin`.

**3. Create a directory on the machine in which to store the Sun Management Center install and setup response files.**

For example:

```
mkdir /response-files
```

**4. Generate the Sun Management Center Install Response file.**

To generate the install response file, you must install the base agent using the command format `./es-inst -C /response-file-dir/install-response-file.cfg` where:

- *response-file-dir* is the directory that you created in which to store the response files
- *install-response-file* is the name of the response file

For example:

```
./es-inst -C /response-files/install.cfg
```

You are prompted for the directory in which to install Sun Management Center.

**a. Provide the name of the directory in which to install Sun Management Center**

You are prompted for the target directory. The default location is `/opt`.

Sun Management Center software can be installed in any location on your system where the minimum required disk space is available. If you want to install to a directory other than `/opt`, type the directory name.

---

**Tip** – The command `df -ak` lists the used space and free space for each file system on the machine.

---

You are asked whether you want to install either the production environment or the developer environment.

**b. Type 1 to install the production environment and press Return.**



---

**Caution** – Do not select (2) Developer Environment (DE). Option 2 installs the entire Sun Management Center base product.

---

You are prompted to select the Sun Management Center components that you want to install.

**c. Select only the agent component.**

Type **n** when prompted to install the server component.

Type **y** when prompted to install the agent component.

Type **n** when prompted to install the console component.

```
3 component(s) are available for your selection:
```

```
Do you want to install the Server component (y|n|q) n
```

```
Do you want to install the Agent component (y|n|q) y
Do you want to install the Console component (y|n|q) n
```

The install process checks for add-on components, and then prompts you to select add-ons.

**d. Do not select any add-on components for installation.**

Type **n** when prompted to select each add-on.

```
Select the products you want to install:
Advanced System Monitoring (y|n|q) n
Service Availability Manager (y|n|q) n
Performance Reporting Manager (y|n|q) n
Sun Fire Platform Administration (y|n|q) n
Monitoring and Management of A5x00 and T3 devices (y|n|q) n
Sun Fire Link (y|n|q) n
System Reliability Manager (y|n|q) n
Workgroup Server (y|n|q) n
```

You are asked whether you want to proceed. Type **y** to continue.

**e. Check disk space.**

The installation process checks whether there is enough disk space to install the Sun Management Center base agent.

- If there is enough disk space, the base agent is installed.
- If there is not enough disk space, you are asked to provide an alternate file system. The amount of space that is available and the amount of space that is needed are displayed.

---

**Tip** – In a terminal window on the machine where you are installing the Sun Management Center agent, type **df -ak** to list the amount of used and free space for each file system on the machine.

---

When the agent installation completes, you are asked whether you want to run setup.



---

**Caution** – Do not run setup. Type **n** to exit. Running setup from within the install process will not create the Sun Management Center setup response file needed by the JumpStart finish script.

---

**5. Go to the directory /opt/SUNWsymon/sbin.**

If you installed Sun Management Center in a different location, go to the */install-dir/SUNWsymon/sbin* directory, where *install-dir* is the directory you specified in Step 4.

**6. Generate the Sun Management Center 3.5 setup response file.**

To generate the Sun Management Center setup response file, you must set up the base agent using the command format `./es-setup -C /response-file-dir/setup-response-file.cfg` where:

- *response-file-dir* is the directory that you created in which to store the response files
- *setup-response-file* is the name of the response file

For example:

```
./es-setup -C /response-files/setup.cfg
```

You are prompted to provide a seed for security key generation,

**a. Generate the security keys.**

An encrypted security key is needed for communications between all Sun Management Center processes. The key is generated based on the password seed that you provide. The seed must be between one and eight characters long, and contain no spaces. Entries that are greater than eight characters are truncated to eight characters.



---

**Caution** – You must ensure that you use the same security seed for all the machines that you install in a single server context.

---

Type the same password seed that you provided during Sun Management Center server setup in Step 7 in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.

Type the password seed again when prompted.

---

**Note** – To ensure security, the password seed that you provide is not stored in the Sun Management Center setup response file. You can either hard-code the password seed in the JumpStart finish script, or configure the finish script so that the install client prompts for the password seed when the finish script runs on the the install client. Both methods of specifying the password seed are provided in “To Create the JumpStart Finish Script” on page 131.

---

You are prompted for the SNMPv1 community string.

**b. Specify the SNMPv1 community security string.**

An SNMPv1 community string is required for security, and by default is set to `public`. For additional security, a customized string can be specified.



---

**Caution** – You must ensure that you use the same SNMPv1 community string on all the machines that you install in a single server context.

---

Provide the same community string that you provided during Sun Management Center server setup in Step 8 in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.

- If you used the default community string of `public`, press Return when prompted to submit the SNMPv1 community string.
- If you specified a custom community text string, type the same community string that you provided during Sun Management Center server setup.

---

**Note** – To ensure security, the community string that you provide is not stored in the Sun Management Center setup response file. You can either hard-code the community string in the JumpStart finish script, or configure the finish script so that the install client prompts for the community string when the finish script runs on the the install client. Both methods of specifying the community string are provided in “To Create the JumpStart Finish Script” on page 131.

---

You are prompted for the Sun Management Center server host name.

**c. Specify the Sun Management Center server host name.**

Type the name of the machine on which the Sun Management Center server was installed.

The setup process checks whether the SNMP port is in use.

- If SNMP port 161 is not in use, you are asked whether you want to start the Sun Management Center agent. Go to Step e.
- If SNMP port 161 is in use, you are prompted to assign an SNMP port number.

**d. Resolve the SNMP port conflict.**

Type the same port number that you provided during Sun Management Center server setup in Step 11 in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.

**e. Start the Sun Management Center agent.**



---

**Caution** – If your network uses Network Address Translation (NAT), type `n` to exit setup without starting Sun Management Center. Use the `es-config` command-line utility described in “To Enable NAT Support” on page 179 to configure the machine for NAT before you start Sun Management Center.

---

- If you want to start the Sun Management Center base agent now, type `y`.  
The setup script starts the agent using `es-start -A`. See “Starting Components Using `es-start`” on page 156 for information about `es-start`.  
Also, see “Starting the Console” on page 158 for instructions on how to start the Sun Management Center console.



- If you want to start Sun Management Center later, type `n`. See Chapter 8 when you are ready to start the Sun Management Center agent on this machine.

**7. Copy the install and setup response files to the JumpStart profile server.**

As an example in the previous steps, the Sun Management Center install response file `install.cfg` was created on the prototype machine in the directory `/response-files`. The Sun Management Center setup response file `setup.cfg` was also created on the prototype machine in the directory `/response-files`.

Assume that your JumpStart profile server is named `bootserver01`, and the JumpStart profile directory on machine `bootserver01` is `/export/home/JumpStart/jumpstart`. Also assume that you have enabled write-access to the JumpStart profile directory from the prototype machine. You would then copy the response files from the prototype machine to the JumpStart profiles directory on the JumpStart machine. For example:

```
cd /response-files
cp install.cfg /net/bootserver01/export/home/JumpStart/jumpstart
cp setup.cfg /net/bootserver01/export/home/JumpStart/jumpstart
```

**8. Log in as root on the machine where you created the JumpStart profile directory.**

**9. Go to the JumpStart profile directory that you created in Step 2, in "To Create the JumpStart Install Server and Profile Directory" on page 122.**

**10. Edit the Sun Management Center install response file.**

You must edit the install response file so that it can be used by JumpStart. The install response file is the file name you specified in Step 4. Make the following changes to the install response file:

- Change the `SOURCE_DIRECTORY` value to `/a/mnt/disk1/image`. The `/a/mnt/disk1/image` corresponds to the `$MNTDIR` value specified in the JumpStart finish script.
- Change the `TARGET_DIRECTORY` value to `/a/target_directory`, where `target_directory` is the directory on each install client where the Sun Management Center base agent is to be installed.
- Change the value of the `SETUP_NOW` parameter to zero. Setting the value of the `SETUP_NOW` parameter to zero ensures that the Sun Management Center setup does not automatically run on each install client when the Sun Management Center base agent has been installed.

The following sample shows a basic Sun Management Center install response file after edits have been completed.

```
SUNMC_VERSION=3.5
ENVIRONMENT=1
SOURCE_DIRECTORY=/a/mnt/disk1/image
TARGET_DIRECTORY=/a/opt
OSVERS=8
PRTOUT= Sun Microsystems sun4u Sun Ultra 60 UPA/PCI (UltraSPARC-II 450MHz)
LAYER.SERVER=0
LAYER.AGENT=1
```

```
LAYER.CONSOLE=0
SETUP_NOW=0
```

The value of the PRTOUT parameter is not important because the base agent is platform independent. However, JumpStart requires this parameter to be present. Do not delete the PRTOUT parameter.

## 11. Edit the Sun Management Center setup response file.

You must edit the setup response file so that it can be used by JumpStart. The setup response file is the file name that you specified in Step 6. Make the following changes to the setup response file if needed:

- Make sure that the server name specified by the SUNMC\_SERVER parameter is the name of the Sun Management Center 3.5 server machine.
- Make sure that the value of the START\_SUNMC parameter is set to 1 (one). Setting the value of the START\_SUNMC parameter to 1 ensures that the Sun Management Center base agent is started after it has been set up.
- Make sure that the agent\_OPTIONAL\_PORT parameter is present, and that the assigned value is either a valid port number, or the text string DEFAULT.
- Make sure that all of the parameters in the sample setup response file shown below are present.

The following examples show a Sun Management Center setup response file before and after JumpStart edits have been applied. In both examples, bootserver01 is the name of the Sun Management Center server machine.

### EXAMPLE 6-1 Setup Response File Before JumpStart Edits Are Applied

```
SUNMC_SERVER=bootserver01
agent_OPTIONAL_PORT=1161
START_SUNMC=1
```

### EXAMPLE 6-2 Setup Response File After JumpStart Edits Are Applied

```
DISABLE_SNMPDX_DAEMON=1
STOP_SNMPDX=1
SUNMC_SERVER=bootserver01
agent_OPTIONAL_PORT=1161
START_SUNMC=1
```

In this example, the line `DISABLE_SNMPDX=1` disables the SNMP daemon. The line `STOP_SNMPDX=1` stops the SNMP daemon. The line `SUNMC_SERVER=bootserver01` specifies that the base agent Sun Management Center server host is the machine named `bootserver01`. The line `agent_OPTIONAL_PORT=1161` assigns port 1161 to the agent. The line `START_SUNMC=1` starts the base agent when base agent setup is complete.

## ▼ To Create the JumpStart Profiles

1. Log in as root on the machine where you created the JumpStart profile directory.

2. Go to the JumpStart profile directory that you created in Step 2, in “To Create the JumpStart Install Server and Profile Directory” on page 122.
3. Create a JumpStart profile for each type of install client on which you will install the Sun Management Center base agent.

You can create a JumpStart profile either by copying an appropriate sample profile from the samples in the directory, or by using the following example as a template. Save each JumpStart profile that you create in the JumpStart profile server directory, and record the name of each profile you create.




---

**Caution** – Do not use a sample profile as the actual profile. Edit the profile to meet the JumpStart requirements, as described in “Creating a Profile” in the *Solaris 9 Installation Guide*.

---

The following examples show sample JumpStart profiles. The first example shows a profile that is used for a fresh Solaris operating environment install. The second example shows a profile that is used for Solaris operating environment upgrade.

**EXAMPLE 6-3** Sample JumpStart Profile: Fresh Solaris Operating Environment Install

```
#
all_9000_t0+swap
#
install_type initial_install
system_type standalone
partitioning explicit
#
filesystems c0t0d0s1 2024 swap
filesystems c0t0d0s0 6120 /
filesystems c0t0d0s7 free /export/home
#
cluster SUNWCall
package SUNWabe delete
cluster SUNWCapache delete
cluster SUNWCdhcp delete
cluster SUNWClux delete
cluster SUNWCfct delete
cluster SUNWCnet delete
package NSCPcom delete
```

**EXAMPLE 6-4** Sample JumpStart Profile: Upgrade Solaris Operating Environment Install

```
install_type upgrade
```

## ▼ To Create the JumpStart Finish Script

1. Log in as root on the machine where you created the JumpStart profile directory.

2. Go to the JumpStart profile directory that you created in Step 2, in “To Create the JumpStart Install Server and Profile Directory” on page 122.

3. Create the JumpStart finish script.

Review “Security Considerations for Finish Scripts” on page 120. Then, depending on your security requirements, use either of the following sample finish scripts as a guideline to create the finish script in the JumpStart profile directory.

The first example shows a finish script in which the password seed and community string are hard coded. The second example shows a finish script that will prompt for the password seed and community string.

Save your finish script with the sh extension, for example, `base_agent_finish.sh`.

**EXAMPLE 6-5** Sample Finish Script: Security Password Seed and Community String Hard Coded

```
#!/bin/sh
#
Program type : Unix bourne shell script
Description : Standard finish script for installing and
setting up Sun Management Center core agent
#
#
#
ROOTDIR=${ROOTDIR:-/a} # Root directory for new OS
MNTDIR=${ROOTDIR}/mnt
LOGDIR=${ROOTDIR}/var/tmp/sunmcfinish
SI_CONFIG_DIR=${SI_CONFIG_DIR:-/export/home/JumpStart/jumpstart}
INSTALL_RESP=${SI_CONFIG_DIR}/install.cfg
SETUP_RESP=${SI_CONFIG_DIR}/setup.cfg
#
#
Begin Main Program
#
#
umask 022
mkdir -p $LOGDIR
#
Copy the install and setup response file to target system
#
cp ${INSTALL_RESP} $LOGDIR
cp ${SETUP_RESP} $LOGDIR
#
mount Sun Management Center image
#
mount -F nfs bootserver01:/export/home/JumpStart/AgentImage $MNTDIR
[$? -ne 0] && exit 1
#
run es-inst with -a -R -T and -A options
skip the next line for Flash Archive based deployment
Do not use the -T option if you have specified the TARGET_DIRECTORY
tag in install.cfg
#
${MNTDIR}/disk1/sbin/es-inst -a -R /a -T /a/opt -A ${LOGDIR}/install.cfg
```

**EXAMPLE 6-5** Sample Finish Script: Security Password Seed and Community String Hard Coded (Continued)

```
#
Clean up any rc script with the same name if present
#
test -f ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart && \
rm -f ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart
rm -f /etc/init.d/SunMCJumpStart
#
Place rc script in rc3.d and init.d to do setup
Remember to access es-setup based on the target directory location
#
echo "Creating rc script..."
cat > ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart << EOF
#!/sbin/sh
#
rm /etc/rc3.d/S80SunMCJumpStart /etc/init.d/SunMCJumpStart
SECURITY_SEED=abc123
SNMPV1_STRING=private
export SECURITY_SEED SNMPV1_STRING
/opt/SUNWsymon/sbin/es-setup -e -A /var/tmp/sunmcfinish/setup.cfg
EOF
cp ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart \
 ${ROOTDIR}/etc/init.d/SunMCJumpStart
exit 0
```

**EXAMPLE 6-6** Sample Finish Script: Prompt for Security Password Seed and Community

```
#!/bin/sh
#
Program type : Unix bourne shell script
Description : Standard finish script for installing and
setting up Sun Management Center core agent
#
#
#
ROOTDIR=${ROOTDIR:-/a} # Root directory for new OS
MNTDIR=${ROOTDIR}/mnt
LOGDIR=${ROOTDIR}/var/tmp/sunmcfinish
SI_CONFIG_DIR=${SI_CONFIG_DIR:-/export/home/JumpStart/jumpstart}
INSTALL_RESP=${SI_CONFIG_DIR}/install.cfg
SETUP_RESP=${SI_CONFIG_DIR}/setup.cfg
#
#
Begin Main Program
#
#
umask 022
mkdir -p $LOGDIR
#
Copy the install and setup response file to target system
#
cp ${INSTALL_RESP} $LOGDIR
```

**EXAMPLE 6-6** Sample Finish Script: Prompt for Security Password Seed and Community  
(Continued)

```
cp ${SETUP_RESP} $LOGDIR
#
mount Sun Management Center image
#
mount -F nfs bootserver01:/export/home/JumpStart/AgentImage $MNTDIR
[$? -ne 0] && exit 1
#
Read secure inputs from user who invoked boot net - install
#
echo "Enter Security seed:"
read SECURITY_SEED
echo "Enter SNMP string:"
read SNMPV1_STRING
#
run es-inst with -a -R -T and -A options
skip the next line for Flash Archive based deployment
Do not use the -T option if you have specified the TARGET_DIRECTORY
tag in install.cfg
#
${MNTDIR}/disk1/sbin/es-inst -a -R /a -T /a/opt -A ${LOGDIR}/install.cfg
#
create a temporary es-setup script to use the secure information
read earlier
Remember to access es-setup based on the target directory location
#
FILE2=/a/opt/SUNWsymon/sbin/es-setup
FILE=/a/opt/SUNWsymon/sbin/es-setup.jumpstart
mv $FILE2 $FILE
count=`wc -l $FILE`
count=`echo $count | cut -d' ' -f1`
ncount=$count
count_enter=`expr $ncount - 3`
while [$ncount -gt 0] ; do
 k=`tail -$ncount $FILE | head -1`
 if [$ncount -eq $count_enter]
 then
 echo $k >> $FILE2
 echo "SECURITY_SEED=$SECURITY_SEED" >> $FILE2
 echo "SNMPV1_STRING=$SNMPV1_STRING" >> $FILE2
 else
 echo $k >> $FILE2
 fi
 ncount=`expr $ncount - 1`
done
chmod +x $FILE2
#
Clean up any rc script with the same name if present
#
test -f ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart && \
rm -f ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart \
rm -f /etc/init.d/SunMCJumpStart
#
```

**EXAMPLE 6-6** Sample Finish Script: Prompt for Security Password Seed and Community  
(Continued)

```
Place rc script in rc3.d and init.d to do setup and cleanup
Remember to access es-setup based on the target directory location
#
echo "Creating rc script..."
cat > ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart << EOF
#!/sbin/sh
#
rm /etc/rc3.d/S80SunMCJumpStart /etc/init.d/SunMCJumpStart
/opt/SUNWsymon/sbin/es-setup -e -A /var/tmp/sunmcfinish/setup.cfg
mv /opt/SUNWsymon/sbin/es-setup.jumpstart /opt/SUNWsymon/sbin/es-setup
EOF
cp ${ROOTDIR}/etc/rc3.d/S80SunMCJumpStart \
 ${ROOTDIR}/etc/init.d/SunMCJumpStart
exit 0
```

## ▼ To Create the JumpStart Rules File

1. Log in as root on the machine where you created the JumpStart profile directory.
2. Go to the JumpStart profile directory that you created in Step 2, in “To Create the JumpStart Install Server and Profile Directory” on page 122.
3. Create the JumpStart rules file.

Use the following example rules file as a template, and create the rules file in the JumpStart profile directory.

**EXAMPLE 6-7** Sample Rules File

```
#
rule keywords and rule values begin script profile finish script

This rule matches one system:
#
hostname bootserver01 - basic_prof base_agent_finish.sh

This is a complex rule:
#
network 192.43.34.0 && ! model \
 SUNW,SPARCstation-20 - net_prof -

This rule applies to all
SUNW,SPARCstation-LX:
#
model SUNW,SPARCstation-LX - lx_prof complete.sh
```

**EXAMPLE 6-7** Sample Rules File (Continued)

```
Another complex rule:
#
network 193.144.2.0 && karch i86pc init.sh IA_prof done.sh

#
You can use system attributes like RAM size and architecture to
classify targets:
#
memsize 16-32 && arch i386 - prog_prof -

rules are matched top-down. If nothing matches, this rule will apply:
#
any - - generic_prof -
```

▼ To Validate Your JumpStart Files

1. Log in as root on the machine where you created the JumpStart profile directory.
2. Go to the JumpStart profile directory that you created in Step 2, in “To Create the JumpStart Install Server and Profile Directory” on page 122.
3. Type `./check` to validate your JumpStart files.

```
./check
Validating rules...
Validating profile basic_prof...
Validating profile net_prof...
Validating profile lx_prof...
Validating profile IA_prof...
Validating profile prog_prof...
Validating profile any_machine...
The custom JumpStart configuration is ok.
cat rules.ok
hostname bootserver01 - basic_prof base_agent_finish.sh
network 192.43.34.0 && ! model \
 SUNW,SPARCstation-20 - net_prof -
model SUNW,SPARCstation-LX - lx_prof complete.sh
network 193.144.2.0 && karch i86pc init.sh IA_prof done.sh
memsize 16-32 && arch i386 - prog_prof -
any - - generic_prof -
```

▼ To Add Install Client Information to the JumpStart Server

1. Log in as root on the JumpStart server.
2. Insert the Solaris installation CD 1 of 2 in your CD-ROM drive.  
Go to the `Tools` directory on the CD.



```
cd /cdrom/cdrom0/s0/Solaris_2.8/Tools
```

### 3. Determine the system identification information for each install client.

The JumpStart server requires the following information about each install client.

- Name
- Ethernet address
- IP address
- Architecture

Log on to each install client, and use the `arp` and `uname` commands as follows to display the install client's Ethernet address, IP address, name, and architecture.

```
> arp clienthost
clienthost (111.222.123.124) at 8:0:80:e4:23:eb permanent published
> uname -a
SunOS clienthost 5.9 Generic_112233-01 sun4u sparc SUNW,Ultra-5_10
```

In the above example, the `clienthost` install client Ethernet address is `8:0:80:e4:23:eb`, the IP address is `111.222.123.124`, and the architecture is `sun4u`.

### 4. Add the system identification information for each install client to the JumpStart server.

The `add_install_client` command is used to add the install client information to the JumpStart server as follows:

```
add_install_client \
-c JumpStart_profile_server:path_to_configuration_directory \
-s JumpStart_install_server:path_to_operating_environment_image \
-p JumpStart_profile_server:path_to_SYSIDCFG_file \
-e install_client_ethernet_address \
-i install_client_IP_address \
install_client_name install_client_architecture
```

For example, assume your systems are configured as follows.

- Machine `bootserver01` is your JumpStart boot server, profile server, and install server.
- The JumpStart configuration directory on `bootserver01` is `/export/home/JumpStart/jumpstart`.
- The JumpStart operating environment image directory on `bootserver01` is `/export/home/JumpStart/Solaris_8`.
- The system identification configuration file `sysidcfg` is located in the JumpStart configuration directory `/export/home/JumpStart/jumpstart`.
- The install client Ethernet address is `8:0:80:e4:23:eb`, and the IP address is `111.111.123.124`.
- The install client's name is `clienthost`, and the install client's architecture is `sun4u`.

You would then add the install client `clienthost` using the `add_install_client` command as follows.

```
./add_install_client -c bootserver01:/export/home/JumpStart/jumpstart \
-s bootserver01:/export/home/JumpStart/Solaris_9 \
-p bootserver01:/export/home/JumpStart/jumpstart \
-e 8:0:80:e4:23:eb -i 111.111.123.124 \
clienthost sun4u
Adding Ethernet number for clienthost to /etc/ethers
making /tftpboot
enabling tftp in /etc/inetd.conf
starting rarpd
starting bootparamd
updating /etc/bootparams
copying inetboot to /tftpboot
```

When you have finished adding install client system information to the JumpStart server, you can then use JumpStart to install the Solaris operating environment and the Sun Management Center base agent as described in the next step.

For further information about the `add_install_client` command and options, see the man page `add_install_client(1m)`.

## 5. Boot each install client.

a. Logon as root on the client machine in single-user mode.

b. At the `ok` prompt, type the command `boot net - install`.

For example:

```
{2} ok boot net - install
```

The client system boots from the JumpStart server. JumpStart installs the Solaris operating environment specified by the JumpStart profile assigned to the install client by the applicable rule in the rules file. When the operating environment has been installed, the Sun Management Center 3.5 base agent is installed. The install client then reboots.

When the install client reboot completes, the Sun Management Center base agent is set up according to the specifications of the finish script assigned to the install client by the applicable rule in the rules file. If you hard coded the security password seed and the SNMP community string in the finish script, base agent setup is automatic. If you chose not to hard code the password seed and community string in the finish script, you must respond to the base agent setup prompts on each install client to complete base agent setup.

---

## Configuring Server and Agent on Multi-IP Machines

This section describes how to configure the Sun Management Center 3.5 server and agent on multi-IP machines.

## Server Configuration

When installed on a system with multiple IP interfaces, the Sun Management Center 3.5 server is configured, by default, to support all agents on all of the IP interfaces.

The `esmultiip` command enables you to list, remove, or add an IP interface. The syntax of the `esmultiip` command is as follows:

```
esmultiip [-lh] | [< -a | -d > Host-IP]
```

The following table describes the `esmultiip` command parameters.

**TABLE 6-3** `esmultiip` options

| Option | Modifying Options | Definition                                                                                                       |
|--------|-------------------|------------------------------------------------------------------------------------------------------------------|
|        |                   | Enable the multi-IP feature on the Sun Management Center server if more than one IP interface is present.        |
| -h     |                   | List the options for <code>esmultiip</code>                                                                      |
| -l     |                   | List all of the active IP interfaces of the Sun Management Center server                                         |
| -a     | <i>Host-IP</i>    | Add the host name corresponding to the IP address <i>Host-IP</i> to the list of active server IP interfaces      |
| -d     | <i>Host_IP</i>    | Remove the host name corresponding to the IP address <i>Host-IP</i> from the list of active server IP interfaces |

---

**Note** – The following procedures assume that the Sun Management Center server has been installed on the multi-IP machine in the directory `/opt`. If you installed the agent in a different directory, replace `/opt` with the name of the directory that you specified “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81, Step 8.

---

## ▼ To Add an IP Interface to the Sun Management Center Server

1. **Log in as root on the server multi-IP machine.**

2. **List the current Sun Management Center active IP interfaces.**

Type the command `/opt/SUNWsymon/sbin/esmultiip -l`. For example:

```
/opt/SUNWsymon/sbin/esmultiip -l
Multi IP configured with active interfaces "10.1.2.111"
```

3. **List all IP interfaces on the machine.**

Type the command `ifconfig -a`. For example:

```
ifconfig -a
lo0: flags=1000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4> mtu 8232 index 1
 inet 127.0.0.1 netmask ff000000
hme0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
 inet 10.1.2.111 netmask ffffffff broadcast 10.1.2.255
 ether 8:0:20:a8:7a:c9
hme1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 3
 inet 129.1.2.222 netmask ffffffff broadcast 129.199.199.255
 ether 8:0:20:a8:7a:c9
```

As shown by the above examples, only IP interface hme0 at IP address 10.1.2.111 is being used by the Sun Management Center server.

4. **Add an IP interface.**

Assume that you want to add the IP interface hme1 at IP address 129.1.2.222. You would then type the command `/opt/SUNWsymon/sbin/esmultiip -a 129.1.2.222`.

The IP interface is added to the list of active Sun Management Center server interfaces.

## ▼ To Remove an IP Interface From the Sun Management Center Server

1. **Log in as root on the server multi-IP machine.**

2. **List the current Sun Management Center active IP interfaces.**

Type the command `/opt/SUNWsymon/sbin/esmultiip -l`. For example:

```
/opt/SUNWsymon/sbin/esmultiip -l
Multi IP configured with active interfaces "10.1.2.111 129.1.2.222"
```

3. **Remove an IP interface.**

Assume that you want to remove the IP interface hme1 at IP address 129.1.2.222. You would then type the command `/opt/SUNWsymon/sbin/esmultiip -d 129.1.2.222`.

The IP interface is removed from the list of active Sun Management Center server interfaces.

## Agent Configuration

If the Sun Management Center 3.5 agent is configured to use one IP interface on a multi-IP machine, and another IP interface is configured for use by the server, then the Sun Management Center agent on the multi-IP machine cannot communicate with the Sun Management Center server.

The agent must be reconfigured to use the same IP interface as the server

---

**Note** – The following procedure assumes that only the Sun Management Center agent has been installed on the multi-IP machine in the directory `/opt`. If you installed the agent in a different directory, replace `/opt` with the name of the directory that you specified in “Installing Sun Management Center 3.5 on the Solaris Platform” on page 81, Step 8.

---

### ▼ To Configure the Sun Management Center Agent on a Multi-IP Machine

**1. Log in as root on the multi-IP agent machine.**

**2. Determine which IP address the agent is using.**

Type the command `uname -n` to display the machine name.

```
uname -n
u60-01
```

The agent is configured to run on the IP address corresponding to the machine name reported by `uname -n`. In this example, the agent is configured to run on the IP interface assigned to machine name `u60-01`.

**3. Determine the IP interface addresses.**

Type the command `cat /etc/hosts` to display the machine name assigned to each IP interface.

For example:

```
uname -n
SunOS u60-01-ip2 5.8 Generic_108528-07 sun4u sparc SUNW,Ultra-60
cat /etc/hosts
127.0.0.1 localhost
10.1.2.111 u60-01 loghost
10.2.3.222 u60-01-ip2
```

In the above examples, `uname -n` showed `u60-01`, and `u60-01` is assigned to the IP interface `10.1.2.111`.

If you want to configure the Sun Management Center agent to run on a different IP interface, reassign the agent to use the desired IP interface as described in the following steps.

**4. Stop the agent if it is running.**

Type the command `/opt/SUNWsymon/sbin/es-stop -A`.

All Sun Management Center processes are stopped.

**5. Change the machine name to the name assigned to the desired interface.**

Assume that the agent uses IP interface 10.1.2.111, which is named `u60-01`. Also assume you want to reassign the agent to use IP interface 10.2.3.222, which is named `u60-01-ip2`.

You would then reassign to agent to IP interface 10.2.3.222 by typing the command `uname -s u60-01-ip2`.

**6. Set up the agent.**

You must set up the agent again to enable the agent to use the new IP interface assignment.

Type the command `/opt/SUNWsymon/sbin/es-setup -F`.

You are prompted for the security key seed.

**a. Specify the Sun Management Center security key.**

Type the same security seed password that you provided during Sun Management Center setup in "Setting Up Base Products and Add-ons on the Solaris Platform" on page 87, Step 7. Type the password again to confirm.

You are prompted for the SNMPv1 community string.

**b. Specify the SNMPv1 community string.**

Type the same community string that you provided during Sun Management Center setup in "Setting Up Base Products and Add-ons on the Solaris Platform" on page 87, Step 8. If you used the default value `public`, press Return.

You are informed that `server-host-name` appears to be configured as your Sun Management Center server, where `server-host-name` is the name of the machine where the server was installed.

- If the displayed server name is correct, type `y`.
- If the displayed server name is not correct, type `n`. You are prompted to provide the Sun Management Center host name.

Type the name of the machine where the server is installed.

The agent is set up to use the new IP address.

---

**Note** – If you installed any add-on agent components, you might be asked to set up the add-on components as well.

---

Agent configuration is now complete, and you can restart the agent.

**7. Restart the agent.**

Type the command `/opt/SUNWsymon/sbin/es-start -A`.

---

## Installing Sun Management Center 3.5 on Microsoft Windows

Only the Sun Management Center console and the console components of some add-ons can be installed on Microsoft Windows. The Microsoft Windows machine must be accessible by your Solaris or UNIX network, and must have access to your network for the console to work.



---

**Caution** – Before you install Sun Management Center 3.5 on any Microsoft Windows platform, make sure that you have set the Java environment variables and path as described in “Java Environment Variables and Path” on page 58. Installation will fail if JDK version 1.3.1, 1.4, or 1.4.1 has not been installed and configured.

Before you install Sun Management Center 3.5 on Microsoft Windows 98, make sure that you have set the minimum swap space and environment space as described in “Microsoft Windows 98 Swap Space and Environment Space” on page 60.

---

### ▼ To Install Sun Management Center 3.5 on Microsoft Windows

**1. Log in as administrator, or as a user with administrator privileges.**

**2. Run Windows Explorer.**

**3. Review the README file.**

If you are installing from the CD, insert Sun Management Center disk 1 of 2 in the CD-ROM drive, and then use Windows Explorer to navigate to and open `/install/windows_install_readme.txt`.

If you are installing from the Sun Management Center cd-image, use Windows Explorer to navigate to and open `/net/machine-name/cd-imagedir/disk1/install/windows_install_readme.txt`.

**4. Use the Windows Explorer to navigate to `/install/install.bat` and double-click the icon.**

**5. The Welcome window appears.**

Ensure that you have the information listed, and then click Next.

The Specify the Installation Destination Directory window appears.

**6. Specify the installation directory.**

You are prompted for the directory in which to install Sun Management Center. The default location is C:\Program Files\SunMC. The Sun Management Center 3.5 console can be installed in any location on your system where the minimum required disk space is available.

Click Next to accept the default of C:\Program Files\SunMC, or browse to a directory name, select the directory, and then click Next.

- If the directory exists, the Select Add-on Products window appears.
- If the directory does not exist, you are informed that the directory does not exist, and asked "Create it now?".

Click Create. The window closes.

Click Next in the Specify the Installation Destination Directory window.

The Select Add-on Products window appears.

**7. Select the add-ons that you want to install, and then click Next.**

The Disk Space Check window appears.

- If there is enough free disk space to install Sun Management Center, the Confirmation window appears.
- If there is not enough free disk space, you are prompted to specify a different directory, or to browse to and select a different directory.

The disk space check is run again. If the directory does not have enough space, you are again prompted to specify a directory that contains enough free space. If the directory that you specified has sufficient space, the Confirmation window appears.

**8. Confirm installation selections.**

A list of your selections is displayed.

- Confirm the selections. If the list is correct, click Next to start installation of Sun Management Center.
- If the list is not correct, click Back to return to the Select Add-on Products window to select the products that you want to install.

The installation in progress screen appears.

**9. Complete the installation process.**

When the progress bar is approximately 50% completed, you are informed that Installation of CD 1 is complete, and instructed to insert the next CD.

Remove the first CD, and insert Sun Management Center disk 2 of 2. Wait for the CD-ROM drive to finish spinning, and then click Next.



When the installation process completes, a list of installed products is displayed. Click Close.

This concludes the Microsoft Windows installation process. Setup and configuration is not required for the Sun Management Center console on Microsoft Windows systems. You can now run the Sun Management Center console as directed by "To Start the Console on Microsoft Windows" on page 158.



## Sun Management Center Post-Installation Tasks

---

This chapter provides the instructions for post-installation tasks you can perform to complete your Sun Management Center 3.5 configuration and implementation.

This chapter discusses the following topics:

- “Setting Up Users” on page 147
- “Stopping and Disabling the SNMP Daemons” on page 149
- “Installing Separately Released Add-on Products” on page 150
- “Sun Management Center Validation Tool” on page 152

---

### Setting Up Users

During Sun Management Center server setup, the file `/var/opt/SUNWsymon/cfg/esusers` is created.

Sun Management Center users are valid UNIX users whose login names are stored in the file `/var/opt/SUNWsymon/cfg/esusers`. All users listed in this file have general access privileges by default unless the user is given additional privileges, as described in “To Assign a User to a Security Group” on page 148.

If a user login name is not in `/var/opt/SUNWsymon/cfg/esusers`, that user cannot log in to Sun Management Center. For a user to be able to access Sun Management Center, the user name must be added to the `/var/opt/SUNWsymon/cfg/esusers` file, as described in “To Add Sun Management Center Users” on page 148.

Users must also be assigned a security level for access. Sun Management Center assigns users to specific security groups. Three groups are created by default during the installation process: `esops`, `esadm`, and `esdomadm`.

- `esops` is the group that is assigned to users who can effectively use the product and fine-tune its operation. These users cannot affect major configuration or architectural changes. The `esops` group has the greatest restriction of access privileges.
- `esadm` is the group that is assigned to users who can perform privileged operations, including the loading of modules and the configuration of managed objects and data properties. The `esadm` group has more access privileges than `esops`, but fewer access privileges than `esdomadm`.  
  
`esadm` permits members to create top-level domains in a server context and assign privileges for other Sun Management Center users within these domains.
- `esdomadm` is the group that is assigned to users who have domain administration privileges. These users can create top-level domains in a server context and assign privileges for other Sun Management Center users within these domains. This role is the highest-level role.

For further information about security groups and roles, see “Users, Groups, and Roles Overview” on page 47. To find out how to assign a user to a specific Sun Management Center security group, see “To Assign a User to a Security Group” on page 148. For further information about Sun Management Center security, see “Security Recommendations” on page 47.

## ▼ To Add Sun Management Center Users

1. **Log in as root (`su - root`) on the Sun Management Center server machine.**
2. **Add the user name on a new line in the `/var/opt/SUNWsymon/cfg/esusers` file.**  
The user name that you add must be a valid UNIX user name.
3. **Save the file and exit the editor.**

The user can now log in to Sun Management Center as a general user with limited access privileges. To enable additional access privileges for the user, assign the user to a specific security group. For further information about security groups, see “Users, Groups, and Roles Overview” on page 47.

## ▼ To Assign a User to a Security Group

1. **Ensure that the user login name is in the `/var/opt/SUNWsymon/cfg/esusers` file.**
2. **Log in as root on the Sun Management Center Server machine.**
3. **In the `/etc/group` file, add the user to one of the following lines as applicable: `esadm`, `esops`, or `esdomadm`.**

Separate each entry by a comma. For example, assume that you want to make the following assignments:

- sysadmin1 and syadmin2 to the domain administration group esdomadm
- admin1, admin2, and admin3 to the administration group esadm
- ops1 and ops2 to the operations group esops

The entries in the `/etc/group` file would then be:

```
esadm: :1000:admin1,admin2,admin3
esdomadm: :1001:sysadmin1,sysadmin2
esops: :1002:ops1,ops2
```

See “Users, Groups, and Roles Overview” on page 47 for a thorough description of each of the security groups.

#### 4. Save the file and exit the editor.

The user can now log in to Sun Management Center using the security privileges that you have assigned.

---

## Stopping and Disabling the SNMP Daemons

The Sun Management Center agent uses User Datagram Protocol (UDP) port 161 by default to communicate with the Sun Management Center server. The Sun Management Center agent is a complete replacement and enhancement for the SNMP agent `snmpdx` and the Sun SNMP utility `mibissa`, which also use port 161 by default.

The SNMP agent `snmpdx` is the main component of Solstice Enterprise Agent technology. `snmpdx` and `mibissa` run as daemon processes and listen for SNMP requests on port 161.

If port 161 is in use during Sun Management Center setup, you are given the opportunity to specify a different port for the Sun Management Center agent and server, or to continue and use port 161. If you choose to use port 161, you are given the opportunity to stop and disable the SNMP agent daemon.



---

**Caution** – If you use port 161 and have chosen to manually stop and disable the SNMP daemon, Sun Management Center will not start until you stop all processes that use port 161.

---

The following procedure applies to any machine on which the Sun Management Center agent has been installed.

## ▼ To Stop and Disable snmpdx Manually

1. Log in as root.
2. Stop the `snmpdx` daemon by typing:
3. Disable the `snmpdx` daemon by typing:

```
/etc/rc3.d/S76snmpdx stop
```

```
mv /etc/rc3.d/S76snmpdx /etc/rc3.d/s76snmpdx
```

---

**Note** – A script whose name begins with an uppercase “S” automatically starts when the system reboots. A script whose name begins with a lowercase “s” is not run automatically.

---

Your system might have other legacy SNMP agents or processes utilizing port 161. If Sun Management Center fails to start even though you have stopped and disabled `snmpdx`, view the `agent.log` file `/var/opt/SUNWsymon/log/agent.log` to see whether there is a port conflict.

---

## Installing Separately Released Add-on Products

Installing a separately released add-on product involves two steps:

- Installing the add-on product as directed by the documentation for the product.
- Setting up the add-on product by using either the Sun Management Center setup wizard `es-guisetup` or the command-line script `es-setup`.

---

**Tip** – You can install several add-ons, and then set up all of the add-ons by using the `es-guisetup` command.

---

## ▼ To Set Up an Add-on Product Using `es-guisetup`

1. Log in as root on the Sun Management Center machine where the add-on is installed.

**2. Go to the Sun Management Center `sbin` directory, for example:**

```
cd /opt/SUNWsymon/sbin
```

If you installed Sun Management Center in a different directory than `/opt`, go to `/installdir/SUNWsymon/sbin`, where *installdir* is the directory that you specified in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

**3. Run the `es-guisetup` script:**

```
./es-guisetup
```

The Welcome screen appears.

**4. Click Next.**

The Advanced Setup Options screen appears.

**5. Select Configure Add-ons and click Next.**

The Sun Management Center Core Product Setup Complete screen appears.

**6. Click Next.**

- If no add-ons have been set up, the add-ons are listed. You are informed that the listed add-ons will be set up. Click Next to start the setup process for the listed add-ons.
- If one or more add-ons have already been set up, those add-ons are listed. A list of add-ons that have not been set up is also displayed.

Select the add-on or add-ons that you want to set up, then click Next.

The setup screens for each selected add-on are presented in sequence. The Sun Management Center setup process prompts you for any information required by each selected add-on. Provide the requested information as needed. Refer to the add-on documentation for additional information for each add-on product that you selected.

If an add-on product setup failed, you are informed that the setup of the add-on product was not successful. You are then directed to see the log file for more details. The name of the log file is provided.

When the add-on setup process is complete, a list of the add-on components you installed and set up is displayed. You are prompted to click Next to start Sun Management Center, or to click Close to exit the setup process and start Sun Management Center later.

## ▼ To Set Up an Add-on Product Using `es-setup`

- 1. Log in as root on the Sun Management Center machine where the add-on is installed.**
- 2. Go to the Sun Management Center `sbin` directory, for example:**

```
cd /opt/SUNWsymon/sbin
```

If you installed Sun Management Center in a different directory than `/opt`, go to `/installdir/SUNWsymon/sbin`, where `installdir` is the directory that you specified in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

### 3. Determine the directory name of the add-on.

List the contents of the `installdir/SUNWsymon/addons` directory, for example:

```
ls -p /opt/SUNWsymon/addons
AdvancedMonitoring/ PRM/ SystemManagement/ storage/
EServices/ SunfireSun4dConfigReader/ wgs/
```

### 4. Set up the add-on by typing `es-setup -p add-on-name`, where `add-on-name` is the directory name for the add-on. For example:

```
./es-setup -p SunfireSun4dConfigReader
```

The setup process is started for the specified add-on. When the add-on setup completes, you are asked whether you want to start the Sun Management Center agent and server processes.

- Type **y** to start the Sun Management Center agent and server.
- Type **n** to exit without starting the Sun Management Center agent and server.

---

## Sun Management Center Validation Tool

The Sun Management Center validation tool `es-validate` checks and verifies installation and setup information after the software has been installed on your system. The tool is automatically installed when you install any of the base component layers.

`es-validate` provides the following information, which is based on the parameters you use:

- The version of the Sun Management Center base product installed on the local host
- The Sun Management Center base component layers installed on the host
- Whether the production environment or developer environment has been installed
- A list of all Sun Management Center base packages installed on the host
- A list of all Sun Management Center add-on packages and the version of each installed on the host
- The Sun Management Center base installation directory (BASEDIR)
- The Sun Management Center patch IDs that have been installed
- The Solaris operating environment version



- The disk space used by the Sun Management Center installation

The validation tool also checks functional aspects of your system, including the following items:

- Confirms whether the products installed on your system are compatible
- Checks whether the Sun Management Center base product and add-on products have been set up
- Checks whether the Sun Management Center database is functional
- Confirms whether the Sun Management Center Web server is running
- Displays all agents in the server context of the current Sun Management Center server, and also checks for agent connections in the server context
- Confirms whether the command-line interface is functional

## es-validate Options

The syntax for the `es-validate` command is as follows:

```
es-validate [-s server [-r serverport] [-u user-name [-p password]]] [-a agenthost [-b agentport] [-d]] [-c] [-o outfile]
```

The following table describes the `es-validate` parameters.

**TABLE 7-1** `es-validate` Options

| Option | Modifying Options | Description                                                                                                                                                                        |
|--------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -a     | <i>agenthost</i>  | Check connectivity with agent host machine <i>agenthost</i> .                                                                                                                      |
| -b     | <i>agentport</i>  | The SNMP port number associated with <i>agentport</i> .                                                                                                                            |
| -c     |                   | Show all the agents in the context of the Sun Management Center server specified with -s option.                                                                                   |
| -d     |                   | Show the version number of the agent on <i>agenthost</i> .                                                                                                                         |
| -o     | <i>outfile</i>    | Store the output of <code>es-validate</code> in file <i>outfile</i> . <i>outfile</i> should be an absolute file path. The default is an arbitrary file name in <code>/tmp</code> . |
| -p     | <i>password</i>   | The password for -u <i>user-name</i> . If not specified, and -u <i>user-name</i> is specified, you are prompted for the password.                                                  |

**TABLE 7-1** es-validate Options (Continued)

| <b>Option</b> | <b>Modifying Options</b> | <b>Description</b>                                                                                                                    |
|---------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| -r            | <i>serverport</i>        | The Sun Management Center RMI port number. If not specified, port 2099 is used.                                                       |
| -s            | <i>server</i>            | The Sun Management Center server host name. If not specified, the current host is used.                                               |
| -u            | <i>user-name</i>         | The user name used to connect with the Sun Management Center server. The <i>-u user name</i> parameter is mandatory for login checks. |

## Starting and Stopping Sun Management Center

---

This chapter provides the following procedures for starting and stopping Sun Management Center.

- “Starting Components on the Solaris Platform” on page 155
- “Starting the Console” on page 158
- “Stopping Components on the Solaris Platform” on page 159

---

**Note** – The procedures in this chapter assume that you installed Sun Management Center in the default file system `/opt`. If you installed Sun Management Center in a different location, replace `/opt` with the name of the file system you chose in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

---

---

### Starting Components on the Solaris Platform

This section describes how to start Sun Management Center components using the graphical user interface and the command-line script.

#### Starting Components Using `es-guistart`

The graphical user interface wizard enables you to start specific Sun Management Center components as described by the following procedure.

## ▼ To Start Sun Management Center Using `es-guistart`

1. Log in as root on the machine on which you want to start Sun Management Center components.

2. Go to the `/opt/SUNWsymon/sbin` directory.

3. Run the start wizard by typing:

```
./es-guistart
```

The Select Components to Start screen appears.

Depending on the components installed on the machine, you might have one or more of the following options to select:

- Start Server Components
- Start Sun Management Center Agent
- Start Default Platform Agent
- Start Instance of Platform Agent

4. Select the components that you want to start and then click Next.

The Starting Components screen appears. The status of each component is listed.

## Starting Components Using `es-start`

The `es-start` command-line script enables you to start specific Sun Management Center components. The syntax of the `es-start` command is as follows:

```
es-start -achIAS [-y instance-name] [-- args...]
```

The following table describes the `es-start` command parameters.

TABLE 8-1 `es-start` Options

| Option | Modifying Options         | Definition                                                              |
|--------|---------------------------|-------------------------------------------------------------------------|
| -a     |                           | Start the agent                                                         |
| -c     |                           | Start the console                                                       |
| -c     | --- -XmxNNm               | Start the console with a heap size of NN Mbytes                         |
| -c     | --- -p <i>port-number</i> | Start the console and override the default port with <i>port-number</i> |
| -h     |                           | List the options for <code>es-start</code>                              |
| -l     |                           | Start the platform agent                                                |

**TABLE 8-1** `es-start` Options (Continued)

| Option | Modifying Options    | Definition                                                                                                             |
|--------|----------------------|------------------------------------------------------------------------------------------------------------------------|
| -y     | <i>instance-name</i> | Start a new instance of the platform agent where <i>instance-name</i> is the name of the platform instance you provide |
| -A     |                      | Start all components except the console                                                                                |
| -S     |                      | Start the server and all the server subcomponents                                                                      |
| -S     | --- -XmxNNm          | Start the server and all server subcomponents with a heap size of <i>NN</i> Mbytes                                     |

The following examples show how to use `es-start` and its parameters.

To start all Sun Management Center processes, type:

```
/opt/SUNWsymon/sbin/es-start -A
```

To start the console, the server, and the agent, type:

```
/opt/SUNWsymon/sbin/es-start -Ac
```

To specify the maximum console heap size when starting the console, use the `es-start -c` and `-X` parameters.

```
/opt/SUNWsymon/sbin/es-start -c -- -Xmx100m
```

To specify a specific port when starting the console, use the `es-start -c` and `-p` parameters.

```
/opt/SUNWsymon/sbin/es-start -c -- -p 2090
```

To specify the maximum server heap size when starting the server, use the `es-start -s` and `-X` parameters.

```
es-start -S -- -Xmx100m
```

---

## Starting the Console

This section describes how to start the Sun Management Center console on the Solaris platform and on Microsoft Windows.

### ▼ To Start the Console on the Solaris Platform

1. **Log in as an authorized Sun Management Center user on the Solaris machine where you have installed the Sun Management Center console.**
2. **Go to the `/opt/SUNWsymon/sbin` directory.**
3. **Start the Sun Management Center console by typing:**  

```
./es-start - c &
```

The Sun Management Center Login screen appears.
4. **Type your Sun Management Center user name in the Login ID field.**
5. **Type your Sun Management Center password in the Password field.**
6. **Type the name of the server where the Sun Management Center server layer is installed.**
7. **Click Login.**

A connection is established to the Sun Management Center server, and your login is authenticated. The Sun Management Center Java console appears.

### ▼ To Start the Console on Microsoft Windows

1. **Access the Sun Management Center Login window.**  
Double-click the Sun Management Center shortcut icon or choose Start → Programs → Sun Management Center → Console.  
The Sun Management Center Login window appears. A command-prompt window also appears that displays the commands run by Sun Management Center.
2. **Type your Sun Management Center user name in the Login ID field.**
3. **Type your Sun Management Center password in the Password field.**
4. **Type the name of the server where the Sun Management Center server layer is installed.**
5. **Click Login.**

A connection is established to the Sun Management Center server, and your login is authenticated. The console appears.

---

## Stopping Components on the Solaris Platform

This section describes how to stop Sun Management Center components using the graphical user interface or the command-line script.

### Stopping Components Using `es-guistop`

The graphical user interface wizard enables you to stop specific Sun Management Center components as described in the following procedure.

#### ▼ To Stop Sun Management Center Components Using `es-guistop`

1. **Log in as root on the machine on which you want to stop Sun Management Center components.**

2. **Go to the `/opt/SUNWsymon/sbin` directory.**

3. **Run the stop wizard by typing:**

```
./es-guistop
```

The Select Components to Stop screen appears.

Depending on the components installed on the machine, you might have one or more of the following options to select:

- Stop Server Components
- Stop Sun Management Center Agent
- Stop Default Platform Agent
- Stop Instance of Platform Agent

4. **Select the components that you want to stop and then click Next.**

The Stopping Components screen appears. The status of each component is listed.

### Stopping Components Using `es-stop`

The `es-stop` command-line script enables you to stop specific Sun Management Center components. The syntax of the `es-stop` command is as follows:

**es-stop -ahlAS [-y *instance-name*]**

The following table describes the `es-stop` command parameters.

**TABLE 8-2** `es-stop` Options

| Option | Modifying Options    | Definition                                                                                  |
|--------|----------------------|---------------------------------------------------------------------------------------------|
| -a     |                      | Stop the Sun Management Center agent                                                        |
| -h     |                      | List the options for <code>es-stop</code>                                                   |
| -l     |                      | Stop the platform agent                                                                     |
| -y     | <i>instance-name</i> | Stop the platform agent instance named <i>instance-name</i>                                 |
| -A     |                      | Stop all Sun Management Center components                                                   |
| -S     |                      | Stop all Sun Management Center components <i>except</i> for the Sun Management Center agent |

The following examples show how to use `es-stop` and its parameters..

To stop all Sun Management Center processes, type:

```
/opt/SUNWsymon/sbin/es-stop -A
```

To stop all Sun Management Center processes except the agent, type:

```
/opt/SUNWsymon/sbin/es-stop -S
```



## Sun Management Center Administration

---

This chapter provides the instructions for administrative tasks such as Sun Management Center backup, security key regeneration, and other tasks you can perform to resolve configuration problems with your Sun Management Center 3.5 installation.

This chapter discusses the following topics:

- “Sun Management Center Backup and Recovery” on page 162
- “Regenerating Security Keys” on page 166
- “SNMP Daemons and Legacy Agents” on page 168
- “Reconfiguring Port Addresses” on page 171
- “Assigning an Agent to a Different Server” on page 175
- “Using Sun Management Center With a Firewall” on page 178
- “Enabling Network Address Translation Support” on page 179

---

**Note** – The procedures in this chapter assume that you installed Sun Management Center in the default file system `/opt`. If you installed Sun Management Center in a different location, substitute `/opt` with the name of the file system you chose in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

---

---

# Sun Management Center Backup and Recovery

The `es-backup` command enables you to back up all base and add-on data in your database, and all of the configuration data in `/var/opt/SUNWsymon/cfg`. The `es-restore` command restores the database and configuration data from a previous backup.

## Using `es-backup`

You should use `es-backup` to back up your database and configuration data as follows.

- On a scheduled, regular basis as part of standard maintenance
- Before performing a hardware or operating environment upgrade
- Before and after performing a Sun Management Center upgrade installation
- After a fresh Sun Management Center installation and setup

The syntax of the `es-backup` command is as follows:

```
es-backup [-d backup-directory] [-y]
```

The following table describes the `es-backup` command parameters.

**TABLE 9-1** `es-backup` Options

| Option | Modifying Options       | Description                                                                                                                                                                                                                                                                                                                                                           |
|--------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -d     | <i>backup-directory</i> | Back up the database and configuration data to the directory <i>backup-directory</i> .                                                                                                                                                                                                                                                                                |
| -h     |                         | List the options for <code>es-backup</code> .                                                                                                                                                                                                                                                                                                                         |
| -y     |                         | Perform a non-interactive backup. You will not be prompted to stop Sun Management Center processes, nor will you be prompted for a backup directory name.<br><br><b>Note</b> – If you do not specify a backup directory using the <code>--d</code> option, all database and configuration data is backed up to the directory <code>/var/opt/SUNWsymon/backup</code> . |

To both minimize and prevent data loss, you should run `es-backup` on a routine basis to enable recovery of your most current data in the event of a system failure. You can create a `cron` entry for the `es-backup -y` script to run the script on a periodic basis. As part of the `cron` entry, you may also want to copy the contents of `/var/opt/SUNWsymon/backup` to an alternate directory.

---

**Note** – By default, a non-interactive backup overwrites the contents of `/var/opt/SUNWsymon/backup`. If you have previously performed a non-interactive backup of Sun Management Center data, and you want to save the previous backup, copy the contents of the directory `/var/opt/SUNWsymon/backup` to another location before running a non-interactive backup.

---

The following procedure assumes that you installed Sun Management Center in the default directory `/opt`. If you did not install Sun Management Center in `/opt`, replace `/opt` with the name of the directory you specified in Step 8 in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

## ▼ To Manually Back Up Sun Management Center Data to the Default Directory

### 1. Log in as root on the Sun Management Center server machine.

### 2. Stop all Sun Management Center processes.

Type the command `/opt/SUNWsymon/es-stop -A` and press Return.

### 3. Backup your Sun Management Center data.

Type the command `/opt/SUNWsymon/es-backup` and press Return.

If any Sun Management Center processes are still running, you are notified that Sun Management Center must be shut down.

You are asked whether you want to proceed. Type `y` and press Return.

### 4. Specify the backup directory.

You are prompted for the directory path in which to store the backup. The default location `/var/opt/SUNWsymon/backup` is displayed.

- To accept the default backup directory `/var/opt/SUNWsymon/backup`, press Return.

If a prior backup has been performed using the default directory `/var/opt/SUNWsymon/backup`, you are asked whether to delete the old backups.

- To keep the old backups, type `n` to exit the backup process, then copy `/var/opt/SUNWsymon/backup` to a different directory.
- To overwrite the old backups, type `y`.

`es-backup` stops all running processes, and then backs up the database and configuration data to `/var/opt/SUNWsymon/backup`. When the backup is completed, `es-backup` starts all Sun Management Center processes.

- To specify a different backup directory, type the name of the directory and press Return.

For example:

```
Enter full directory path to store the backup data files
[/var/opt/SUNWsymon/backup]: /backup-set-1
```

If the directory does not exist, you are asked whether you want to create the directory. Type **y** and press Return.

`es-backup` stops all running processes, and then backs up the database and configuration data to the directory you specified. When the backup is completed, `es-backup` starts all Sun Management Center processes.

## 5. Validate the backup.

Type the command `/opt/SUNWsymon/sbin/es-restore -c` and press Return.

You are prompted to enter the full directory path to the backup files. The default backup directory path `/var/opt/SUNWsymon/backup` is displayed.

- If you chose the default backup directory `/var/opt/SUNWsymon/backup`, press Return.
- If you specified a different backup directory, type the full path and name of the directory and press Return.

`es-restore` validates the data in the backup directory. You are informed whether the backup data is valid.

- If the backup is not valid, examine the backup log file `/var/opt/SUNWsymon/install/backup_host-name.date and time string.process-id` where:
  - *host-name* is the name of the server you used to create the backup
  - *date and time string* is the year, date, and time the backup was created
  - *process-id* is the process ID of the `es-backup` session that created the backup.
- If the backup is valid, copy the backup directory to a different directory for safe keeping.

The `es-backup` log file is `/var/opt/SUNWsymon/install/backup_host-name.date and time string.process-id` where:

- *host-name* is the name of the server you used to perform the backup.
- *date and time string* is the year, date, and time the backup was run.
- *process-id* is the process ID of the `es-backup` session

## Using `es-restore`

To restore your Sun Management Center database and configuration data, for example if your database has been corrupted due to a system failure, use the `es-restore` command.

The syntax of the `es-restore` command is as follows:

```
es-restore [-c] [-d backup-directory]
```

The following table describes the `es-restore` command parameters.

**TABLE 9-2** `es-restore` Options

| Option | Modifying Options       | Description                                                                                |
|--------|-------------------------|--------------------------------------------------------------------------------------------|
| -c     |                         | Verify the backup files only. Do not restore the data.                                     |
| -d     | <i>backup-directory</i> | Restore the data using the backup files located in the directory <i>backup-directory</i> . |
| -h     |                         | List the options for <code>es-restore</code> .                                             |

The following procedure assumes that you installed Sun Management Center in the default directory `/opt`. If you did not install Sun Management Center in `/opt`, replace `/opt` with the name of the directory you specified in Step 8 in the procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

### ▼ To Restore Sun Management Center Data Using the Default Backup Directory

- 1. Log in as root on the Sun Management Center server machine.**
- 2. Stop all Sun Management Center processes.**  
Type the command `/opt/SUNWsymon/es-stop -A` and press Return.
- 3. Type the command `/opt/SUNWsymon/sbin/es-restore`.**  
If any Sun Management Center processes are still running, you are notified that Sun Management Center must be shut down.  
You are asked whether you want to proceed. Type `y` and press Return.
- 4. Specify the backup directory.**  
You are prompted for the directory path to the backup files.. The default location `/var/opt/SUNWsymon/backup` is displayed.
  - If you are restoring Sun Management Center from the default backup directory `/var/opt/SUNWsymon/backup`, press Return.

- If you are restoring Sun Management Center from a different backup directory, type the name of the directory and press Return.

All Sun Management Center processes are stopped. `es-restore` validates the backup data in the specified directory.

- If the backup data is corrupted, you are informed, and `es-restore` exits to the system prompt.

If you decide not to restore the Sun Management Center data from a different backup, and want to restart Sun Management Center, type the command `/opt/SUNWsymon/sbin/es-start -A` and press Return.

- If the backup data is valid, `es-restore` restores the database and configuration data from the specified directory.

When the restore is completed, `es-restore` restarts all Sun Management Center processes.

The `es-restore` log file is `/var/opt/SUNWsymon/install/restore_host-name.date and time string.process-id` where:

- *host-name* is the name of the server you used to perform the restore
- *date and time string* is the year, date, and time the restore was run
- *process-id* is the process ID of the `es-restore` session

---

## Regenerating Security Keys

Security keys are used to validate communications between the Sun Management Center server and agent. The server and agent cannot communicate with each other if the server and agent have different security keys.

The Sun Management Center setup process generates the security keys for Sun Management Center components using the following default settings:

- Valid Sun Management Center users are `espublic` and `esmaster`
- Sun Management Center superuser is `esmaster`
- The default security seed value is `maplesyr`

The software uses an eight-character password string as a *seed* to make the generated key unique. During setup, you determine whether to use the default Sun Management Center seed or to use a seed that you create. The same seed must be used for all server and agent setups in a given server context. For more information on server context, see "Access Control Definitions and Limitations" in the *Sun Management Center 3.5 User's Guide*.

Sun Management Center setup does not create UNIX accounts for the special users `espublic` and `esmaster`. You should not need to log into the Sun Management Center console using these user IDs. These IDs are reserved for internal communication between processes. However, some troubleshooting activities might

require you to log in using one of these user IDs. If so, you have to create the user ID, and then assign a password using the usual UNIX commands `useradd` and `passwd`. The `esmaster` user ID bypasses normal permission checks, so use this ID with care. For normal operation, use an existing login account.

Setup provides an opportunity to specify an existing user as a Sun Management Center administrator. This user ID is added to the `esadm` and `esdomadm` groups as well as the `esusers` file. For more information on security and the Sun Management Center superuser, see “Sun Management Center Security” in *Sun Management Center 3.5 User’s Guide*.

The security keys for the components need to be regenerated if one or more of the following is true:

- UDP ports of any of the Sun Management Center agents change
- Host names or IP addresses of the Sun Management Center agent host change

---

**Note** – Changing the host name or the IP address of the Sun Management Center server is not supported.

---

## ▼ To Regenerate the Security Keys

---

**Note** – In these examples, *shared-secret* stands for a secret string of up to eight characters that is common to all machines in a server context. The string is required as an argument to the script `base-usm-seed.sh`. A default string (`maplesyr`) is provided by the software, but you can specify your own password if desired. This secret string or password is used to generate keys for communication between processes.

---

The following procedure applies to machines on which the Sun Management Center server, agent, or both server and agent are installed.

1. **Log in as root.**
2. **Go to the `/opt/SUNWsymon/sbin` directory.**
3. **Regenerate the security keys.**
  - If you installed only the agent layer, type:

```
./es-run base-usm-seed.sh -s shared-secret -c agent -u public
```
  - If you installed only the server layer, type:

```
./es-run base-usm-seed.sh -s shared-secret -c topology -u public
./es-run base-usm-seed.sh -s shared-secret -c trap event cfgserver servers
```

- If you installed both the agent and server layers on one host, type:

```
./es-run base-usm-seed.sh -s shared-secret -u public
```

#### 4. Restart the Sun Management Center server.

For more information, see the *Sun Management Center 3.5 Software Installation Guide*.

---

## SNMP Daemons and Legacy Agents

This section provides an overview of SNMP, and the procedure for configuring legacy SNMP agents as subagents of the Sun Management Center agent.

### SNMP Overview

The Sun Management Center server uses SNMP to communicate with the Sun Management Center agents. SNMP also communicates with the other server components, such as the Topology manager, Configuration manager, Event manager, and Trap handler. By contrast, the Sun Management Center server uses remote method invocation (RMI) to communicate with the Sun Management Center consoles.

The SNMP port definitions for Sun Management Center components are defined in two files:

- The `/var/opt/SUNWsymon/cfg/domain-config.x` file exists in every machine running any Sun Management Center component
- The `/var/opt/SUNWsymon/cfg/server-config.x` file exists on machines that have the Sun Management Center server component installed

The `domain-config.x` file contains one configuration block for each of the SNMP-based Sun Management Center agents. Each configuration block contains at least one line that defines the port address for the corresponding agent. The default port definition for the Sun Management Center server is in the `server-config.x` file.

You can manually add hosts with Sun Management Center agents that use port addresses other than 161 to the administrative domain through the Create Topology Object window. Alternatively, you can discover these hosts automatically by specifying the port number in the discovery parameters. For more information on the Create Topology Object window, see “Manually Adding Objects to the Management Information Base” in the *Sun Management Center 3.5 User’s Guide*. For more information on how hosts are discovered automatically, see “Adding Objects to the MIB Using the Discovery Manager” in the *Sun Management Center 3.5 User’s Guide*. Because you can only specify one port number in addition to port 161, you should select an alternate port number and use that number for all agent installations.



## Configuring a Legacy SNMP Agent as a Subagent of an Agent

A legacy SNMP agent is an SNMP agent that is not part of the Sun Management Center agent framework. You might need to configure one or more legacy agents as subagents of a Sun Management Center agent if you want to use the legacy agent with Sun Management Center.

Any legacy SNMP agent can be configured as a subagent of a Sun Management Center Agent provided that the following criteria are met:

- The legacy agent can run on a port other than 161
- The legacy agent configuration supports running that agent as a non-daemon process
- You have the legacy agent MIB definition file

The following procedure applies to machines on which the Sun Management Center server, agent, or both server and agent are installed.

### ▼ To Configure a Legacy SNMP Agent as a Subagent of an Agent

1. Log in as root.
2. If the file `/var/opt/SUNWsymon/cfg/subagent-registry-d.x` does not exist, copy the file from the `/opt/SUNWsymon/base/cfg` directory:

```
cp /opt/SUNWsymon/base/cfg/subagent-registry-d.x /var/opt/SUNWsymon/cfg/
```

3. In the file `/var/opt/SUNWsymon/cfg/subagent-registry-d.x`, find the block that is similar to the following block:

```
sa2 = {
type = legacy
persist = false
snmpPort = "20001"
errorAction = restart
startCommand = "/usr/lib/snmp/mibiisa -p %port"
stopCommand = "kill -9 %pid"
pollInterval = 60
pollHoldoff = 60
oidTrees = 1.3.6.1.2.1
snmpVersion = SNMPv1
securityLevel = noauth
securityName = espublic
}
```

4. Remove the comment symbols (#) at the beginning of the line so that the code now looks like the following code.

```

sa2 = {
 type = legacy
 persist = false
 snmpPort = "20001"
 errorAction = restart
 startCommand = "/usr/lib/snmp/mibiisa -p %port"
 stopCommand = "kill -9 %pid"
 pollInterval = 60
 pollHoldoff = 60
 managedTrees = "mib-2 sun"
 oidTrees = 1.3.6.1.2.1
 snmpVersion = SNMPv1
 securityLevel = noauth
 securityName = espublic
}

```

## 5. Modify the lines as follows:

- Change `sa2` to the unique subagent name for the agent.
- Set `type` to `legacy`.
- Set `persist` to `false` if the subagent is stopped when the Sun Management Center agent exits. If this value is `true`, then the Sun Management Center agent does not stop the subagent when the Sun Management Center agent exits.
- Set `snmpPort` to the UDP port number on which you want to run the subagent.
- Set `errorAction` to `restart`, `ignore`, or `kill`. If the `restart` option is used, the Sun Management Center agent tries to restart if the agent encounters an error when communicating with the subagent.
- Set `startCommand` to the mandatory command to start the subagent. This command should contain `%port`, which is replaced by the value that is given in `snmpPort`.
- Set `stopCommand` to the command to stop the process. `%pid` can represent the process ID (PID) of the subagent process.
- Set `pollInterval` to the time in seconds in which the Sun Management Center agent polls the subagent.
- Set `pollHoldoff` to the time in seconds after which the first poll is done on the subagent after the Sun Management Center agent starts the subagent.
- Set `oidTrees` to a space-separated list of SNMP OIDs managed by the subagent.
- Set `snmpVersion` to either `SNMPv1` or `SNMPv2`.
- Set `securityLevel` to either `priv`, `auth`, or `noauth`.
- Set `securityName` to the SNMPv1 community name or SNMPv2 security name you want to use.

For more details, refer to the descriptions in the `subagent-registry-d.x` file.

## 6. Stop and restart Sun Management Center to make the changes effective.

- a. Type `/opt/SUNWsymon/sbin/es-stop -A` to stop Sun Management Center.

Wait for all processes to stop successfully.

b. Type `/opt/SUNWsymon/sbin/es-start -A` to start Sun Management Center.

Wait for all processes to start successfully.

See Chapter 8 for further information.

---

## Reconfiguring Port Addresses

This section describes how to configure Sun Management Center software when port addresses might conflict. See Table 9-3 for a list of the default ports for each Sun Management Center component.

---

**Note** – The Sun Management Center setup process checks whether each default port is in use. If the port is not in use, the default port is assigned. If a port is in use, you are given the opportunity to specify a separate port. In either case, the port assignments are stored in the configuration files, as described in “SNMP Overview” on page 168.

---

## Default Ports

The default ports used by Sun Management Center components might be used by other processes already installed on the system. If you install Sun Management Center using the default port assignments, you might encounter port conflicts and be unable to start Sun Management Center. The Sun Management Center setup process checks the ports for each component. The process prompts you to either assign an alternate port or use the default port.

The following table lists the Sun Management Center components and the default port for each component. See “To Determine Whether a Port Is Used” on page 172 to find out how to check whether a port is in use.

**TABLE 9-3** Sun Management Center Default Port Addresses

| Layer  | Component     | Default Port Number |
|--------|---------------|---------------------|
| Agent  | Agent         | 161                 |
| Server | Trap handler  | 162                 |
| Server | Event manager | 163                 |

**TABLE 9-3** Sun Management Center Default Port Addresses (Continued)

| Layer                             | Component                                                                 | Default Port Number |
|-----------------------------------|---------------------------------------------------------------------------|---------------------|
| Server                            | Topology manager                                                          | 164                 |
| Server                            | Configuration manager                                                     | 165                 |
| Server                            | Platform                                                                  | 166                 |
| Advanced System Monitoring Add-on | System event and configuration tracking component <code>cstservice</code> | 167                 |
| Server                            | Agent information caching component Metadata                              | 168                 |
| Server                            | Server RMI                                                                | 2099                |
| Server                            | Database                                                                  | 2521                |
| Server                            | Grouping                                                                  | 5600                |
| Tomcat                            | Web server                                                                | 8006                |
| Server                            | Web server default port                                                   | 8080                |
| Server                            | Web server secure port                                                    | 8443                |

## ▼ To Determine Whether a Port Is Used

- In a terminal window, type `/bin/netstat -an | grep portnumber` where *portnumber* is the port number that you want to query. For example:

```
/bin/netstat -an | grep 8443
#
```

- If the port is not in use, only the command-line prompt is returned as shown above.
- If the port is in reserved or in use, the status of the port is returned. For example:

```
/bin/netstat -an | grep 1161
*.1161 Idle
/bin/netstat -an | grep 8080
172.16.0.0.8080 *.* 0 0 24576 0 LISTEN
```

where `172.16.0.0` is the IP address of the machine on which you entered the `netstat` command.

## Reconfiguring Sun Management Center Ports

To reconfigure Sun Management Center ports, use the `es-config` command. The syntax for the `es-config` command is:

```
es-config [-Admh] [-p component-name] [-c component:channel] [-P MinPort:MaxPort]
```

The following table describes the `es-config` parameters.

**TABLE 9-4** `es-config` Options

| Option | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | Display all ports used by the Sun Management Center 3.5 base product                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -A     | Configure all ports                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -P     | <i>MinPort:MaxPort</i><br>Configure the probe mechanism port range where <i>MinPort</i> is the starting port number and <i>MaxPort</i> is the ending port number. The range of ports must be at least 100, for example, 1024:1124. The ports are used by the probe mechanism to execute ad hoc commands for communication between the Sun Management Center server and agent. Valid port numbers are 1024-64500.<br><b>Note</b> – You must configure the port range to support communication between the Sun Management Center server and agent through a firewall. |
| -d     | Restore all ports to the 3.5 default value. See Table 9-3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -c     | <i>component:channel</i><br>Enable or disable the component channels being logged. Valid Sun Management Center components for which channels can be controlled are <i>topology</i> , <i>cfgserver</i> , <i>event</i> , <i>cstservice</i> , <i>trap</i> , <i>metadata</i> , <i>agent</i> , <i>platform</i> , and <i>platform_instances</i> . Valid channels are <i>debug</i> , <i>info</i> , <i>error</i> , <i>status</i> , and <i>history</i> .                                                                                                                     |
| -h     | List the <code>es-config</code> options.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -m     | Configure module configuration propagation by adding a list of user names to the <code>es-mcp-users</code> configuration file.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| -n     | Enable Network Address Translation support.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -p     | <i>component-name</i><br>Configures port to be used by the Sun Management Center component <i>component-name</i> . Valid components are <i>topology</i> , <i>cfgserver</i> , <i>event</i> , <i>cstservice</i> , <i>trap</i> , <i>metadata</i> , <i>rmi</i> , <i>agent</i> , <i>grouping</i> , <i>HTTP</i> , <i>HTTPS</i> , <i>platform</i> , and <i>platform_instances</i> .                                                                                                                                                                                        |

The following procedures provide examples of how to use the `es-config` command to reconfigure Sun Management Center port assignments.

## ▼ To Reconfigure the Agent SNMP Port

1. **Log in as root on the Sun Management Center server-layer machine.**

2. **Locate an unused port.**

See “To Determine Whether a Port Is Used” on page 172.

3. **Type `/opt/SUNWsymon/sbin/es-config -p agent`.**

`es-config` stops all Sun Management Center processes. The port numbers currently assigned to the Sun Management Center components are then displayed. The port number assigned to the agent is displayed next, and you are prompted to enter the port number.

```
./es-config -p agent
Following ports are occupied by Sun Management Center:
161,162,163,164,165,167,168,166,5600,2099,8080,8443.

Sun Management center agent component is presently using port:161
Hit RETURN key to continue with present configuration.
Enter the port number you would like to use for agent component
 [1100 to 65535]:
```

4. **Type the port number that you want to assign, or press Return to use the default 161 port assignment.**

You are asked whether you want to start the Sun Management Center components.

5. **Type `y` to start the Sun Management Center components, or type `n` if you do not want to start the components.**

## ▼ To Reconfigure the Server RMI Port Address

1. **Log in as root on the Sun Management Center server-layer machine.**

2. **Locate an unused port.**

See “To Determine Whether a Port Is Used” on page 172.

3. **Type `/opt/SUNWsymon/sbin/es-config -p rmi`.**

`es-config` stops all Sun Management Center processes. The port numbers currently assigned to the Sun Management Center components are then displayed. The port number assigned to the server is displayed next, and you are prompted to enter the port number. For example:

```
./es-config -p rmi
Following ports are occupied by Sun Management Center:
161,162,163,164,165,167,168,166,5600,2099,8080,8443.

Sun Management center agent component is presently using port:2099
Hit RETURN key to continue with present configuration.
Enter the port number you would like to use for rmi component
```

[ 1100 to 65535 ]:

4. **Type the port number that you want to assign, or press Return to use the default port assignment.**

You are asked whether you want to start the Sun Management Center components.

5. **Type y to start the Sun Management Center components, or type n if you do not want to start the components.**

---

## Assigning an Agent to a Different Server

This section provides the instructions to assign an agent that is monitored by one Sun Management Center server to another Sun Management Center server.

In the following procedure, assume an agent is currently monitored from Sun Management Center server *Machine-A*, and you want to reassign the agent to Sun Management Center server *Machine-B*.

Reassigning an agent to a different server consists of two main steps as follows.

- Reassign the agent to a different server
- Clear the agent's cache entry from the original server

When an agent has been reassigned to a different server, a cached entry still exists in the original server for the agent. The cached entry must be cleared from the original server using the `es-servercontrol.sh` script to prevent access conflicts. If the cached entry is not cleared from the original server, the original server can still access the agent.

### ▼ To Assign an Agent to a Different Server

1. **Log in as root on the agent machine.**

2. **Reassign the agent to a different server**

To assign the agent to a different server, you must set up the agent using the command `es-setup -F`.

Type `/opt/SUNWsymon/sbin/es-setup -F`.

You are prompted for the security key seed.

3. **Enter the security seed.**

An encrypted security key is need for communications between all Sun Management Center processes. The key is generated based on the password you provide, which must be between one and eight characters long, and contain no spaces. Entries that are

greater than eight characters are truncated to eight characters.

Make sure that you type the same security seed password that you provided during the original installation and setup process for Step 7 in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.

**a. Type the password for the seed to generate the security keys.**

**b. Type the password again.**

You are prompted for the SNMPv1 community string.

**4. Specify the SNMPv1 community security string.**

The community string is used for SNMP security.

Make sure that you type the same community string that you provided during the original installation and setup process for Step 8 in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.

You are informed that *Machine-A* is configured as your Sun Management Center server, where *Machine-A* is the actual name of the server to which the agent currently is assigned. For example:

```
Machine-A appears to be configured as your Sun Management Center server.
Is this correct (y|n|q)
```

Type **n**. You are prompted for the Sun Management Center server hostname.

**5. Provide the hostname of the server to which you want to reassign the agent.**

Type the name of the server. For example:

```
Machine-A appears to be configured as your Sun Management Center server.
Is this correct (y|n|q) n
```

```
Please enter the Sun Management Center Server Hostname: Machine-B
```

You are asked whether you want to start the Sun Management Center agent.

**6. Start the agent.**

- If you want to start Sun Management Center now, type **y**.

The setup script starts Sun Management Center using `es-start -A`. See “Starting Components Using `es-start`” on page 156 for information about `es-start`.

Also, see “Starting the Console” on page 158 for instructions on how to start the Sun Management Center console.

- If you want to start Sun Management Center later, type **n**. See Chapter 8 when you are ready to start Sun Management Center.

**7. Log in as root on the original server.**

**8. Type the command `/opt/SUNWsymon/base/sbin/es-servercontrol.sh`.**

- If the `ESROOT` environment variable is set, you are prompted for the Sun Management Center server host name. Go to Step 10.



- If the ESROOT environment variable is not set, you are notified and prompted for the ESROOT directory.

**9. Specify the ESROOT directory.**

The ESROOT environment variable specifies the location of the Sun Management Center SUNWsymon directory.

```
The ESROOT environment variable is not set.
Enter ESROOT [/opt/SUNWsymon]:
```

Press Return to accept the displayed default of /opt/SUNWsymon, or type the full path to the SUNWsymon directory.

**10. Specify the Sun Management Center server host name.**

You are prompted for the server host name.

```
Enter the hostname of the Sun Management Center server [Machine-A]:
```

Press Return to accept the displayed default hostname, or type the server hostname. The server hostname must be the name of the original server to which the agent was assigned.

You are prompted for the server port.

**11. Specify the Sun Management Center server port.**

The server port is the remote method invocation (RMI) port used by the Sun Management Center server. See Table 9-3 for further information.

The current RMI port is displayed.

```
Enter the port of the Sun Management Center server [2099]:
```

Press Return to accept the displayed port, or type the port that is used for RMI.

You are prompted for the Sun Management Center superuser ID.

**12. Specify the superuser ID.**

The superuser ID is the administration user ID that you assigned during the original installation and setup process. See Step 10 in “Setting Up Base Products and Add-ons on the Solaris Platform” on page 87.

The current superuser ID is displayed.

```
Enter the Sun Management Center Superuser ID [esmaster]:
```

Press Return to accept the displayed ID, or type the administrator ID.

You are prompted for the superuser password.

**13. Type the password.**

A list of server control functions is displayed.

**14. Clear the server cache.**

Type **1** to select Clear the Server Context Cache. For example:

```
Select one of the following Server control functions:
```

- 0) View the Server Context Cache
- 1) Clear the Server Context Cache

- 2) Remove a host from the Server Context Cache
- 3) Remove a host:port from the Server Context Cache
- 4) View the SNMP OID (Finder) Cache
- 5) Clear the SNMP OID (Finder) Cache
- 6) Remove a host from the SNMP OID (Finder) Cache
- 7) Remove a host:port from the SNMP OID (Finder) Cache
- 8) Remove a host:port from the Cfgserver Engines Table
- 9) Exit

Please Enter Your Selection [9]:1

The server cache is cleared, and the server control list is displayed again. Type 9 to exit server control and return to the system prompt.

---

## Using Sun Management Center With a Firewall

A *firewall* is a software or hardware device that controls access between networks. The firewall is located where one network connects to another network, for example, at the point where a corporate intranet connects to the global Internet. Due to increased security awareness, many organizations have implemented security policies within their networks using firewall technology. Because the Sun Management Center software uses a distributed architecture model, you must use the `es-config` to restrict the ports that Sun Management Center uses for firewalls.

The following procedures provide examples of how to use the `es-config` command to restrict the Sun Management Center firewall port assignments to the port range 6000 to 6150.

### ▼ To Restrict the Firewall Port Range

1. **Log in as root on the Sun Management Center server-layer machine.**
2. **Locate a range of unused ports.**  
See “To Determine Whether a Port Is Used” on page 172.
3. **Type `/opt/SUNWsymon/sbin/es-config -P 6000:6150`.**

---

**Note** – The difference between the starting port number and the ending port number must be at least 100.

---

`es-config` stops all Sun Management Center processes. The port numbers currently assigned to the Sun Management Center components are then displayed. You are then informed that `/var/opt/SUNWsymon/cfg/domain-config.x` has been updated for the new configuration.

You are asked whether you want to start the Sun Management Center components.

4. Type **y** to start the Sun Management Center components, or type **n** if you do not want to start the components.

---

## Enabling Network Address Translation Support

If your network uses Network Address Translation (NAT), you must enable NAT support after you have installed and set up Sun Management Center 3.5. You cannot start Sun Management Center until you have enabled NAT support for each server, agent, and console machine in your network as described in the following procedure. See Appendix D for more information about NAT.

The following procedure assumes you installed Sun Management Center in the default directory `/opt`. If you did not install Sun Management Center in `/opt`, replace `/opt` with the name of the directory you specified in Step 8 in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

### ▼ To Enable NAT Support

1. **Log in as root on the machine for which you want to enable Network Address Translation support.**
2. **Type `/opt/SUNWsymon/sbin/es-config -n`.**

`es-config` stops all Sun Management Center processes. The port numbers currently assigned to the Sun Management Center components are then displayed.

You are asked to provide the host name for the machine. The machine name is displayed.
3. **Provide the machine host name.**
  - If you are configuring the Sun Management Center server machine for NAT, press Return.
  - If you are configuring a Sun Management Center agent or console machine, type the name of the Sun Management Center server, and then press Return.

---

**Note** – Depending on the Sun Management Center 3.5 components installed on the machine, one or more informational messages could be displayed.

---

You are informed that Network Address Translation support is enabled for the machine. You are then asked whether you want to start the Sun Management Center components.

**4. Determine whether to start Sun Management Center 3.5.**



---

**Caution** – Do not start Sun Management Center until you have enabled NAT support for each machine in your network that uses Network Address Translation. The Sun Management Center agent will not run unless NAT support has been enabled for each machine.

---

Type **y** to start the Sun Management Center components, or type **n** if you do not want to start the components.

## Integration With Other Enterprise Management Platforms

---

This chapter provides an overview of the integration of Sun Management Center with other management platforms. These platforms include HP OpenView Operations, BMC Patrol, Unicenter TNG™, and Tivoli TME.

- “HP OpenView Operations Integration” on page 181
- “BMC Patrol Integration” on page 183
- “Computer Associates Unicenter TNG Integration” on page 183
- “Tivoli TME Integration” on page 185

---

### HP OpenView Operations Integration

HP OpenView (HPOV) Operations, formerly known as VantagePoint Operations, is a distributed client/server software product for managing distributed environments. HPOV Operations is a centralized management console (server) that allows users to interact with agents running on host systems being managed.

Sun Management Center complements the features of HPOV Operations by providing in-depth monitoring and management of Sun products. Integration between HPOV Operations and Sun Management Center is accomplished through the HPOV agent and Sun Management Center server.

### HPOV Integration Key Features

HPOV and Sun Management Center integration enables you to do the following tasks:

- Map Sun Management Center alarms to HPOV messages and the distribution of those alarms to the HPOV Operations management server
- Start the Sun Management Center console from the HPOV Application Bank

- Start the Sun Management Center Details Console for a chosen Sun Management Center managed node directly from the HPOV Application Bank
- Basic monitoring of the Sun Management Center server and Sun Management Center agent processes from the HPOV Operations management server

## HPOV Integration Key Components

The key components for HPOV integration are as follows:

- HP OpenView VantagePoint Operations (VPO) Version A.05.xx or A.06.xx
- HP OpenView VantagePoint Operations (VPO) Integration Package Version A.02.00 for Sun Management Center
- Sun Management Center version 2.1.1, 3.0, or 3.5

## HPOV Integration Prerequisites

To integrate the Sun Management Center and HP OpenView Operations, the integration software must be installed on the HPOV server host and then distributed to all systems hosting Sun Management Center servers. This integration is facilitated by HPOV distribution capabilities.

The installation on the HPOV Operations server automatically adds a number of icons to the HPOV Application Bank, enabling operators to start the Sun Management Center console.

Event forwarding is done through a mapper process, which connects to the Sun Management Center server and the HPOV agents.

## HPOV Integration Supported Platforms

HPOV is supported on Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 releases.

## HPOV Integration Additional Documentation

For more information on HPOV integration, see the *HP OpenView VantagePoint Operations - Integration for Sun Management Center Software User's Guide*

To access this document, go to [http://ovweb.external.hp.com/lpe/doc\\_serv](http://ovweb.external.hp.com/lpe/doc_serv). Click IT/Operations for Sun Solaris, then download the document.

---

## BMC Patrol Integration

For information about integrating BMC Patrol and Sun Management Center 3.5, contact BMC Direct Sales at (800) 841-2031, or email the BMC Field Support Center at [FieldSupport@bmc.com](mailto:FieldSupport@bmc.com).

---

## Computer Associates Unicenter TNG Integration

The Unicenter TNG product provides network-monitoring functionality for a heterogeneous environment. Sun Management Center provides advanced capabilities and in-depth information for monitoring Sun products. An integration package from Sun provides a bridge between the two products. The integration of these two products provides Unicenter TNG users with superior management capabilities in environments that contain Sun products.

### Unicenter TNG Integration Key Features

Unicenter TNG and Sun Management Center integration provides the following capabilities:

- Enables Unicenter TNG to discover Sun Management Center agents and their loaded modules, and present the agents and modules in the Unicenter TNG WorldView
- Enables agent status, agent alarms and agent module load and unload notifications to be forwarded from Sun Management Center to Unicenter TNG through traps
- Enables Unicenter TNG users to view Sun Management Center agent information by launching the Sun Management Center Host Details window from Unicenter TNG WorldView

### Unicenter TNG Integration Key Components

The key components required to integrate Unicenter TNG and Sun Management Center are as follows:

- Computer Associates Unicenter TNG 2.4 and WorldView/DSM (Distributed State Machine) or Computer Associates Unicenter TNG 3.0 and WorldView/DSM.

- Sun Management Center Integration Package For Unicenter TNG which is available on the Sun Management Center CD. The Integration Package contains the following items:
  - Event Adaptor
  - Package for TNG WorldView class files
  - Package for Unicenter TNG DSM policy files
  - Package for launching Sun Management Center Details Window
- Sun Management Center version 2.1.1, 3.0, or 3.5

## Unicenter TNG Integration Prerequisites

The following software is required in order to integrate Unicenter TNG and Sun Management Center:

- Unicenter TNG version 2.4 or version 3.0 WorldView/DSM must be installed and running when installing the Unicenter TNG integration package.
- The Unicenter TNG integration package can be installed at the same time Sun Management Center is installed or as an add-on package. Sun Management Center versions 2.1, 2.1.1, 3.0 and 3.5 support the Unicenter TNG integration package.
- The Sun Management Center server and the TNG Event Adaptor can be installed on different hosts. The TNG Event Adaptor must be installed on a host that already has the Sun Management Center console installed.
- The Unicenter TNG WorldView class files from the integration package must be installed on the same host as TNG WorldView.
- The Unicenter TNG DSM and Unicenter TNG must be on the same host as the Unicenter TNG DSM policy files from the integration package in order to be installed.

## Unicenter TNG Integration Supported Platforms

The following platforms are supported:

- Sun Management Center agents: Solaris 2.6, Solaris 7, and Solaris 8 versions
- TNG Event Adaptor: Solaris 2.6, Solaris 7, and Solaris 8 versions
- TNG Integration Packages on TNG Server: Solaris 2.6, Solaris 7, and Solaris 8 versions

## Unicenter TNG Integration Additional Documentation

For more information on Unicenter TNG integration, see *Sun Management Center Integration Package User's Guide For Unicenter TNG*



---

## Tivoli TME Integration

Tivoli TME provides good general network monitoring functionality, and the Sun Management Center software provides excellent advanced capabilities and in-depth information for monitoring Sun products. Tivoli TME and Sun Management Center integration provides Tivoli administrators with significant additional functionality to manage networks that contain Sun products.

## Tivoli TEC Integration Key Features

Tivoli TEC and Sun Management Center integration provides the following capabilities:

- Enables Tivoli TEC to acquire alarms from the Sun Management Center software based on preset filtering and formatting parameters
- Enables Tivoli TEC users to view Sun Management Center agent information by launching the Sun Management Center Host Details window from the Tivoli event console

## Tivoli TEC Integration Key Components

The key components required to integrate Tivoli TEC and Sun Management Center are as follows:

- Tivoli TME 10
- Sun Management Center Tivoli TEC Adaptor, available on the Sun Management Center CD as an add-on product
- Sun Management Center 2.x or 3.x

## Tivoli TEC Integration Prerequisites

The following software is required in order to integrate Tivoli TEC and Sun Management Center:

- Tivoli TME 10 FrameWork
- Tivoli TEC Server
- Tivoli TEC Console
- The Sun Management Center version 2.x or 3.x console residing on the Tivoli server on which the adapter is running

## Tivoli TEC Supported Platforms

Solaris 2.6, Solaris 7, Solaris 8, Solaris 9 releases

## Additional Documentation

*Sun Management Center Tivoli TEC Adaptor Installation Guide*

## Uninstalling SyMON and Sun Management Center

---

This chapter provides the procedures for uninstalling previous versions of Solstice SyMON 1.x, Enterprise SyMON 2.x, and Sun Management Center 3.x.

This chapter discusses the following topics.

- “Uninstalling SyMON and Sun Management Center from the Solaris Platform” on page 187
- “Uninstalling Sun Management Center From the Microsoft Windows Platform” on page 193



---

**Caution** – If you want to preserve and use your existing SyMON or Sun Management Center configuration data, you must perform an upgrade install of Sun Management Center 3.5 as described in Chapter 5.

---

---

## Uninstalling SyMON and Sun Management Center from the Solaris Platform

If you have Solstice SyMON 1.x, Sun Enterprise SyMON 2.x, or Sun Management Center 3.x software installed on your system, and you do not want to preserve your configuration data, you must uninstall the SyMON or Sun Management Center software before you can install Sun Management Center 3.5 software.

## Uninstalling Solstice SyMON 1.x or Enterprise SyMON 2.x

Use of this procedure deletes all Sun Management Center 1.x data, including any custom rules and alarms that you have defined. If you want to preserve your data for use with a later version of Sun Management Center, follow the procedures in “Upgrading from Solstice SyMON 1.x and Sun Enterprise SyMON 2.x Software” on page 72.

### ▼ To Uninstall Solstice SyMON 1.x or Enterprise SyMON 2.x

1. **Log in as root on the machine where the SyMON server is installed.**
2. **Uninstall the SyMON software as directed by the SyMON documentation.**
3. **Ensure that all components have been uninstalled.**

Type the following command to list all Sun Management Center packages:

```
pkginfo -c symon
```

If any packages are listed, uninstall each package using the `pkgrm` command. For example:

```
pkginfo -c symon
SUNWesse
pkgrm SUNWesse
```

## Uninstalling Sun Management Center 2.x

Use of this procedure deletes all Sun Management Center 2.x data, including any custom rules and alarms that you have defined. If you want to preserve your data and upgrade to Sun Management Center 3.5, follow the procedures in “Upgrading From Sun Management Center 2.1 or 2.1.1” on page 73.

### ▼ To Uninstall Sun Management Center 2.x

1. **Log in as root on the machine where the Sun Management Center 2.x server is installed.**
2. **Remove T3 device configuration information if T3 devices are present.**

If you have not installed and set up the add-on Monitoring and Management of A5x00 and T3 Devices, skip this step. Go to Step 3.

If you monitor and manage T3 storage devices using the Monitoring and Management of A5x00 and T3 Devices add-on, remove T3 device configuration information before you uninstall Sun Management Center. For instructions, see “Removing T3 Device

Configuration If Present” on page 64 in Chapter 4.

**3. Uninstall the Sun Management Center 2.x software.**

Type the command `/opt/SUNWsymon/sbin/es-uninst`

---

**Note** – The Sun Management Center 2.x uninstall process removes the Sun Management Center 2.x software, but does not remove the Sun Management Center 2.x data.

---

**4. Delete the Sun Management Center 2.x directories:**

```
rm -fr /opt/SUNWsymon
rm -fr /var/opt/SUNWsymon
rm -fr /etc/opt/SUNWsymon
```

**5. Ensure that all components have been uninstalled.**

Type the following command to list all Sun Management Center packages:

```
pkginfo -c symon
```

If any packages are listed, uninstall each package using the `pkgrm` command. For example:

```
pkginfo -c symon
SUNWesse
pkgrm SUNWesse
```

## Uninstalling Sun Management Center 3.0

The Sun Management Center 3.0 uninstall process provides you with the opportunity to save your Sun Management Center 3.0 configuration data. If you are going to upgrade to Sun Management Center 3.5, make sure that you save the Sun Management Center 3.0 configuration data when prompted.

### ▼ To Uninstall Sun Management Center 3.0

**1. Log in as root on the machine where the Sun Management Center 3.0 server is installed.**

**2. Remove T3 device configuration information if T3 devices are present.**

If you have not installed and set up the add-on Monitoring and Management of A5x00 and T3 Devices, skip this step. Go to Step 3.

If you monitor and manage T3 storage devices using the Monitoring and Management of A5x00 and T3 Devices add-on, remove T3 device configuration information before you uninstall Sun Management Center. For instructions, see “Removing T3 Device

Configuration If Present” on page 64 in Chapter 4.

### 3. Uninstall Sun Management Center 3.0.

Type the following command:

```
/opt/SUNWsymon/sbin/es-uninst
```

You are notified that the utility removes all of the Sun Management Center packages and asked whether you want to continue.

- Type **n** to cancel the uninstall process.
- Type **y** to continue.

You are asked if you want to preserve your existing data.

### 4. Choose whether to preserve your Sun Management Center 3.0 configuration data.

- If you do not want to preserve the existing Sun Management Center 3.0 data, type **n**. You are notified that the existing data will be removed.
- If you want to preserve the existing Sun Management Center 3.0 data and migrate the data to Sun Management Center 3.5, type **y**. You are notified that the existing data will not be removed.

Any Sun Management Center 3.0 processes that are currently running are stopped. The uninstall process then uninstalls the Sun Management Center 3.0 software.

---

**Note** – During the uninstall process, warning messages might be displayed saying that some packages depend on the packages being removed. Messages could also be displayed informing you that removal of a package was suspended and that intervention is required. You can safely ignore these messages because the uninstall process will remove the packages without your intervention.

---

The uninstall process exits to the system prompt when Sun Management Center 3.0 has been uninstalled.



---

**Caution** – If you want to upgrade to Sun Management Center 3.5, do not delete the remaining Sun Management Center 3.0 directories. The Sun Management Center 3.0 directories contain the information that will be migrated to Sun Management Center 3.5.

---

### 5. Upgrade the Solaris operating environment if necessary.

If you are installing the Sun Management Center 3.5 server, the machine must be running at least the Solaris version 8 or Solaris version 9 developer environment. For additional information, see “Prerequisite Packages” on page 57



---

**Caution** – If you need to upgrade to Solaris version 8 or Solaris version 9, make sure you perform a Solaris upgrade. A fresh Solaris installation reformats the hard drive, which deletes your Sun Management Center 3.0 configuration data. If you perform a fresh Solaris installation, you will not be able to migrate your Sun Management Center 3.0 configuration data to Sun Management Center 3.5.

---

## Uninstalling Sun Management Center 3.5

The graphical `es-guiuninst` wizard can be used either to uninstall all of a Sun Management Center 3.5 installation, or to uninstall only specific add-on products. `es-guiuninst` also provides the option to back up the Sun Management Center 3.5 configuration data from the previous 3.5 version. If you chose to back up the configuration data, the Sun Management Center 3.5 installation process detects the backup and asks whether you want to apply the data to the new installation.

You can uninstall specific Sun Management Center 3.5 add-on products by using either the graphical `es-guiuninst` wizard as described below, or by using the `es-uninst` command-line script as described in “Uninstalling Sun Management Center” on page 195.

---

**Note** – The Sun Management Center 3.5 installation process detects an existing Sun Management Center 3.0 or Sun Management Center 3.5 installation. If Sun Management Center 3.0 or Sun Management Center 3.5 is detected, the Sun Management Center 3.5 installation process runs the uninstall process of the previous version, and optionally migrates the configuration data from the previous version to the new Sun Management Center 3.5 installation.

If you choose this method to update a machine running the Sun Management Center 3.0 server, the machine must be running at least Solaris version 8.

---

### ▼ To Uninstall Sun Management Center 3.5 Using `es-guiuninst`

1. **Open a terminal window, then type the command `xhost +` in the terminal window.**  
Also, make sure that the `DISPLAY` environment variable is set to your machine's display.
2. **Log in as root on the machine where the Sun Management Center 3.5 software is installed.**
3. **Remove T3 device configuration information if T3 devices are present.**

If you have not installed and set up the add-on Monitoring and Management of A5x00 and T3 Devices, skip this step. Go to Step 4.

If you monitor and manage T3 storage devices using the Monitoring and Management of A5x00 and T3 Devices add-on, remove T3 device configuration information before you uninstall Sun Management Center. For instructions, see “Removing T3 Device Configuration If Present” on page 64 in Chapter 4.

**4. Type the following command:**

```
/opt/SUNWsymon/sbin/es-guiuninst
```

The Welcome screen appears.

**5. Click Next.**

The Product Selection for Uninstall screen appears.

**6. Select the products to uninstall.**

You are given the choice to uninstall the entire Sun Management Center installation, or to uninstall specific add-on products.

- To uninstall all of Sun Management Center, select Entire Product Agent, Server, All Add-on Products, and then click Next. The Save Configuration Data screen appears. Go to Step 7.
- To uninstall specific add-on products, select Add-on Products Only.  
The list of add-on products becomes active. Select the add-on products that you want to uninstall and click Next.  
The Save Configuration Data screen appears. Go to Step 7.

**7. Determine whether to save configuration data.**



---

**Caution** – If you do not save the configuration data, your current Sun Management Center packages are uninstalled and the contents of `/var/opt/SUNWsymon` are removed. In addition, your security keys are overwritten and you must set up all agents again for the agents to work properly. Select Save Data if you want to retain your administrative domain configuration and custom alarm settings in `/var/opt/SUNWsymon` for subsequent installations or upgrades.

---

- If you want to save the configuration data for the selected product or products, select Save Data and click Next.
- If you do not want to save the configuration data, click Next.  
The Product Removal Confirmation screen appears.

**8. Confirm your selections for uninstall.**

The selections that you made are listed.

- If the selections are incorrect, click Back to return to the Product Selection for Uninstall screen and make different selections. Then confirm the new selections.



- Click Next to accept and uninstall the selections.

The Uninstall Progress screen appears.

When the selected products have been uninstalled, the Uninstall Summary screen appears.

**9. Click Close to exit the uninstall wizard.**

**10. Ensure that all components have been uninstalled.**

Type the following command to list all Sun Management Center packages:

```
pkginfo -c symon
```

If any packages are listed, uninstall each package using the `pkgrm` command. For example:

```
pkginfo -c symon
SUNWesse
pkgrm SUNWesse
```

---

## Uninstalling Sun Management Center From the Microsoft Windows Platform

This section provides the procedure for uninstalling previous versions of the Sun Management Center Console from Microsoft Windows.

### ▼ To Uninstall Sun Management Center From Microsoft Windows

Before uninstalling Sun Management Center, make sure you do not have any Sun Management Center directories open in Windows Explorer. Also make sure no other applications are accessing Sun Management Center directories. If any Sun Management Center directories are accessed when you uninstall Sun Management Center, the uninstall process will not remove the Sun Management Center directories.

- 1. Log in as administrator, or as a user with administrator privileges.**
- 2. Choose Start → Settings → Control Panel.**  
The Control Panel window appears.
- 3. Double-click Add/Remove Programs.**  
The Add/Remove Programs window appears.
- 4. Select Sun Management Center.**

**5. Click Change/Remove.**

A command window opens and displays the uninstall progress. When the uninstall completes, the command window closes.

**6. Click Close in the Add/Remove Programs window.**

## Using the Command Line for Uninstall, Install, and Setup

---

This appendix provides the procedures for using the command-line interface to uninstall, install, and set up Sun Management Center.

The following topics are provided:

- “Uninstalling Sun Management Center” on page 195
- “Installing on the Solaris Platform Using `es-inst`” on page 199
- “Setting Up on the Solaris Platform Using `es-setup`” on page 210

---

## Uninstalling Sun Management Center

This section provides a summary of the `es-uninst` options, and the procedure for using the `es-uninst` command-line script to uninstall Sun Management Center from Solaris systems.

### `es-uninst` Options

The syntax for the `es-uninst` command is:

```
es-uninst [-f | -F | -X | -h | -v]
```

The following table describes the `es-uninst` command parameters.

**TABLE B-1** `es-uninst` Options

| Option | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -F     | Uninstall the entire Sun Management Center installation without prompting for confirmation and without stopping any running Sun Management Center processes.<br><br>This option should be used only in a situation when the executables that are called while stopping Sun Management Center processes are not present where expected.<br><br>For example, if the operating environment has been upgraded after Sun Management Center was installed from the Solaris 7 release to the Solaris 8 release, then some dynamically generated path names will be incorrect. In this case, this option avoids errors being reported during the uninstall process. |
| -f     | Uninstall the entire Sun Management Center installation without prompting for confirmation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| -h     | List the <code>es-uninst</code> options.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -v     | Perform the uninstall using verbose mode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| -X     | Complete Sun Management Center uninstall without interaction. All processes are stopped, then the entire Sun Management Center installation, including the database and all add-ons, is removed. You are not given the opportunity to save your configuration data.                                                                                                                                                                                                                                                                                                                                                                                         |

## Uninstalling Sun Management Center Versions 2.x and 3.x

The Sun Management Center 2.x and 3.x `es-uninst` command is used to uninstall all of a Sun Management Center 2.x or 3.x installation. The Sun Management Center 2.x and 3.x `es-uninst` command also provides the option to back up the Sun Management Center configuration data. If you chose to back up the configuration data, the Sun Management Center 3.5 installation process detects the backup, and asks whether you want to apply the data to the new installation.

You can uninstall Sun Management Center 2.x and 3.x by using the `es-uninst` command-line script, as described below.

---

**Note** – The Sun Management Center 3.5 installation process automatically runs the `es-uninst` uninstall script of an existing Sun Management Center 2.x or 3.x installation. The Sun Management Center 2.x and 3.x `es-uninst` uninstall script gives you the opportunity to back up the configuration data from the previous version so that it can be applied to a new Sun Management Center 3.5 installation.

---

## ▼ To Uninstall Sun Management Center 2.x and 3.x Using `es-uninst`

The following steps assume that you installed Sun Management Center in the default directory `/opt`. If you installed Sun Management Center in a different directory, replace `/opt` with the name of the directory you specified in “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82, Step 8.

1. **Log in as root on the machine where the Sun Management Center 2.x or 3.x server is installed.**

2. **Remove T3 device configuration information if T3 devices are present.**

If you have not installed and set up the add-on Monitoring and Management of A5x00 and T3 Devices, skip this step. Go to Step 3.

If you monitor and manage T3 storage devices using the Monitoring and Management of A5x00 and T3 Devices add-on, remove T3 device configuration information before you uninstall Sun Management Center. The `es-uninst` command does not remove T3 device configuration information..

To remove T3 device configuration information:

- a. **Stop the Sun Management Center agent.**

Type the command `/opt/SUNWsymon/sbin/es-stop -a`.

- b. **Run the pre-uninstall script to remove T3 device configuration information.**

Type the command `/opt/SUNWsymon/addons/storage/sbin/pre-uninst.sh`.

You are asked whether you want to stop the T3 from sending syslog messages. Type **y**. You are then prompted for the root password for the T3 device. Type the password.

You are notified that the T3 device has been removed from the T3 module.

- If you do not run the `pre-uninst.sh` script before you install Sun Management Center 3.5, you will have to manually remove T3 configuration information before you can set up the new Sun Management Center 3.5 installation.
- If you run the `pre-uninst.sh` script but then decide to keep your Sun Management Center 2.x or 3.x installation, type the command `/opt/SUNWsymon/es-setup -F` to set up your T3 devices again.

You can now uninstall Sun Management Center.

3. **To uninstall Sun Management Center 2.x or 3.x, type the command:**

```
/opt/SUNWsymon/sbin/es-uninst
```

- If you are uninstalling Sun Management Center 2.x or 3.x, you are asked whether you want to save your user and configuration data. Go to Step 7.

- If you are uninstalling Sun Management Center 3.5, a list of products that are installed is displayed.

You are then asked whether you want to uninstall the Sun Management Center production environment or developer environment, depending on whether the production or developer environment is installed.

**4. Select the Sun Management Center 3.5 products that you want to uninstall.**

- Type **y** to uninstall the production or developer environment and all add-ons. You are notified that all Sun Management Center products will be uninstalled, and you are asked whether you want to change your selection. Go to Step 6.
- Type **n** if you only want to uninstall one or more add-ons.

**5. Select the Sun Management Center 3.5 add-on products that you want to uninstall.**

The uninstall process steps through each add-on installed on your system. You are asked whether you want to uninstall the add-on.

Type **y** to uninstall the add-on, or type **n** to keep the installed add-on.

When you have completed your selections, a list of the products you selected for uninstall is displayed. You are asked whether you want to change your selections.

**6. Change selections if needed.**

- Type **y** to make different selections. The list of installed products is displayed again, and the uninstall selection process is repeated.
- Type **n** to continue the uninstall process. You are asked whether you want to preserve the your user and configuration data.

**7. Save the Sun Management Center user and configuration data if desired.**



---

**Caution** – If you reply **n**, your current Sun Management Center user and configuration data, including the database, will be removed. In addition, your security keys will be overwritten, and you will also need to set up all agents for the agents to work properly.

---

- Reply **y** if you want to retain your administrative domain configuration and custom alarm settings in `/var/opt/SUNWsymon` for subsequent installations or upgrades.
- Type **n** to discard the existing database.

You are asked whether you want to proceed with the uninstall.

**8. Complete the uninstall process.**

- Type **y** to uninstall the product or products that you have selected. Your selection or selections are uninstalled. When the process completes, the `es-uninst` script exits to the command prompt.
- Type **n** if you do not want to uninstall the selected products.

The `es-uninst` script exits to the command prompt.

---

## Installing on the Solaris Platform Using `es-inst`

This section describes how to install the product on a Solaris system using the `es-inst` script. During installation, you may install the console, server, and agent layers either separately or in combination. You may also choose specific add-on products for the features that you want to install. When the install process is completed, the setup script `es-setup` is run, enabling you to set up the base and add-on components.

---

**Note** – If you plan to install the Sun Management Center 3.5 development environment, you should install the developer environment on a separate, dedicated machine. The Sun Management Center server, agent, and console layers are automatically installed on a developer environment machine. A machine used for Sun Management Center development must meet the minimum hardware and software requirements for the Sun Management Center server layer. The developer environment machine must also meet the requirements for the agent layer, console layer, and any add-ons you install. For more information, see Chapter 2.

---

### `es-inst` Options

The syntax for the `es-inst` command is:

```
es-inst [-S dir] [-T dir] [-R dir] [-C file] [-A file] [avh]
```

The following table describes the `es-inst` parameters.

**TABLE B-2** `es-inst` Options

| Option             | Description                                                                                                                           |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| -A <i>filename</i> | Perform an automated installation using the specified configuration file <i>filename</i> . This option is ignored if -C is also used. |

**TABLE B-2** *es-inst* Options (Continued)

| Option |                             | Description                                                                                                                                                                                                                  |
|--------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -C     | <i>filename</i>             | Specify a file in which to store the configuration details entered during installation and setup. The file can be used for subsequent automated installation.                                                                |
| -R     | <i>/path/remote-machine</i> | Install Sun Management Center on a <i>remote</i> machine that is network file system read/write accessible from the root login account on the <i>local</i> machine.<br><br>See "Installing on a Remote Machine" on page 206. |
| -S     | <i>directory</i>            | Specify the source directory.                                                                                                                                                                                                |
| -T     | <i>directory</i>            | Specify the target directory.                                                                                                                                                                                                |
| -a     |                             | Perform an agent-only product installation. See "To Install or Update Agents From an Agent-Update Image Using <i>agent-update.bin</i> " on page 114.                                                                         |
| -h     |                             | List the <i>es-inst</i> options.                                                                                                                                                                                             |
| -v     |                             | Perform an installation using verbose full log mode.                                                                                                                                                                         |

## Installing on a Local Machine

This installation procedure assumes you are installing Sun Management Center from a *cd-image* directory on your network. See "Creating Installation CD Images" on page 65 for further information. This procedure also assumes that you have not specified any of the *es-inst* parameters.

### ▼ To Install Using the *es-inst* Script

1. Log in as root on the machine where you want to install Sun Management Center.
2. In the */etc/nsswitch.conf* file, ensure that the **group** entry has **files** as the first token.

```
group: files nis
```

3. Review the README files.

- */net/machine-name/cd-imagedir/disk1/sbin/INSTALL\_README*
- */net/machine-name/cd-imagedir/sbin/INSTALL\_README.HWDS*

where */net/machine-name/cd-imagedir* is the path to the network machine where you created the Sun Management Center installation *cd-image*.



#### 4. Go to the Sun Management Center installation disk 1 `sbin` directory.

- If you are installing from CDs, insert disk 1, and then go to the `/cdrom/cdrom0/sbin` directory.

During the installation process, you might be prompted to change CD disks depending on your selections.

- If you are installing from a CD image, go to the `/cd-image-dir/disk1/sbin` directory, where *cd-image-dir* is the directory either where you copied the installation CDs, or where you downloaded and untarred the installation image from the Web.

#### 5. Run the `es-inst` installation script:

```
#!/es-inst
```

- If a prior version of Sun Management Center is not installed on the system, you are prompted for the target directory. Go to Step 8.
- If Sun Management Center 2.x or 3.0 is installed on the system, you are asked whether you want to uninstall the previous Sun Management Center version.

#### 6. Uninstall the previous version.

You are asked whether you want to uninstall the previous version. You cannot install Sun Management Center 3.5 until the previous version is uninstalled.

- Type **n** or **q** if you do not want to uninstall the previous version. You are returned to the system prompt.
- Type **y** to uninstall the previous version.  
You are asked whether you want to migrate the data from the previous installation of Sun Management Center.

#### 7. Migrate previous version data.

The administrative domain configuration data, custom alarm settings, and scripts from your previous installation of Sun Management Center 2.x or 3.0 can be saved and applied to the new installation of Sun Management Center 3.5. The data is located in `/var/opt/SUNWsymon`.

- Type **y** to save and migrate the data from the previous version of Sun Management Center.  
The installation process stops any Sun Management Center processes that are running. The data is saved to `/var/opt/SUNWsymon.bak`.
- Type **n** to discard all data from the previous version of Sun Management Center.  
The installation script warns you to move any custom scripts that you want to save.



---

**Caution** – If you have custom scripts stored in any directory under `/var/opt/SUNWsymon` that you want to use in Sun Management Center 3.5, move them to an alternate location before going to Step 6.

---

The installation process then runs the previous Sun Management Center version's `es-uninst` script to uninstall the previous version.

---

**Note** – The uninstall process can take anywhere from a few minutes to half an hour, depending on the products and add-ons installed in the previous version.

During the uninstall process, you might see messages that state package removal failed. You can ignore these messages. Any package that is not removed at first is removed later by the uninstall process.

---

When the uninstall process completes, you are prompted for the directory in which to install Sun Management Center.

#### 8. Type the name of the directory in which to install Sun Management Center

The default location is `/opt`.

Sun Management Center software can be installed in any location on your system where the minimum required disk space is available. Press Return to accept the default location `/opt` or, if you want to install to a directory other than `/opt`, type the directory name.

---

**Tip** – The command `df -ak` lists the used space and free space for each file system on the machine.

---

You are asked whether you want to install either the production environment or the developer environment.

#### 9. Select either the Production Environment or Developer Environment.

---

**Note** – You should install and run the Sun Management Center developer and production environments on separate, dedicated servers.

---

Type **1** to install the production environment, or type **2** to install the developer environment.

- If you selected Developer Environment, all Sun Management Center base components are installed:
  - Server layer
  - Agent layer
  - Console

The Server Layer Binary Code License is displayed. Go to Step 11.

- If you selected Production Environment, you are prompted to select the Sun Management Center component layers that you want to install.

#### 10. Select the Sun Management Center component layers that you want to install.

You are asked to reply **y** or **n** to each layer. For example:

```
Select the Sun Management Center Architectural Component Layers:
3 Layer(s) are available for your selection:
Do you want to install Server Layer Components ? [y|n|q] y
 The Server Layer has been selected for install.
 The Sun Management Center Agent will be installed automatically.
Do you want to install Console Layer Components ? [y|n|q] y
```

---

**Note** – If you select Server, Agent is automatically selected.

---

- If you selected Server, or selected Server, Agent, and Console, the Server Layer Binary Code License is displayed. Go to Step 11.
- If you selected Console, or Agent and Console, the Select Language Support screen appears. Go to Step 12.
- If you selected Agent only, the Select Add-on Products screen appears. Go to Step 13.

#### 11. Review the Server Layer Binary Code License.

Read the Server Layer Binary Code License carefully. To continue the installation, you must agree to the terms of the license.

Type **y** to agree to the license and continue, or type **n** to exit the installation.

- If a valid JDK version is not installed, you are informed which version is needed. The installation process then exits to the system prompt.
- If you accept the license, the installation process checks for a valid JDK version. If a valid JDK version is installed, you are prompted to select additional language support.

---

**Note** – The Sun Management Center Web server and online help are installed with the server layer.

---

## 12. Select language support.

You can install support files in additional languages. You are asked whether other languages are required.

- If you want to install additional language support, type **y**.  
You are asked to reply **y** or **n** to each language.

- If you do not want to install additional language support, type **n**.

When you have completed language selection, the install process checks for add-on products.

## 13. Select the Sun Management Center add-on products.

The install process lists each add-on product, and asks if you want to install the product. Type **y** to select the product for installation, or type **n** if you do not want to install the product.

- Some add-ons are platform-specific. For information about each add-on, refer to the *Sun Management Center 3.5 Software Release Notes*, the platform supplements provided with the Sun Management Center release kit, and to the Sun Management Center Web site at <http://www.sun.com/solaris/sunmanagementcenter/>.

---

**Note** – If you want to use the Sun StorEdge A5x00 add-on product, see “Sun StorEdge A5x00 Patches” on page 62 before continuing.

---

- Some add-ons have optional components. If optional add-on components are available, the components are listed sequentially. Type **y** to select the optional component for installation, or type **n** if you do not want to install the optional component.

If you did not select any add-on products, you are asked whether you want to proceed. Type **y** to continue. The install process checks disk space. Go to Step 16.

If you selected any add-ons, your selections are listed.

## 14. Review your selections.

Type **y** to continue, or type **n** to repeat the selection process.

- If you selected only the agent, or agent and console during component selection, and selected any add-on products, the installation process checks disk space. Go to Step 16.
- If you selected the server during component selection, and selected any of the following add-on products, the Add-on Products Binary Code License is displayed. Go to Step 15.
  - Advanced System Monitoring
  - Performance Reporting Manager
  - Service Availability Manager

- System Reliability Manager
- If you did not select any of the above add-on products but did select other add-on products, the installation process checks disk space. Go to Step 16.

**15. Review the Add-on Products Binary License.**

Read the Add-on Products Binary Code License carefully. To continue the installation, you must agree to the terms of the license.

Type **y** to agree to the license or **n** to exit the installation.

If you typed **y** to agree to the license and did not select additional add-on components, the installation process checks disk space.

**16. Check disk space.**

The installation process checks whether there is enough disk space to install the products that you selected.

- If there is enough disk space, the products that you selected are installed.

---

**Note** – The installation process can take from a few minutes to half an hour or more, depending on the products selected.

---

When the installation process completes, a list of installed products is displayed. You are asked whether you want to set up the Sun Management Center components. Go to Step 18.

- If there is not enough disk space, you are asked to provide an alternate file system. The amount of space available and the amount of space that is needed are displayed.

**17. Provide the name of an alternate file system with enough disk space.**

At the prompt requesting a different file system, type the name of a file system and directory that has enough free space.

---

**Tip** – In a terminal window on the machine where you are installing Sun Management Center, type **df -ak** to list the amount of used and free space for each file system on the machine.

---

The installation process checks disk space again. If there is enough disk space, the products that you selected are installed.

---

**Note** – The installation process can take from a few minutes to half an hour or more, depending on the products selected.

---

When the installation process completes, a list of installed products is displayed. You are asked whether you want to set up the Sun Management Center components.

**18. Decide whether to set up the installed products.**

Type **y** to set up Sun Management Center and any add-on products that you selected, or type **n** to exit and run setup later.



---

**Caution** – If you have used `es-inst` to install *only* add-on products, type **n** to exit the installation and setup process. You must set up the add-on products as described by “To Set Up an Add-on Product Using `es-setup`” on page 151. Otherwise, you will overwrite your security keys, and will then have to set up all of the agents on all of your machines for the agents to work properly.

---

- If you typed **y** to run setup now, follow the instructions in “Setting Up Sun Management Center 3.5 Using `es-setup`” on page 212.
- If you typed **n** to run setup later, you must set up the agent on the machine before you can run the agent.
  - To set up the agent using `es-guisetup`, follow the instructions in “To Set Up Sun Management Center 3.5 on the Solaris Platform” on page 87.
  - To set up the agent using `es-setup`, follow the instructions in “Setting Up Sun Management Center 3.5 Using `es-setup`” on page 212.

## Installing on a Remote Machine

This section provides the procedure for installing Sun Management Center 3.5 on a Network File System accessible (NFS-mounted) remote machine using the `es-inst` command. The procedure assumes that you are installing Sun Management Center from a `cd-image` directory on your network. See “Creating Installation CD Images” on page 65 for further information.

To install Sun Management Center on a remote machine, you have to prepare the remote machine before you install the software. Also, if the local machine is running Solaris 2.6, Solaris 7, or Solaris 8 software, you must install a patch as described in “To Install Patches for `pkgadd`” on page 207.

The following machine names are used as examples in the procedures in this section:

- `admin-host` is the local machine used to perform the installation on the remote machine.
- `remote` is the remote machine on which you want to install Sun Management Center.

## ▼ To Install Patches for pkgadd

If the local machine is running Solaris 2.6, Solaris 7, or Solaris 8 software, a patch for pkgadd specific to the operating system version must be installed on the local machine. You must install this patch before you can use the local machine to install Sun Management Center 3.5 on the remote machine.

If the local machine is running the Solaris 9 release, you do not need to install any patches. Go to “To Prepare the Remote Machine” on page 207.

### 1. Log in as root on the *local* machine.

### 2. Ensure that the OS patch level is current.

To determine whether the patch is already installed, use the command `showrev -p | grep patchnum`, where *patchnum* is the required OS patch as follows:

- Solaris 2.6 release: 106292
- Solaris 7 release: 107443
- Solaris 8 release: 110934

For example, if the local machine is running Solaris 8 release, you would type:

```
admin-host# showrev -p | grep 110934
admin-host#
```

In the above example, the patch is not installed. The patch must be downloaded and installed as directed by Step 3.

If the patch is installed, a listing similar to the following is displayed.

```
admin-host# showrev -p | grep 110934
admin-host# Patch: 110934-13 Obsoletes: Requires: Incompatibles:
Packages: pkgtrans, pkgadd, pkgchk
```

If the patch that is required by the local machine Solaris version is installed, go to “To Prepare the Remote Machine” on page 207.

### 3. Install the OS patch if needed.

- a. Download the required patch from <http://www.sunsolve.sun.com>.
- b. Untar and then unzip the downloaded patch archive file.
- c. Install the patch using the `patchadd` command.

## ▼ To Prepare the Remote Machine

### 1. Log in as root on the *remote* machine.

### 2. Create the Sun Management Center database access group and user account.

- a. Use the `groupadd` command to create the access group `smcorag`.

```
remote# /usr/sbin/groupadd smcorag
```

**b. Create the directory /var/opt/SUNWsymon.**

This directory is where the database user account will be located.

```
remote# mkdir -p /var/opt/SUNWsymon
```

**c. Use the useradd command to create the database user account smcorau, and then add the user account to the group smcorag.**

```
remote# /usr/sbin/useradd \
...-d /var/opt/SUNWsymon/smcorau \
-m -g smcorag -s /bin/sh smcorau
```

**3. Stop the Network File System daemon mountd.**

```
remote# /etc/init.d/nfs.server stop
```

**4. Edit the /etc/dfs/dfstab file on the remote host.**

Add the following line:

```
share -F nfs -o rw=admin-host,root=admin-host /
```

where *admin-host* is the name of the machine from which you will install Sun Management Center onto the remote host.

For example, if the remote host name is *remote-server*, and the name of the machine you will use to install Sun Management Center on *remote-server* is *adminserver*, then the entry in the *remote-server* /etc/dfs/dfstab file would be:

```
share -F nfs -o rw=adminserver,root=adminserver
```

This entry in the remote machine's *dfstab* file gives remote read and write permission only to the root user account logged on to the machine *adminserver*.

**5. Save and close /etc/dfs/dfstab.**

**6. Start the Network File System daemon mountd.**

```
remote# /etc/init.d/nfs.server start
```

**7. Determine the Solaris version running on the remote machine.**

```
remote# /usr/bin/uname -r
```

When you install Sun Management Center on the remote host, the *es-inst* script will prompt you for the Solaris version running on the remote host.

**8. Determine the remote host machine type.**

When you install Sun Management Center on the remote host, the *es-inst* script will prompt you for the remote machine type.

The information required by *es-inst* for the remote host machine is generated by the command:

```
remote# /usr/platform/platform/sbin/prtdiag | /usr/bin/head -1 \
| /usr/bin/cut -f2 -d:
```

where *platform* is the output of the command *uname -i*.

For example:



```
remote# /usr/bin/uname -i
SUNW,Ultra-5_10
remote# /usr/platform/SUNW,Ultra-5_10/sbin/prtdiag
| /usr/bin/head -1 | /usr/bin/cut -f2 -d:
Sun Microsystems sun4u Sun Ultra 5/10 UPA/PCI (UltraSPARC-IIIi 333 MHz)
```

---

**Tip** – Copy the remote host machine-type information to a temporary file on the local host. You can then paste the information when `es-inst` prompts you for the remote host machine type.

---

### 9. Log off the remote machine.

You can now install Sun Management Center on the remote host as described by the next procedure.

## ▼ To Install Sun Management Center on the Remote Machine

### 1. Log in as root on the *local* machine.

### 2. Change to the Sun Management Center installation disk 1 `sbin` directory.

- If you are installing from CDs, insert disk 1, and then go to the `/cdrom/sun_management_center_3_5/sbin` directory.  
During the installation process, you might be prompted to change CD disks depending on your selections.
- If you are installing from a CD image, go to the `/cd-image-dir/disk1/sbin` directory, where *cd-image-dir* is the directory either where you copied the installation CDs, or where you downloaded the installation image from the Web.

### 3. Run the `es-inst` installation script, and specify the remote host machine using the `-R path/remote` parameter.

```
#!/es-inst -R path/remote
```

where *path/remote* is the full path to the remote machine. For example, if the remote host path and name is `/net/remote-server`, you would type:

```
local-machine# ./es-inst -R /net/remote-server
```

You are prompted for the Solaris version running on the remote machine.

### 4. Type the Solaris version running on the remote machine.

See “To Prepare the Remote Machine” on page 207, Step 7.

You are prompted for the remote host machine type.

### 5. Provide the remote host machine type.

Type the machine type string that you generated in “To Prepare the Remote Machine” on page 207, Step 8. Alternately, if you copied the generated text to a file on the local host, you can paste the machine-type string in answer to the prompt.

---

**Note** – The steps that are required to complete installation of Sun Management Center on a remote host are the same steps that are required for the default Sun Management Center install.

---

#### 6. Complete the installation.

- If Sun Management Center 2.x or 3.0 is installed on the system, you are asked whether you want to migrate the data from the previous Sun Management Center version. Go to “To Install Using the `es-inst` Script” on page 200, Step 7.
- If a prior version of Sun Management Center is not installed on the system, you are prompted for the target directory. Go to “To Install Using the `es-inst` Script” on page 200, Step 8.

---

## Setting Up on the Solaris Platform Using `es-setup`

This section describes how to install the product on the Solaris platform using the `es-setup` script. During installation, you may install the console, server, and agent layers either separately or in combination. You may also choose specific add-on products for the features that you want to install. When the install process is completed, the set up script `es-setup` is run, enabling you to set up the base and add-on components.

### When to Run Setup

You should run the setup process in the following situations:

- When you have completed installing Sun Management Center 3.5 for the first time but have not run setup
- When you change your setup configuration, such as changing the server context
- When instructed to do so in your add-on software or hardware supplement
- When you need to reconfigure your entire Sun Management Center 3.5 installation
- When you need to set up a new add-on product
- When you need to re-create the Sun Management Center database

## es-setup Options

The syntax for the `es-setup` command is:

```
es-setup [-A file] [-C file] [-p directory] [-Fhrvw]
```

The following table describes the `es-setup` parameters.

**TABLE B-3** `es-setup` Options

| Option              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -A <i>filename</i>  | Perform an automated setup using the specified response setup file <i>filename</i> .<br><b>Note</b> – This option is ignored if -C is also used.                                                                                                                                                                                                                                                                                               |
| -C <i>filename</i>  | Specify a file in which to store the setup responses that you provide during the setup process. The setup responses file can be used for subsequent automated setup.<br>This option supersedes the -A option.                                                                                                                                                                                                                                  |
| -F                  | Set up the entire Sun Management Center installation again, including all installed base products, database, and add-ons.<br>Use of this option is equivalent to resetting the entire installation to a post-install and pre-setup state, and then running setup.                                                                                                                                                                              |
| -h                  | List the <code>es-setup</code> options.                                                                                                                                                                                                                                                                                                                                                                                                        |
| -k                  | Perform setup without generating security keys.                                                                                                                                                                                                                                                                                                                                                                                                |
| -p <i>directory</i> | Set up a single add-on where <i>directory</i> is the directory name for the add-on. For example, the storage add-on is in <code>/opt/SUNWsymon/addons/storage</code> . To set up the storage add-on using <code>es-setup</code> , you would type <code>es-setup -p storage</code> .<br>Use of this option is equivalent to resetting the specified add-on to a post-install and pre-setup state, and then running setup for the single add-on. |
| -r                  | Re-create the database. No other setup is performed.                                                                                                                                                                                                                                                                                                                                                                                           |
| -v                  | Perform setup using verbose mode.                                                                                                                                                                                                                                                                                                                                                                                                              |
| -w                  | Do not set up the database. This option is valid with the -F option.                                                                                                                                                                                                                                                                                                                                                                           |

## Setting Up Sun Management Center 3.5 Using `es-setup`

This section provides the procedure for setting up Sun Management Center. This procedure assumes that you have not specified any of the `es-setup` parameters.

### ▼ To Set Up Sun Management Center Using the `es-setup` Script

1. **Log in as root on the machine where you installed Sun Management Center.**
2. **Go to the Sun Management Center `sbin` directory. For example:**

```
cd /opt/SUNWsymon/sbin
```

If you installed Sun Management Center in a different directory than `/opt`, go to `/installdir/SUNWsymon/sbin`, where `installdir` is the directory you specified in Step 8 in procedure “To Install Sun Management Center 3.5 on the Solaris Platform” on page 82.

3. **Run the `es-setup` script.**

```
./es-setup
```

- If you installed only the Sun Management Center console, the setup process sets up the console and then runs setup for any add-ons you selected. Go to Step 16.
- If you installed only the agent, or agent and console, you are prompted to provide a password for security key generation. Go to Step 5.
- If you installed the Sun Management Center server, the setup process checks for DB listener port conflict.
  - If the DB listener port is not in use and the system has sufficient memory, you are prompted to provide a password for security key generation. Go to Step 5.
  - If the DB listener port is not in use, and the system does not have sufficient memory, the amount of memory that is available and the amount of memory that is needed is displayed. The setup process exits to the system prompt. Take steps to make enough memory available, and then run setup again.
  - If the DB listener port is in use, you are prompted to assign an unused port.

4. **Resolve DB listener port conflict**

Press Return to accept the alternate default port 2522, or type the number of an unused port. “To Determine Whether a Port Is Used” on page 172 describes how to determine whether a port is in use. “Reconfiguring Sun Management Center Ports” on page 172 describes how to use the `es-config` command to reassign Sun Management Center ports.

The setup process checks the available memory.

- If the system has sufficient memory, you are prompted to provide a password for security key generation. Go to Step 5.
- If the system does not have sufficient memory, the amount of memory that is available and the amount of memory that is needed is displayed. The setup process exits to the system prompt. Take steps to make enough memory available, and then run setup again.

**5. Generate the Sun Management Center security key.**

An encrypted security key is needed for communications between all Sun Management Center processes. The key is generated based on the password you provide, which must be between one and eight characters long, and contain no spaces. Entries that are greater than eight characters are truncated to eight characters.

---

**Note** – Keep a record of the password that you use to generate the security key for this machine in a secure location in case you need to regenerate the key for the machine at a later time. You can also change the security key later, if needed, as described in “Regenerating Security Keys” on page 166.

---

**a. Type the password for the seed to generate the security keys.**

**b. Type the password again.**

You are prompted for the SNMPv1 community string.

**6. Specify the SNMPv1 community security string.**

The community string is used for SNMP security, and is set to `public` by default.

Set the community string to a value other than `public` or `private` to provide better SNMP security.



---

**Caution** – The same SNMP community string must be used on all of the machines on which you install Sun Management Center 3.5. If you use different community strings on each machine, SNMP communications between the machines and Sun Management Center components will not work. Keep a record of the community string that you used in a secure location in case you need to specify the community string again at a later time.

---

- If you want to accept the community string default value of `public`, press Return when prompted to submit the SNMPv1 community string.
- If you want to use a custom community string, type the community string text. The community string can be up to 255 characters in length, but must not contain any spaces or blanks.

You are prompted to retype the SNMPv1 community string to confirm the string. Type the same string. For example:

This part of setup configures SNMPv1 read-only community string. Please make sure you use the same string on all the machines you install. You may like to keep record of this string for future use.

Hit RETURN key to force default value.

Please enter SNMPv1 community string: **my-snmp-string**

Please re-enter the SNMPv1 community string to confirm: **my-snmp-string**

The setup process checks which base components have been installed.

- If you installed only the agent, or agent and console, you are prompted for the Sun Management Center server host name. Go to Step 9.
- If you installed the server, the setup process checks for a valid UNIX administrator account name for the Sun Management Center `esadm` and `esdomadm` groups. See “Users, Groups, and Roles Overview” on page 47 for information about groups.
  - If a valid UNIX administrator account name exists, the setup process checks for server port conflicts. Go to Step 8.
  - If a valid UNIX administrator account name does not exist, you are prompted for the UNIX administrator account name.

#### 7. Type a valid Solaris user name as the UNIX administrator account name.

A valid Solaris user name is required for Sun Management Center administration.

Type a valid Solaris user name.

The setup process checks for server port conflicts.

#### 8. Resolve server port conflicts.

The setup process checks the ports needed by the Sun Management Center server to determine whether the ports are in use. If any ports are in use, you must assign an unused port. “To Determine Whether a Port Is Used” on page 172 describes how to determine whether a port is in use. “Reconfiguring Sun Management Center Ports” on page 172 describes how to use the `es-config` command to reassign Sun Management Center ports.

The ports are checked in the following order: topology service, configuration service, event service, `cst` service, trap service, metadata service, and look-up service.

- If no ports are in use and you have installed the Sun Management Center server, you are prompted for the information needed to generate the Web server security key. Go to Step 10.
- If no ports are in use and you have not installed the Sun Management Center server, you are prompted for the Sun Management Center server host name. Go to Step 7.
- If any ports are in use, you are prompted to either reconfigure the port, or to stop the process that is using the port.
  - To reconfigure a port, type the number of an unused port.
  - To use the default port, press Return.



---

**Caution** – If you chose to use the default port, you must manually review, identify, and then rename the `/etc/rcN` and `/etc/rcN.d` files that use the port, and then manually stop the processes that are using the port before you can start Sun Management Center.

---

Once all port conflicts are resolved, the setup process checks whether you installed the server.

- If you installed the Sun Management Center server, you are prompted for the information needed to generate the Web server security key. Go to Step 10.
- If you have not installed the Sun Management Center server, you are prompted for the Sun Management Center server host name.

#### 9. Specify the Sun Management Center server host name.

Type the name of the machine on which the Sun Management Center server was installed.

The setup process checks whether the SNMP port is in use. Go to Step 12.

#### 10. Specify the Web server security key.

An encrypted security key is needed for the Sun Management Center Web server. The key is generated based on the name of your organization and the name of your location. The names that you provide must not contain any spaces or blanks.

For example, you could type `administration` for the organization, and `headquarters` for the location.

---

**Note** – Keep a record of the entries that you use to generate the security key in a secure location in case you need to regenerate the key for a particular machine at a later time.

---

Type the name of your organization at the prompt. For example:

```
An encrypted security key is needed for the Sun Management Center
Web server. The key is generated based on the organization and location
you provide.
```

```
Please enter the name of your organization : administration
```

You are prompted for your geographical location. Type the name of your location at the prompt. For example:

```
Please enter the geographical location of this host : headquarters
```

The setup process checks whether the web server ports are in use.

- If the web server port and the web server secure port are not in use, the setup process checks whether SNMP port 161 is in use. Go to Step 12.

- If the web server default port or secure port is in use, you are prompted to assign an unused port.

#### 11. Resolve web server port conflicts.

Press Return to use the displayed default port, or type the number of a port that is not in use.



---

**Caution** – If you chose to use the default web server port or secure port, you must manually review, identify, and then rename the `/etc/rcN` and `/etc/rcN.d` files that use the port, and then manually stop the processes that are using the port before you can start Sun Management Center.

---

The setup process checks whether the SNMP port is in use.

- If SNMP port 161 is not in use, the setup process checks whether configuration data from a previous version of Sun Management Center has been saved. If you saved the configuration data from a previous Sun Management Center installation, you are asked whether you want to restore the data. Go to Step 14.

If you did not save configuration data from a previous installation, or if this is the first time Sun Management Center has been installed on this machine, then the setup process lists the setup status for the core products you selected. Go to Step 15.

- If SNMP port 161 is in use, you are prompted to assign an SNMP port number.

#### 12. Resolve the SNMP port conflict.

You are notified that port 161 is in use by another process. In most cases, port 161 is the port that is assigned to and used by the SNMP daemon. However, other processes or daemons could be using port 161. Several third-party replacements and enhancements for the SNMP daemon exist, and could be installed on your system. The Sun Management Center agent is such a daemon.

You can choose to use port 161, or you can assign a different port number.



---

**Caution** – If you chose to restore the configuration data from a previous Sun Management Center installation, make sure you use the same port number as you had in the previous Sun Management Center installation for both agent and server upgrades.

---

##### a. To assign a different port number, type an unused port number.

For example:

```
Enter the port you want to use [1100 to 65535]: 1161
Updating /var/opt/SUNWsymon/cfg/domain-config.x with new port number.
```



---

**Note** – Keep a record of this alternate port number. You will need this number if you later install agents using the JumpStart software, or update the Sun Management Center agents using the agent update-image tools. For more information, see “Installing Agents Using JumpStart” on page 118 and “Creating Agent Installation and Update Images” on page 95.

---

If you did not save configuration data from a previous installation, or if this is the first time Sun Management Center has been installed on this machine, the setup process lists the setup status for the core products you selected. Go to Step 15.

**b. To use port 161, press Return.**

You are informed that port 161 will be used by Sun Management Center, and that the SNMP daemon might be set to restart automatically when the system is rebooted.

You are asked whether you want to stop and disable the SNMPDX daemon.

**13. Stop and disable the SNMP daemon.**

- Type **y** to stop and disable the SNMP daemon.



---

**Caution** – Stopping and disabling the SNMP daemon is not a guarantee that you have stopped the actual process that is using port 161. If Sun Management Center fails to start after you have completed Sun Management Center setup, another process or daemon could be using port 161. As noted in Step 12, you must manually review, identify, and then rename the `/etc/rcN` and `/etc/rcN.d` files that use port 161 to resolve the port conflict.

---

- Type **n** if you do not want to stop and disable the SNMP daemon.



---

**Caution** – You must stop all processes that use port 161 before you can start Sun Management Center.

---

The setup process checks for configuration data from a previous version of Sun Management Center.

- If you did not save configuration data from a previous installation, or if this is the first time Sun Management Center has been installed on this machine, the setup process lists the setup status for the core products you selected. Go to Step 15.
- If you saved the configuration data from a previous Sun Management Center installation, you are asked whether you want to restore the data.

**14. Restore previous Sun Management Center configuration data**

The saved configuration data includes the graphs, topology objects, alarms, and other information that is displayed in the Sun Management Center console.



---

**Caution** – If you do not restore the configuration data from the previous installation of Sun Management Center, you will have to manually re-create the information.

---

- To restore the configuration data, type **y** and press Return. The configuration data from the previous Sun Management Center is restored.
- To discard the configuration data, type **n** and press Return. The configuration data from the previous Sun Management Center is deleted.

The setup process lists the setup status for the core products you selected.

#### 15. Finalize the base product setup process.

- If base product setup failed, you are informed that the setup of the base products was not successful. You are then directed to see the log file for more details. The name of the log file is provided. The setup process exits to the system prompt. Review the log file to determine the cause of setup failure.
- If base product setup succeeded, and you selected one or all of the base products only (console, agent, and server), you are asked whether you want to start the Sun Management Center components. Go to Step 17.
- If base product setup succeeded and you selected any add-on products, the setup process runs the setup script for each add-on product you selected.

#### 16. Set up add-on products.

Some add-on products are included with the Sun Management Center 3.5 installation CDs. These add-ons are the ones listed in Step 13, in the procedure “To Install Using the `es-inst` Script” on page 200. To set up each add-on, refer to the Sun Management Center supplement for each add-on, which is included in your installation kit. Each supplement provides the setup procedure for the specific add-on. The setup procedure for add-ons is therefore not duplicated here.



---

**Caution** – If you selected the add-on Monitoring and Management of A5x00 and T3 Devices, apply the necessary patches to the server as described in “Sun StorEdge A5x00 Patches” on page 62. Also, add the T3 IP address, Ethernet address and name to the server system files as described in “T3 Storage Devices” on page 62.

---

When the add-on setup is completed, the setup process lists the setup status for the add-on products.

- If add-on product setup failed, you are informed that the setup of the add-on product was not successful. You are then directed to see the log file for more details. The name of the log file is provided. The setup process exits to the system prompt.  
Review the log file to determine the cause of setup failure.
- If add-on setup succeeded, you are asked whether you want to start the Sun Management Center components.

### 17. Start Sun Management Center 3.5.



---

**Caution** – If your network uses Network Address Translation (NAT), type **n** to exit setup without starting Sun Management Center. Use the `es-config` command-line utility described in “To Enable NAT Support” on page 179 to configure the machine for NAT before you start Sun Management Center.

---

- If you want to start Sun Management Center now, type **y**.  
The setup script starts Sun Management Center using `es-start -A`. See “Starting Components Using `es-start`” on page 156 for information about `es-start`.  
Also, see “Starting the Console” on page 158 for instructions on how to start the Sun Management Center console.
- If you want to start Sun Management Center later, type **n**. See Chapter 8 when you are ready to start Sun Management Center.



## Determining Hardware Resources

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This section provides guidelines for selecting the appropriately sized hardware for the Sun Management Center basic management framework and base add-on products. The Sun Management Center basic management framework and each base add-on product have specific disk space requirements for the Sun Management Center core layers agent, server, and console.

This chapter discusses the following topics:

- “Agent Layer Resources” on page 221
- “Server Layer Resources” on page 226
- “Java Console Layer Resources” on page 233
- “Sun Management Center Server with the Performance Reporting Manager Add-on” on page 228
- “Sun Fire Proxy/Platform Agent Resources” on page 233

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**Note** – The information provided in this section does not take into consideration any third-party modules, nor are such modules reflected in any of the sizing figures.

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## Agent Layer Resources

Sun Management Center 3.5 agents should be installed on every managed node in your network to enable advanced management and monitoring functions. Sun Management Center agents are supported on any SPARC platform workstations and servers running Solaris version 2.6, Solaris version 7, Solaris version 8, or Solaris version 9. Sun Management Center agents are not available for Solaris operating environment (x86 Platform Edition) systems or for Microsoft Windows systems.

## CPU Resources

Sun Management Center agents add a minimal computational load on the host system. The computational load is caused by normal management operations, including periodic data acquisition, alarm rule processing, alarm annunciation, alarm action execution, and the processing of client requests.

The amount of load introduced is proportional to the rate at which data is gathered, the amount of data gathered, the number of alarms detected, and the number of user requests. The percentage of CPU resources consumed therefore depends on the number and type of modules loaded on the system, the configuration of these modules, and the computational capacity of the host system.

Even on low-end machines with a comprehensive suite of modules loaded and high management activity, the agent should never consume more than a fraction of the CPU resources.

The following table provides estimates of CPU and RAM usage.

**TABLE C-1** Agent CPU and RAM Use Estimates by System Type

| Server Type         | Configuration  |         | CPU Usage |         | RAM Usage (average) |               |
|---------------------|----------------|---------|-----------|---------|---------------------|---------------|
|                     | Heavy or Light | Maximum | Minimum   | Average | Size                | Resident Size |
| Netra X1            | Light          | 16.3%   | 0.0%      | 0.09%   | 12 Mbytes           | 10 Mbytes     |
| Sun Enterprise 420R | Light          | 14.3%   | 0.0%      | 0.13%   | 15 Mbytes           | 14 Mbytes     |
| Sun Blade 1000      | Light          | 0.3%    | 0.0%      | 0.03%   | 17 Mbytes           | 16 Mbytes     |
| Sun Blade 100       | Heavy          | 14.0%   | 0.2%      | 8.9%    | 29 Mbytes           | 29 Mbytes     |

Light configurations are based on an agent with the following modules loaded:

- Kernel-Reader Simple
- Agent Statistics
- MIB-II Simple

The heavy configuration is based on an agent with the following modules loaded:

- Config Reader
- Health Monitor
- Full Kernel Reader
- MIB-II Instrumentation
- Directory Size Monitoring
- File Scanning
- Hardware Diagnostics Suite
- Script Launcher
- HP JetDirect
- Agent Statistics
- MIB-II Proxy Monitoring
- Various other modules, including custom modules

The heavy configuration is likely to be greater than needed. Larger machines typically have larger hardware configurations with more processors and disks. These configurations result in greater memory consumption by agents running on larger machines.

## Virtual Memory Requirements

The virtual memory used by an agent depends on multiple factors. The primary considerations are the number of management modules loaded and the amount of information being monitored by these modules. Loading many modules on an agent increases its memory requirement. Similarly, agents managing hosts with large disk arrays or other highly scalable assets will probably require more virtual memory because the volume of management information passing through the agents will increase.

In general, a base agent with the default set of management modules loaded is under 10 Mbytes in size. The base agent requires only 50% to 60% of the 10 Mbytes to be resident in physical memory.

## Hardware-Specific Module Availability

The majority of Sun Management Center management modules are portable across all SPARC platform systems running Sun Management Center agents. Some advanced hardware-specific Sun Management Center modules, however, are not supported on all Sun hardware. Specifically, the platform Config-Reader and Dynamic Reconfiguration modules provide advanced management of the underlying hardware platform. The functions these modules provide are not necessarily applicable to all hardware systems in the Sun product family.

The following table summarizes the availability of the Sun Management Center management modules on the various hardware platforms.

**TABLE C-2** Hardware-Specific Module Availability

| Hardware                                                                      | Config-Reader Module | Dynamic Reconfiguration Module | All Other Sun Management Center Modules |
|-------------------------------------------------------------------------------|----------------------|--------------------------------|-----------------------------------------|
| SPARCStation 1, 2, 5, 10, 20                                                  | No                   | No                             | Yes                                     |
| Sun Ultra 1, 2, 5, 10, 30, 60, 80                                             | Yes                  | No                             | Yes                                     |
| Sun Enterprise 5, 10, 150, 250, 450, 220R, 420R, Sun Fire 280R, Sun Fire V480 | Yes                  | No                             | Yes                                     |
| SPARCserver 1000, 1000E                                                       | Yes                  | No                             | Yes                                     |

**TABLE C-2** Hardware-Specific Module Availability (Continued)

| Hardware                               | Config-Reader Module | Dynamic Reconfiguration Module | All Other Sun Management Center Modules |
|----------------------------------------|----------------------|--------------------------------|-----------------------------------------|
| SPARCcenter 2000, 2000E                | Yes                  | No                             | Yes                                     |
| Sun Enterprise 3x00, 4x00, 5x00, 6x000 | Yes                  | Yes                            | Yes                                     |
| Sun Enterprise 10000                   | Yes                  | No                             | Yes                                     |
| Sun StorEdge A5x00, T3                 | Yes                  | No                             | Yes                                     |
| Netra T1, T1120-1125, T1400-T1405      | Yes                  | No                             | Yes                                     |
| Sun Blade 100, 1000                    | Yes                  | No                             | Yes                                     |
| Sun Fire, 3800, 4800, 4810, 6800, V880 | Yes                  | Yes                            | Yes                                     |

## Management Module Resources

The resource requirements of management modules depend on the following factors:

- The number of managed properties in the module.
- The volume of managed property data processed in the module. Tables with many rows of data incur increased resource usage.
- The refresh intervals of managed properties.
- The complexity of data collection and rule processing.

The following table summarizes the resource impact of the Sun Management Center management modules.

**TABLE C-3** Sun Management Center Management Module System Impact Summary

| Module                | Impact                                                                                                     |
|-----------------------|------------------------------------------------------------------------------------------------------------|
| Agent Statistics      | Incurs low footprint increase and low CPU load increase.                                                   |
| Config-Reader         | Uses CPU and memory relative to the complexity of the hardware configuration of the managed node.          |
| Data Logging Registry | Incurs low footprint and CPU load increase that is proportional to the amount of data values being logged. |



**TABLE C-3** Sun Management Center Management Module System Impact Summary  
(Continued)

| <b>Module</b>               | <b>Impact</b>                                                                                                                                                                                                                    |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Directory Size Monitoring   | Incurs a low footprint increase that is proportional to the number of directories monitored. Incurs low to moderate CPU load that depends on both the number of directories monitored and the activity within those directories. |
| Dynamic Reconfiguration     | Has minimal footprint impact and utilizes CPU only when performing reconfiguration operations.                                                                                                                                   |
| File Monitoring             | Incurs low footprint increase proportional to the number of files that are monitored. Incurs low to moderate CPU load, depending on both the number of files that are monitored and the activity within those files.             |
| File Scanning (System Log)  | Incurs low footprint and CPU load increase.                                                                                                                                                                                      |
| Health Monitoring           | Has relatively low impact on resources.                                                                                                                                                                                          |
| HP JetDirect                | Incurs low footprint increase and low CPU load.                                                                                                                                                                                  |
| IPV6 Instrumentation Module | Incurs low CPU load increase and low to medium footprint increase dependent on the number of network interfaces.                                                                                                                 |
| Kernel Reader, Full         | Affects CPU and memory based on the number of file systems, CPUs, and other system resources under management, as well as the rate of refresh of this information. Consumes more resources than the Simple Kernel Reader.        |
| Kernel Reader, Simple       | Has minimal impact on CPU and memory.                                                                                                                                                                                            |
| MIB-II Instrumentation      | Incurs minimal CPU load and low to moderate footprint increase depending on the number of network interfaces, and the size of the routing tables, ARP tables, and related system tables.                                         |
| MIB-II Proxy Monitoring     | Incurs moderate footprint increase proportional to the size of the MIB of the proxy-monitored SNMP agent. Incurs low to moderate CPU load proportional to the number of managed objects in the proxy-monitored SNMP agent.       |
| MIB-II Simple               | Incurs virtually no CPU load and very little footprint increase, proportional to the size of the system interfaces, IP forwarding, and IP address table.                                                                         |

**TABLE C-3** Sun Management Center Management Module System Impact Summary  
(Continued)

| Module                                          | Impact                                                                                                                                                                                                                             |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NFS File System                                 | Incurs low footprint increase that is proportional to the number of network file systems mounted on the host machine, and low CPU load.                                                                                            |
| NFS Statistics                                  | Incurs low footprint increase and low to moderate CPU load.                                                                                                                                                                        |
| Print Spooler                                   | Incurs low footprint and CPU load increase.                                                                                                                                                                                        |
| Solaris Process Monitoring                      | Incurs low footprint increase that is proportional to the number of processes monitored. Incurs low to moderate CPU load, depending both on the number of processes monitored and how often the processes are started and stopped. |
| Sun StorEdge A5x00 Array, Sun StorEdge T3 Array | Incurs moderate footprint and load increase that is proportional to the size of the storage device.                                                                                                                                |

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## Server Layer Resources

The server layer is the core of the Sun Management Center software. The specification of appropriate hardware for the server layer host is critical to ensure the reliable and responsive operation of Sun Management Center. The hardware requirements for the Sun Management Center server layer are significantly greater than the requirement for agents. Sun Management Center 3.5 server layer system requirements are greater than the hardware requirements for Sun Management Center 2.x and 3.0 server layers. Version 2.x or 3.0 server hosts do not necessarily meet the Sun Management Center 3.5 system requirements.

The Sun Management Center server layer is supported on SPARC platform desktops and servers running either Solaris version 8 or Solaris version 9 that meet the minimum hardware requirements described in this section.

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**Note** – For the best performance, install the Sun Management Center 3.5 server layer on a dedicated machine running server layer applications only.

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## Recommended Server Hardware Platforms

The hardware systems specified in the following table represent four broad classes of machines that can be employed as Sun Management Center server platforms. In each case, alternate machine configurations could provide equivalent performance.

**TABLE C-4** Recommended Sun Management Center Server Hardware Platforms

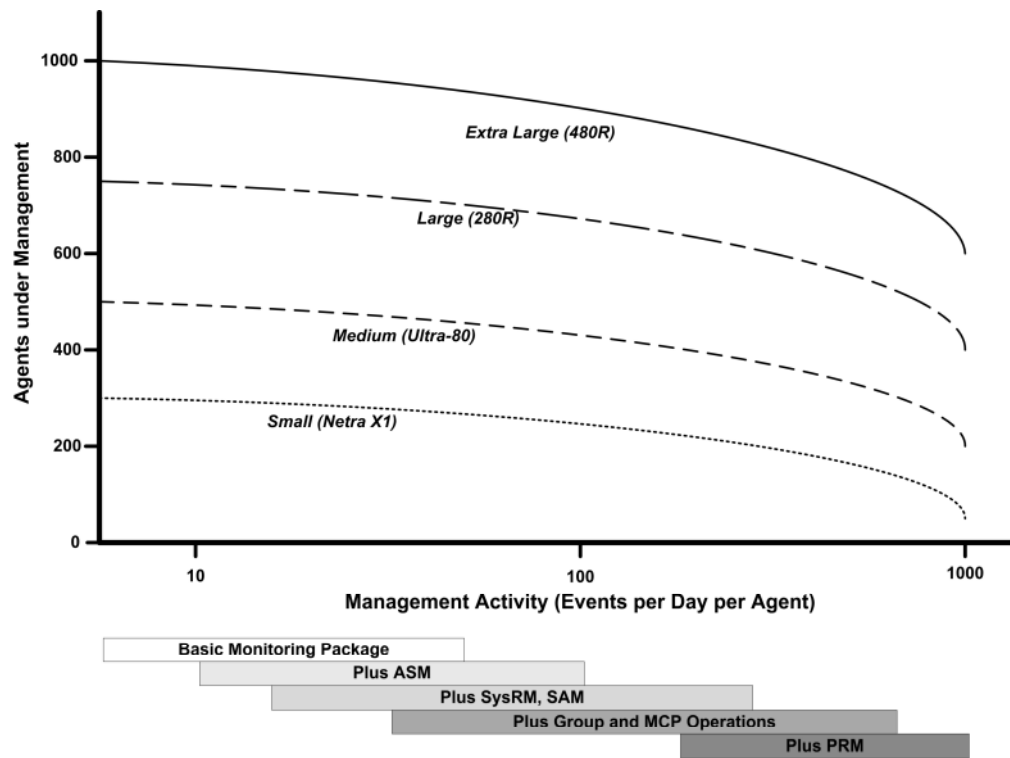
| Architecture       | Machine Type                                       | CPU Type                                   | RAM      | Swap Space                       |
|--------------------|----------------------------------------------------|--------------------------------------------|----------|----------------------------------|
| Small server       | Netra X1, Netra T1, or Sun Blade 100 or equivalent | One 502 MHz UltraSPARC IIe CPU or better   | 1 Gbyte  | 512 minimum, 1 Gbyte recommended |
| Medium server      | Sun Enterprise 80 or equivalent                    | Two 450 MHz UltraSPARC II CPUs or better   | 1 Gbyte  | 512 minimum, 1 Gbyte recommended |
| Large server       | Sun Fire 280R, Netra T4, or Sun Blade 1000         | Two 750 MHz UltraSPARC III CPUs or better  | 1 Gbyte  | 512 minimum, 1 Gbyte recommended |
| Extra-large server | Sun Fire 480R or equivalent                        | Four 900 Mhz UltraSPARC III CPUs or better | 2 Gbytes | 1 Gbyte                          |

## Sizing Requirements

The Sun Management Server host sizing requirements are highly dependent on the number of agents being managed by the server layer and the management activity on these agents. Management activity consists of system-generated activity such as event generation and processing, and user-initiated operations such as browsing data, network discovery, group operations, and system monitoring and diagnosis.

Because of the impact of management activity, the sizing requirements depends on the number, type and configuration of all Sun Management Center add-on packages that are installed on the server, and on the number of managed nodes. In general, the more add-ons that are in use, the greater the management activity and the higher the server hardware requirements.

The following diagram shows the machine classes recommended for the Sun Management Center server as a function of the number of agents under management, and the estimated management activity. The diagram assumes that Sun Management Center consoles are not running on the server machine. The diagram also assumes that there are 5 remote console sessions for the small server; 10 remote console sessions for the medium server; and 15 remote console sessions for the large and extra large server.



**FIGURE C-1** Sun Management Center Server Load by Events per Day and Objects Managed

The machine classes depicted in the above diagram are representative of classes of hosts with similar performance.



**Caution** – Server performance is adversely affected by running the Sun Management Center console application on the server layer host and by the number of active console sessions. If the server host is not sized generously to support the server layer components, do not run Sun Management Center consoles on the server machine.

## Sun Management Center Server with the Performance Reporting Manager Add-on

The Sun Management Center performance reporting manager (PRM) add-on is used to track historical trends and generate reports for any data property being monitored by Sun Management Center agents. The PRM add-on can have a significant impact on the sizing requirements of the Sun Management Center server since it can involve the collection and processing of large volumes of data.

The impact of the PRM add-on is shown in the PRM segment of Figure C-1. In general, increasing the management activity and the total number of data properties being tracked by PRM reduces the number of agents that can be managed by the Sun Management Center server.

Determining the requirements for a Sun Management Center server with the PRM add-on requires two steps.

1. Based on the total number of agents to be managed by Sun Management Center server with the PRM add-on installed, refer to the PRM segment of Figure C-1 to determine the required machine class.
2. Based on the estimated number of PRM data properties you want to collect, determine the appropriate PRM configuration as described in the following section.

## PRM Configuration Types

During Sun Management Center setup, you are given the option to select one of the PRM configuration types shown in the following table. The architecture column refers to the machine architecture listed in Table C-4.

**TABLE C-5** PRM Configuration Type Requirements

| PRM Configuration Type | Disk Space | Total Number of PRM Properties | Example Number of agents | Example Number of properties per agent | Architecture |
|------------------------|------------|--------------------------------|--------------------------|----------------------------------------|--------------|
| Small PRM              | 5 Gbytes   | 50,000                         | 100                      | 300                                    | Small        |
|                        |            |                                | 400                      | 100                                    | Medium       |
| Medium PRM             | 12 Gbytes  | 150,000                        | 300                      | 300                                    | Medium       |
|                        |            |                                | 500                      | 300                                    | Large        |
|                        |            |                                | 750                      | 200                                    | Extra large  |
| Large PRM              | 24 Gbytes  | 240,000                        | 600                      | 300                                    | Large        |
|                        |            |                                | 750                      | 300                                    | Extra large  |

Small Sun Management Center servers are typically used for a small PRM configuration; medium servers are used for a medium PRM configuration; and large and extra large servers are used for a large PRM configuration. You can use an extra large Sun Management Center server with a small or medium PRM, depending on the available disk space and anticipated PRM data collection requirements.

## PRM Server Configuration Examples

The following table provides examples of the numbers of agents that can be managed by each architecture type, assuming that each agent is collecting an average of 300 properties each for PRM. The Hourly Data Collection provides the estimated time required to collect data. The Nightly Processing column provides the estimated time to process the collected data. The duration of the data collection and subsequent processing depends on the server hardware, the server activity, and the amount of PRM data in the database.

**TABLE C-6** Server Examples: Number of Agents under Management

| Architecture | Number of Agents | Total Number of PRM Properties | PRM Configuration Type | Hourly Data Collection | Nightly Processing |
|--------------|------------------|--------------------------------|------------------------|------------------------|--------------------|
| Small        | 100              | 30,000                         | Small                  | 2 minutes              | 1 to 2 hours       |
| Medium       | 300              | 90,000                         | Medium                 | 7 minutes              | 3 to 4 hours       |
| Large        | 600              | 180,000                        | Large                  | 7 minutes              | 3 to 6 hours       |
| Extra large  | 750              | 225,000                        | Large                  | 6 minutes              | 3 to 6 hours       |

## Generating Performance Reporting Manager Reports

A wide range of reports can be generated by specifying different numbers of agents, numbers of data properties, and report durations such as 4 hours to 1 month.

Typical reports take a few seconds to several minutes to generate. The actual time required is affected by the following factors:

- The number of actual data points included in the report

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**Note** – Reports are limited to a maximum of 10,000 data points per report.

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- Amount of performance reporting manager data in the database
- Server performance and activity
- Concurrent generation of other performance reporting manager reports

For example, on a medium Sun Management Center server configured with the performance reporting manager add-on, a relatively simple report that includes 5 properties for 1 agent over the last 24 hours can be generated in about 20 seconds. Conversely, a more substantial report that includes 5 properties for 5 agents over the last 7 days can take around 10 minutes to generate.

---

**Note** – A medium Sun Management Center server with the performance reporting manager add-on is assumed to be an Ultra-80 with two 450MHz UltraSPARC II CPUs, 1 GB RAM, and 1 GB swap. It is also assumed that the Ultra-80 is monitoring 300 agents and collecting 300 data properties per agent for the performance reporting manager.

---

## Scheduling Performance Reporting Manager Reports

If a report takes more than 30 minutes to generate, it is recommended that you schedule the report to run between 4:00 AM and 8:00 AM. Scheduling large reports to run after 4:00 AM reduces the load on the Sun Management Center server during normal business hours, and also can reduce the chance of conflicts with the nightly Sun Management Center and performance reporting manager tasks that typically occur between 12:00 AM and 4:00 AM.

## Performance Considerations

Major factors that affect the server layer performance include:

- Simultaneous startup of Sun Management Center components
- Topology group configuration
- Management activity
- Number of console users

## Simultaneous Startup of Sun Management Center Components

**Simultaneous startup** of the server layer and many agents can adversely affect server layer performance. The initialization of a server layer managing hundreds of agents can result in slow console response and the temporary inability to access some agents.

## Topology Group Configuration

The number of topology groups in a Sun Management Center server context should not exceed the following:

- Small servers - 25 topology groups
- Medium servers - 50 topology groups
- Large servers - 75 topology groups
- Extra-large servers - 100 topology groups

The maximum number of immediate child objects in a topology group is 256. For optimal performance, the number of child objects in a group should not exceed 100.

If you install the Performance Reporting Manager add-on, each topology domain should contain less than 200 Sun Management Center agents to ensure optimal collection of Performance Reporting Manager data.

## Management Activity

Sun Management Center server activity depends on the following factors:

- The number of operations initiated by users
- The stability and activity of the host systems under management
- The number of management modules loaded by the host systems
- The specification of alarm thresholds and rule parameters for properties under management

The last two factors greatly influence the tendency of the managed nodes to generate management activity in the form of event processing.

As a result, high management activity can occur with no add-ons if alarm thresholds are poorly configured. Conversely, low management activity can occur with many add-ons if the managed systems are stable and the alarm thresholds are reasonable.

## Number of Console Users

Increasing the number of concurrent Sun Management Center console user sessions incurs a modest increase in load on the server layer. The sizing estimates assume 5 active users for a small configuration, 10 users for a medium configuration, and 15 users for a large and extra-large configuration. The sizing estimates assume the users are performing activities such as browsing managed property data and events and editing property attributes.

Some user-initiated actions might temporarily affect the performance of the server layer for the duration of the operation.

- **Large group operations** that are targeted at 100 or more agents can consume significant server resources. These operations can further affect server performance if the changes generate alarms on the managed agents. These alarms produce additional management activity in the form of event processing.
- **Network discovery operations** involving the addition of many new entities for the server to manage can incur noticeable load on the server layer host during the discovery process.
- **Topology data import operations** involving the addition of many new entities to manage can result in slower response from the server layer while the entities are being added.



The effect of these user-initiated actions can be minimized by not executing these operations concurrently, by breaking up large operations, and, when possible, by performing or scheduling the operations during off-peak hours.

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## Java Console Layer Resources

For the best performance, the Sun Management Center console should be run from a host other than the server layer host. The console can be readily installed on any host and used to connect to the server layer remotely. The recommended server layer configurations assume that the host system is dedicated to running server layer applications only. Running other applications such as the Sun Management Center console on the server layer host should be avoided unless the server host has been sized generously to support the additional requirements.

The Sun Management Center console is based on the Java technology. The console is supported on SPARC platform systems running the Solaris 2.6, Solaris 7, Solaris 8, or Solaris 9 operating environment. The console is also supported on Intel systems running Microsoft Windows 2000, Windows NT 4.0 with Service Pack 3 or 4, or Microsoft Windows 98.

---

## Sun Fire Proxy/Platform Agent Resources

Sun Fire platform agents require a different installation procedure than standard Sun Management Center agents. Sun Fire platforms contain a number of domains, each domain with its own hardware allocation. Each domain runs a separate Solaris operating environment instance. Each of the Sun Fire domains runs a domain agent.

The Sun Fire platform as a whole consists of all the hardware in the platform allocated to the domains. The platform is controlled by a System Controller (SC) board within the platform.

To manage Sun Fire servers, Sun Management Center software uses Sun Fire platform agents that interact with the Sun Fire server system controller and Sun Fire domain agents. The platform agents must be deployed on a Solaris host external to the Sun Fire chassis that the agents are to monitor. Multiple platform agents can be deployed on a single host system to manage multiple Sun Fire servers, provided that the platform agent host system has been sized accordingly.

On average, each platform agent consumes 5% to 9% CPU and 15 to 18 Mbytes of memory. The CPU and memory consumption of platform agents deployed on the same host system are additive and can be used to gauge hardware requirements. The disk space requirements for multiple platform agent instances are minimally more than that for a single platform agent instance because the agents share the same software packages.

In general, the CPU and memory resource requirements of a platform agent are proportional to the size and complexity of the Sun Fire server configuration being managed. Sun Fire systems with larger configurations require more platform agent resources on the platform agent host.

## System Requirements

You can install platform agents on either:

- A Sun Management Center server layer host
- A Sun Management Center dedicated platform agent host

The number of platform agents that can be installed on a given host varies depending on whether that host is a Sun Management Center server layer or platform agent layer host. To maximize the overall performance and responsiveness of Sun Management Center, platform agents should be deployed on dedicated hosts instead of the server layer host. If the server layer is deployed on a multiple CPU system with excess capacity, you can consider running platform agents on a server layer host.

The following figure shows the architecture for a dedicated platform agent host deployment, and a server layer host deployment.

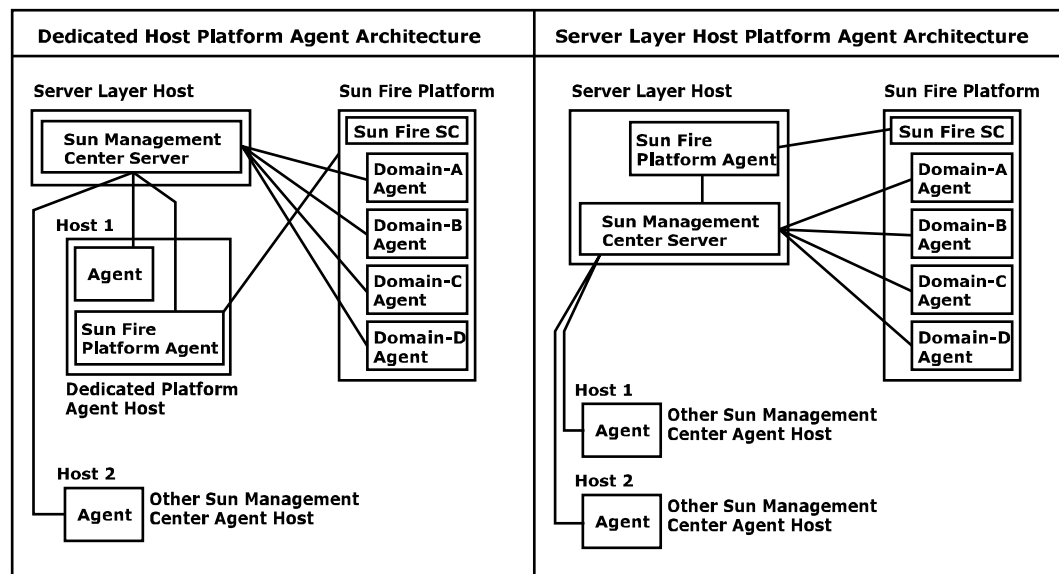


FIGURE C-2 Platform Agent Architecture

## Startup of Multiple Platform Agents

Sun Fire platform agents refresh their management information hourly by default. When multiple platform agents are deployed on the same host and are initialized at the same time, the agents tend to perform their data refreshes in quick succession. If too many platform agents attempt to refresh their data concurrently, the overall responsiveness of the host system can be adversely affected.

To reduce the likelihood of concurrent operations by multiple platform agents on the same host, do not start all of the platform agents at the same time.

## Deploying Sun Fire Platform Agents on a Dedicated Host

The following table lists typical hardware configurations and the corresponding number of platform agents that can be deployed on the dedicated host system.

TABLE C-7 Dedicated Host: Sun Fire Platform Agent Capacity

| Representative Hardware Configurations                                                                           | Maximum Number of Platform Agents |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Netra X1, Netra T1 or Sun Blade 100 with a single 500 MHz UltraSPARC IIe CPU, 1 Gbyte of RAM and 1 Gbyte of swap | 5 to 7                            |

**TABLE C-7** Dedicated Host: Sun Fire Platform Agent Capacity (Continued)

| Representative Hardware Configurations                                                                                | Maximum Number of Platform Agents |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Sun Enterprise 420R or Ultra 60 with dual 450 MHz UltraSPARC II CPUs, 1 Gbyte of RAM, and 1 Gbyte of swap             | 11 to 15                          |
| Sun Fire 280R, Netra T4, or Sun Blade 1000 with dual 750 MHz UltraSPARC III CPUs, 1 Gbyte of RAM, and 1 Gbyte of swap | 14 to 20                          |

Because platform agent resource use can vary, the limits shown in the table represent a range of acceptable values that leave sufficient capacity to ensure that operational peaks do not exhaust system capacity. Larger Sun Fire platforms require greater platform agent resources, with the result that fewer platform agents can be run on a single host. Conversely, smaller Sun Fire platforms require fewer platform agent resources, so more platform agents can be run on a single host.

## Deploying Sun Fire Platform Agents on a Server Layer Host

The hardware sizing requirements of a host system running the Sun Management Center server layer are a function of the number of platform agents managed by the server layer and the management activity in the system.

Only large multiple-CPU systems should be considered for running both the Sun Management Center server layer and Sun Fire platform agents. The deployment of platform agents on a server layer host with limited capacity can adversely affect the overall performance of Sun Management Center.

Assuming a moderate level of management activity of fewer than 1000 events per host per day, the maximum number of platform agents that can be deployed on a Sun Management Center server layer host is the function of the number of agents under management and the machine class. The following table lists typical system capacity.

**TABLE C-8** Server Layer Host: Sun Fire Platform Agent Capacity

| Number of Agents Under Management | Maximum Number of Platform Agents |               |
|-----------------------------------|-----------------------------------|---------------|
|                                   | Sun Enterprise 420R               | Sun Fire 280R |
| 100                               | 6                                 | 7             |
| 300                               | 5                                 | 7             |
| 500                               | 4                                 | 6             |
| 750                               | NA                                | 6             |

*Sun Enterprise 420R* denotes an Enterprise 420R or Ultra 60 system with a dual 450 MHz UltraSPARC-II server layer host, with 1 Gbyte of RAM and 1 Gbyte of swap.

*Sun Fire 280R* denotes a Sun Fire 280R, a Sun Blade 1000, or a Netra T4 system with a dual 750 MHz UltraSPARC III server host with 1 Gbyte of RAM and 1 Gbyte of swap.

For Sun Fire Sun Management Center installation procedures, see *Sun Management Center 3.5 Software Supplement for Sun Fire 6800/4810/4800/3800 Systems*.



# Network Address Translation

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This appendix describes the issues related to using Sun Management Center 3.5 in a NAT environment, and outlines the factors that affect the overall approach to a Sun Management Center NAT solution.

This chapter discusses the following topics.

- “NAT Concepts” on page 239
- “Complexity of the NAT Solution” on page 241
- “NAT Configuration” on page 242
- “NAT Solution” on page 243
- “NAT Limitations” on page 243
- “NAT Examples” on page 244

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## NAT Concepts

Network Address Translation (NAT) enables servers, hosts, and consoles on different networks to communicate with each other across a common internal network. A NAT solution maps the private local address realm to a public address realm. These mappings can be static or dynamic.

NAT is becoming increasingly prevalent in Sun Management Center client environments. By using NAT, clients can make more efficient use of network addresses and, in some cases, provide secure access to external networks from sensitive internal environments.

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**Note** – The term *Sun Management Center NAT host* refers to any host that is running a Sun Management Center component (agent, server, or console) and that must communicate with other Sun Management Center components across a NAT environment.

---

## Use of IP Addresses With NAT

Sun Management Center 3.5 assumes that the IP address and port of a managed node can be used to uniquely identify and access the managed node within a server context. Furthermore, the software assumes that the local IP address and port of a managed node are authoritative.

As a result of these assumptions, Sun Management Center makes extensive use of IP addresses in both its core operation and its management functionality. Specifically, network addresses are used in the following areas:

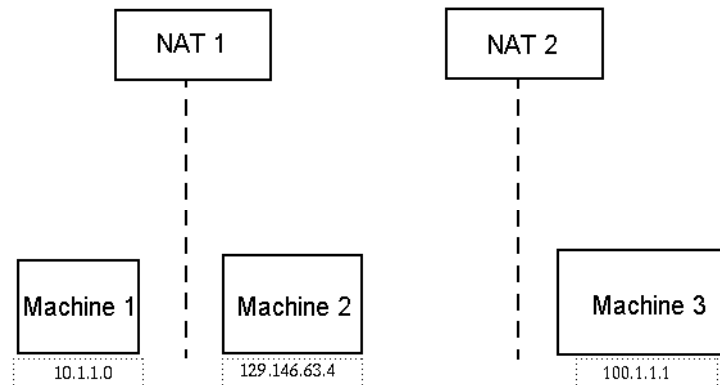
- Communication (SNMP, RMI, Probe, MCP HTTP, ICMP)
- Network entity discovery
- Event management
- Identifying server contexts
- Identifying managed nodes, objects, and properties using SNMP URLs
- Managing property contents, for example, the MIB-II module
- Managed property table indices, for example, the MIB-II interfaces table
- Generating localized USEC keys
- Various console browsers and displays

In environments where Sun Management Center components operate across one or more NAT environments, the assumptions regarding the uniqueness and accessibility of the local IP addresses and ports of managed nodes break down. Furthermore, because administrators might be more familiar with the node's public IP address, the use of local IP addresses to identify managed nodes in a NAT environment might no longer be intuitive.

## How NAT Works

The following figure illustrates how NAT works.





**FIGURE D-1** Simple NAT Network Conceptual Diagram

The private subnet 10.1.1.0 has one machine called Machine 1 that runs behind NAT 1, which uses 129.146.63.100, a translated IP address, for all communication from Machine 1 to hosts outside NAT 1. Communication from hosts outside NAT 1 to Machine 1 (129.146.63.100) are redirected to Machine 1 (10.1.1.1) by NAT 1.

A second private subnet (100.1.1.1) has one machine Machine 3 (100.1.1.1) and runs behind NAT 2, which uses 129.146.63.101 (a translated IP) for communication from Machine 3 to hosts outside NAT 2. Communication from hosts outside NAT 2 to Machine 3 (129.146.63.101) is redirected to 100.1.1.1 by NAT 2.

---

## Complexity of the NAT Solution

The extensive use of IP addresses in Sun Management Center complicates deployment in environments that involve simple address or proxy translations. The addresses appear at the driver, library, application, and console integration levels. The solution is further complicated by the types of communication that occur in Sun Management Center.

This software is a distributed application with the following layers:

- Console
- Multicomponent server
- Multicomponent agent

The software layers can reside on a different host or on different networks that could be subject to routing rules or NAT.

Furthermore, the console, server, or agent components of one Sun Management Center system can potentially communicate with components of another Sun Management Center system on another network. These aspects add to the complexity of the solution.

NAT enables Sun Management Center 3.5 to operate in a network environment where the consoles, servers, and agents are deployed in one or more network addressing realms. As a result, the consoles, servers, and agents must communicate across one or more NAT environments.

The functionality also supports cross-server context operation such as remote reference domains across NAT environments. With NAT, Sun Management Center components can also communicate with other Sun Management Center components in the same addressing realm. Without NAT, Sun Management Center consoles, servers and agents cannot operate across NAT environments.

---

## NAT Configuration

Static NAT mappings must be defined for every Sun Management Center NAT host.

---

**Note** – Dynamic NAT mappings are not supported for Sun Management Center 3.5 operation across the NAT.

---

Because several undefined ports are used by Sun Management Center, Sun Management Center does not support the ability to specify port restrictions for Sun Management Center NAT support. These ports include SNMP, probe, RMI, and console integration.

To support operation in a NAT environment, NAT enables Sun Management Center 3.5 software to use names rather than IP addresses to identify and communicate with other Sun Management Center hosts. The name must be a host alias that can be resolved to a valid IP address through standard naming services. This name also must be resolvable to the appropriate IP address in the relevant addressing realms in which the Sun Management Center components are deployed.

Thus, common host aliases for all Sun Management Center NAT hosts must be defined in the host maps of all addressing realms in which Sun Management Center components are installed.

The host aliases must be defined in the standard system host maps that can include such things as the files, for example, `/etc/hosts`, NIS, NIS+, and DNS. For the remainder of this chapter, the common host alias is referred to as the NAT host name.

---

## NAT Solution

The Sun Management Center NAT solution is focused on self-consistency to avoid complex or error-prone translation mechanisms. This solution addresses the fundamental assumption regarding the use of IP addresses in the software.

Sun Management Center 3.5 uses logical identifiers, rather than IP addresses, to uniquely identify and access the nodes managed by the software in NAT environments. The identifiers can be the fully qualified host name of a managed node. This method enables Sun Management Center 3.5 to leverage the existing host name-to-IP address mapping infrastructure in IP-based systems.

In environments where the use of fully qualified host names are not appropriate or feasible, any logical name that is unique and resolvable from the agent and server layer addressing realm can be used. In non-NAT environments, the logical identifiers can default to IP addresses for backward compatibility.

This solution requires that the logical identifier must be unique within a server context. The logical identifiers must be resolvable to valid IP addresses that can be used to access the managed node across a NAT environment. You should be able to use the logical identifiers to intuitively identify managed nodes.

When using the Sun Management Center 3.5 NAT solution, note the following information:

- Static NAT mappings must be specified for all Sun Management Center NAT hosts.
- Host map entries must be specified for all NAT hosts in all the network addressing realms in which Sun Management Center components are deployed.
- Routing table-based discovery using more than one hop is not supported across NAT environments.
- A console deployed behind a NAT does not work with a server outside the NAT.

---

## NAT Limitations

The following NAT limitations exist:

- The IP address should be unique for Sun Management Center servers and Sun Management Center agent hosts.
- The host name should be unique to Sun Management Center hosts. If the host name is not unique, you will have flexibility to choose the host alias during the software setup.

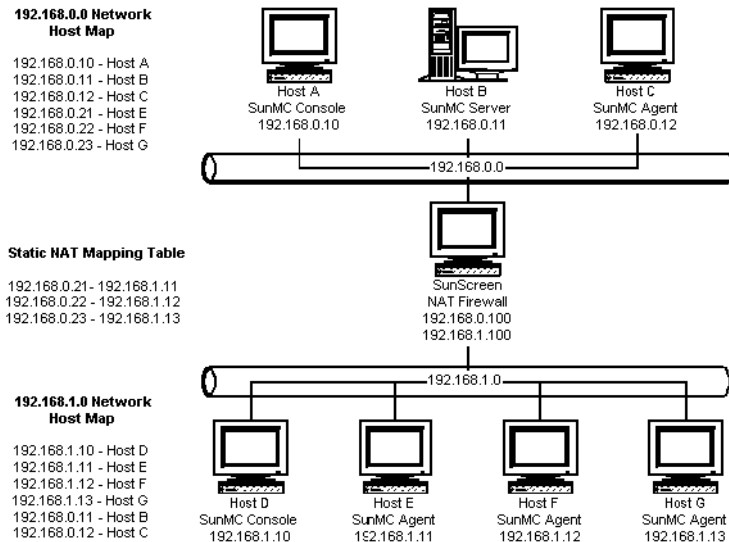
- If Sun Management Center server is set up using NAT, the host name or host alias must not contain dashes. For example, do not use `server-one` for the name of a Sun Management Center server if the server is set up using NAT.
- Running the console on hosts behind NAT and running the server outside of NAT is not supported.

## NAT Examples

This section provides examples of a single NAT environment and a dual NAT environment.

### Single NAT Environment

The basic NAT example involves a single NAT environment where a single server context is deployed on both sides of the NAT.



**FIGURE D-2** Simple NAT Network Configuration Example

The figure shows the console, a server layer, and an agent deployed in the 192.168.0.0 network. A console and three agents are deployed in the 192.168.1.0 network behind the NAT. All of the agents, including the remote agents, are part of the server context managed by the server layer on Host B.

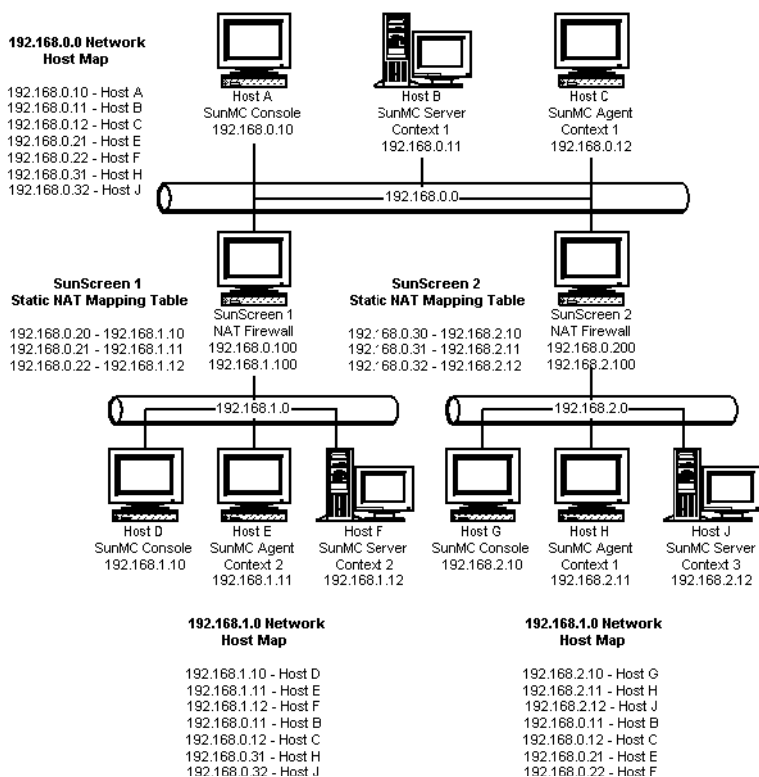
Sun Management Center assumes that these components are configured to operate in the host name logical addressing mode. Therefore, all agents are configured with Host B as their trap and event destinations.

To support this configuration, the network host and NAT maps listed in Figure D-2 must be complete. The three remote agents on Hosts E, F, and G are accessible from the 192.168.0.0 network using static NAT mappings. Furthermore, the logical identifiers of Hosts E, F and G must also be resolvable to valid IP addresses in the 192.168.0.0 network. This step is accomplished through the host mappings for Hosts E, F, and G in the 192.168.0.0 network.

To allow the remote agents to name Host B as their trap and event destinations, a host map entry for Host B is specified in the 192.168.1.0 network host map.

## Dual NAT Environment

The following figure illustrates a more complex example. The figure shows a dual NAT environment with three Sun Management Center server contexts with remote reference domains.



**FIGURE D-3** Complex NAT Network Configuration Example

In the figure, the 192.168.0.0 network is in front of the NAT environments, while the 192.168.1.0 and 192.168.2.0 networks are behind the NAT environments. SunScreen 1 provides the 192.168.0.0 network with access to hosts on the 192.168.1.0 network. SunScreen 2 provides the 192.168.0.0 network with access to hosts in the 192.168.2.0 network. Static NAT mappings are assumed.

Host maps in the three addressing realms provide host name resolution for all hosts on which Sun Management Center server and agent components are deployed. All Sun Management Center components are assumed to have been configured with the host name logical addressing mode.

---

## Sun Management Center 3.5 Packages

---

This appendix provides a list of the Sun Management Center packages and descriptions.

| <b>Package Name</b> | <b>Description</b>                                                                 |
|---------------------|------------------------------------------------------------------------------------|
| SUNWcedh            | Simplified Chinese Localization for Hardware Diagnostic Suite Help and Image files |
| SUNWcedp            | Simplified Chinese Localization for Hardware Diagnostic Suite properties files     |
| SUNWed              | Hardware Diagnostic Suite Server and UI                                            |
| SUNWedcom           | Hardware Diagnostic Suite common components among server and agent installations   |
| SUNWenadm           | Sun Management Center Advanced Monitoring message files package                    |
| SUNWenedh           | Hardware Diagnostic Suite Help and Image files                                     |
| SUNWenedp           | English Localization for Hardware Diagnostic Suite Server and UI                   |
| SUNWesamn           | Sun Management Center Advanced Monitoring Pack Modules                             |
| SUNWescam           | Sun Management Center Advanced Monitoring add-on console component                 |
| SUNWessmn           | Sun Management Center Advanced Server Monitoring add-on                            |
| SUNWfredh           | French Localization for Hardware Diagnostic Suite Help and Image files             |
| SUNWfredp           | French Localization for Hardware Diagnostic Suite properties files                 |
| SUNWhdrmi           | Hardware Diagnostic Suite Server and UI                                            |

| <b>Package Name</b> | <b>Description</b>                                                                            |
|---------------------|-----------------------------------------------------------------------------------------------|
| SUNWhedh            | Traditional Chinese Localization for Hardware Diagnostic Suite Help and Image files           |
| SUNWhedp            | Traditional Chinese Localization for Hardware Diagnostic Suite properties files               |
| SUNWjaedh           | Japanese Localization for Hardware Diagnostic Suite Help and Image files                      |
| SUNWjaedp           | Japanese Localization for Hardware Diagnostic Suite properties files                          |
| SUNWkoedh           | Korean Localization for Hardware Diagnostic Suite Help and Image files                        |
| SUNWkoedp           | Korean Localization for Hardware Diagnostic Suite properties files                            |
| SUNWedag            | Hardware Diagnostic Suite Agent and Tests                                                     |
| SUNWespro           | Sun Management Center Process Module for advanced monitoring pack                             |
| SUNWedagx           | 64-bit Hardware Diagnostic Suite Agent and Tests                                              |
| SUNWesip6           | This package provides IPV6 modules for advanced monitoring pack                               |
| SUNWeswsi           | Sun Management Center Ultra Workstation Initialization                                        |
| SUNWeswss           | Sun Management Center Server Images For Ultra Workstations                                    |
| SUNWeswsa           | Sun Management Center Configd Agent For Ultra Workstations                                    |
| SUNWescs            | Service Availability Manager console layer support for Sun Management Center Console          |
| SUNWeshes           | Service Availability Manager Help package for Sun Management Center                           |
| SUNWessam           | Service Availability Manager add-on for Sun Management Center                                 |
| SUNWesses           | Service Availability Manager server-side interface component for Sun Management Center Server |
| SUNWesaes           | Service Availability Manager add-on for Sun Management Center agent                           |
| SUNWesnti           | Sun Management Center Netra t Installation Scripts                                            |
| SUNWesnts           | Sun Management Center Server Images For Netra t Platforms                                     |
| SUNWesnta           | Sun Management Center Configd Agent For Netra t Platforms                                     |
| SUNWesarg           | Sun Management Center Performance Reporting Manager add-on agent package                      |
| SUNWescrg           | Sun Management Center Performance Reporting Manager console layer support package             |



| <b>Package Name</b> | <b>Description</b>                                                                               |
|---------------------|--------------------------------------------------------------------------------------------------|
| SUNWeshrg           | Sun Management Center Performance Reporting Manager help package                                 |
| SUNWeslrg           | Sun Management Center Performance Reporting Manager Service API (Client side) package            |
| SUNWesprm           | Sun Management Center Performance Reporting Manager addon                                        |
| SUNWessrg           | Sun Management Center Performance Reporting Manager server layer support package                 |
| SUNWesdr            | Sun Management Center Performance Reporting Manager database package                             |
| SUNWensda           | Sun Management Center -- Sun Fire 6800-3800 Domain Agent English Messages                        |
| SUNWessco           | Sun Management Center Sun Fire 6800-3800 Support - Server component for Domain Admin Module      |
| SUNWesssd           | Sun Management Center Server server-side files for Sun Fire 6800-3800 Domain                     |
| SUNWedacs           | Sun Management Center -- Sun Fire 6800-3800 Domain Admin module Setup for Server and Agent       |
| SUNWessda           | Sun Management Center -- Sun Fire 6800-3800 Domain Agent                                         |
| SUNWensdr           | Sun Management Center -- Sun Fire 15K-3800 Dynamic Reconfiguration English Messages              |
| SUNWesscd           | Sun Management Center Sun Fire 15K-3800 Support - Console component for Dynamic Reconfiguration  |
| SUNWescdf           | Sun Management Center console support for Dynamic Reconfiguration on Sun Fire 15K-3800 platforms |
| SUNWessdf           | Sun Management Center server support for Dynamic Reconfiguration on Sun Fire 15K-3800 platforms  |
| SUNWesadf           | Sun Management Center agent support for Dynamic Reconfiguration on Sun Fire 15K-3800 platforms   |
| SUNWenspa           | Sun Management Center -- Sun Fire Platform Agent English Messages                                |
| SUNWesscp           | Sun Management Center Sun Fire 6800-3800 Support - Console component for Platform Admin Module   |
| SUNWespsc           | Sun Management Center Sun Fire 6800-3800 Support - Server component for Platform Admin Module    |
| SUNWesspc           | Sun Management Center Console Sun Fire Platform Administration                                   |

| <b>Package Name</b> | <b>Description</b>                                                                            |
|---------------------|-----------------------------------------------------------------------------------------------|
| SUNWessps           | SunMC Server Support Package For Sun Fire Platform Administration                             |
| SUNWesspa           | Sun Management Center -- Sun Fire Platform Agent functionality for Sun Fire 6800-3800 Systems |
| SUNWensfi           | Sun Management Center Starfire English Message Support                                        |
| SUNWessfd           | Sun Management Center Starfire Domain Agent Support                                           |
| SUNWessfg           | Sun Management Center Starfire Domain Common Support                                          |
| SUNWessfp           | Sun Management Center Starfire SSP Agent Support                                              |
| SUNWessfs           | Sun Management Center Starfire Server Support                                                 |
| SUNWenstm           | Sun Management Center - Storage Modules message files package                                 |
| SUNWesstg           | Sun Management Center Storage Modules GUI Setup                                               |
| SUNWessts           | SunMC Server Support Package For Storage Modules                                              |
| SUNWessta           | SunMC Agent Support Package For Storage Modules                                               |
| SUNWesscs           | Sun Management Center Sun Fire 15K/12K Server Support                                         |
| SUNWscscs           | Sun Management Center Sun Fire 15K/12K System Controller Server Support                       |
| SUNWensca           | Sun Management Center Sun Fire 15K/12K English Message Files                                  |
| SUNWesscd           | Sun Management Center Sun Fire 15K/12K Domain Agent Support                                   |
| SUNWesscg           | Sun Management Center Sun Fire 15K/12K Common Support                                         |
| SUNWesscp           | Sun Management Center Sun Fire 15K/12K Platform Agent Support                                 |
| SUNWscsca           | Sun Management Center Sun Fire 15K/12K System Controller Agent Support                        |
| SUNWensfl           | Sun MC Fire Link english Message Files                                                        |
| SUNWeswci           | Sun MC Fire Link Manager Console component                                                    |
| SUNWswsrv           | Sun MC Fire Link Server component                                                             |
| SUNWwhelp           | Sun MC Fire Link Help component                                                               |
| SUNWeswcx           | Sun MC agent for the Fire Link Switch Chassis manager                                         |
| SUNWeswfm           | Sun MC Fire Link Manager Agent Module                                                         |
| SUNWrsmpr           | Sun Fire Link Remote Shared Memory Proxy Root Package                                         |
| SUNWrsmptu          | Sun Fire Link Remote Shared Memory Proxy User Package                                         |
| SUNWsfcm            | Sun MC Fire Link Common Package                                                               |

| <b>Package Name</b> | <b>Description</b>                                                                                                  |
|---------------------|---------------------------------------------------------------------------------------------------------------------|
| SUNWswrsm           | Sun MC Fire Link WRSM Agent Module                                                                                  |
| SUNWwccmn           | Sun Fire Link Interface Common Files                                                                                |
| SUNWwcfmr           | Sun Fire Link Manager Root Package                                                                                  |
| SUNWwcfms           | Sun Fire Link Fabric Manager Shared Files                                                                           |
| SUNWwcfmu           | Sun Fire Link Manager User Package                                                                                  |
| SUNWessdr           | Sun Management Center Sun Enterprise (6500/5500/4500) DR server properties                                          |
| SUNWesadr           | Sun Management Center Sun Enterprise (6500/5500/4500) DR module                                                     |
| SUNWensfc           | Sun Management Center English messages for Sun Enterprise (6500/5500/4500/3500) Config Reader                       |
| SUNWesmcf           | Sun Management Center MetaData Config Reader                                                                        |
| SUNWsyscfd          | Sun Enterprise 3000-6500 Servers/sun4d SunMC Agent Config Reader module. Provides the infrastructure to run configd |
| SUNWesasm           | Sun Management Center System Reliability Manager Modules                                                            |
| SUNWeshsm           | Sun Management Center System Reliability Manager Help                                                               |
| SUNWessrm           | Sun Management Center System Reliability Manager message files package                                              |
| SUNWesssm           | Sun Management Center System Reliability Manager - Server layer support                                             |
| SUNWencam           | Sun Management Center - Unicenter TNG Integration message files package                                             |
| SUNWescaa           | Sun Management Center - Unicenter TNG Integration event adaptor package                                             |
| SUNWescad           | Sun Management Center - Unicenter TNG Integration DSM package                                                       |
| SUNWescah           | Sun Management Center - Unicenter TNG Integration hostDetailBean package                                            |
| SUNWescas           | Sun Management Center - Unicenter TNG Integration world view package                                                |
| SUNWescap           | Sun Management Center - Supporting package for Unicenter TNG Integration event adaptor package                      |
| SUNWentia           | Sun Management Center - Tivoli Integration message files package                                                    |
| SUNWestia           | Sun Management Center - Tivoli TEC integration                                                                      |
| SUNWeswgi           | Sun Management Center Workgroup Server Initialization                                                               |

| <b>Package Name</b> | <b>Description</b>                                                                                                   |
|---------------------|----------------------------------------------------------------------------------------------------------------------|
| SUNWeswgs           | Sun Management Center Server Layer support for Workgroup Servers                                                     |
| SUNWeswga           | Sun Management Center Workgroup Server Agent Support libraries                                                       |
| SUNWeswha           | Sun Management Center Workgroup Server Agent Support libraries                                                       |
| SUNWeswhd           | Sun Management Center Workgroup Server Agent Support (V880 Specific) libraries                                       |
| SUNWenesf           | Sun Management Center Console and server properties                                                                  |
| SUNWenesh           | Sun Management Center SES HTML Help                                                                                  |
| SUNWenesi           | Sun Management Center script localization messages                                                                   |
| SUNWesae            | Sun Management Center Agent System Files                                                                             |
| SUNWesagt           | Sun Management Center Agent                                                                                          |
| SUNWesasc           | Sun Management Center Advanced Services Console                                                                      |
| SUNWesaxp           | Java API for XML Processing (JAXP) v1.1.3                                                                            |
| SUNWescdv           | Sun Management Center Console Dataview                                                                               |
| SUNWescix           | Sun Management Center console-side Import/Export                                                                     |
| SUNWescli           | Sun Management Center SES Command Line Interface                                                                     |
| SUNWesclt           | Sun Management Center Client API                                                                                     |
| SUNWescon           | Sun Management Center SES Console                                                                                    |
| SUNWesgui           | Sun Management Center GUI Installation                                                                               |
| SUNWesjp            | Sun Management Center Additional Components. Contains all the dependent Java components that are required to run SES |
| SUNWesjrm           | Sun Management Center Client API support classes                                                                     |
| SUNWesmc            | Sun Management Center MCP Console                                                                                    |
| SUNWesmdr           | Sun Management Center MDR for Basic Pack                                                                             |
| SUNWesmod           | Sun Management Center Agent Modules that are optional for SES agent                                                  |
| SUNWessdk           | SDK components for all Sun Management Center installations                                                           |
| SUNWessdv           | Sun Management Center Advanced Services Server side interface component for Dataview Services                        |
| SUNWesse            | Sun Management Center Server System Files for SES server                                                             |
| SUNWessms           | Sun Management Center MCP Services                                                                                   |

| <b>Package Name</b> | <b>Description</b>                                                            |
|---------------------|-------------------------------------------------------------------------------|
| SUNWessrv           | Sun Management Center SES Server component                                    |
| SUNWessvc           | Sun Management Center Advanced Services server side interface component       |
| SUNWesval           | Sun Management Center Validation Tool Components                              |
| SUNWesweb           | Sun Management Center Web Console                                             |
| SUNWmeta            | Sun Management Center SES Metadata Agent                                      |
| SUNWsuagt           | Sun Management Center Dynamic Agent-Update Agent Components and support files |
| SUNWsucon           | Sun Management Center Dynamic Agent Update Console Components                 |
| SUNWsusrv           | Sun Management Center Dynamic Agent Update Server Components                  |
| SUNWescom           | Sun Management Center Common Components for SES installations                 |
| SUNWesken           | Sun Management Center Kernel Reader Module for SES installations              |
| SUNWesmcp           | Sun Management Center Module Configuration Propagation                        |
| SUNWesmib           | Sun Management Center Mib Instance Module for SES installations               |
| SUNWesaem           | Sun Management Center Event Module for Agent                                  |
| SUNWesdb            | Sun Management Center Database for running SES components                     |
| SUNWessa            | Sun Management Center SES Server/Agent                                        |
| SUNWtcatr           | Tomcat Servlet/JSP Container (root)                                           |
| SUNWtcatu           | Tomcat Servlet/JSP Container                                                  |
| SUNWesora           | Sun Management Center Database Management System                              |
| SUNWestbl           | Sun Management Center Database                                                |
| SUNWpsmd            | Sun Management Center 3.5 Software Collection - PDF                           |
| SUNWsdocs           | Documentation Navigation for Solaris 9                                        |
| SUNWsmd             | Sun Management Center 3.5 Software Collection - HTML                          |



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