



System Management Services (SMS) 1.6 Installation Guide

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Preface

This guide contains instructions for installing or upgrading to System Management Services (SMS) 1.6 software on a Sun Fire™ high-end system. In addition, this guide discusses the Solaris™ Security Toolkit and how it affects SMS installation, upgrading, and version switching. This guide is intended for the Sun Fire high-end system administrator who has a working knowledge of UNIX® systems and your Solaris™ Operating System.

Before You Read This Document

If you do not have a working knowledge of UNIX commands and procedures and your Solaris Operating System, read the Solaris OS user and system administrator documentation provided with your system hardware, and consider UNIX system administration training.

How This Document Is Organized

This guide contains the following information:

[Chapter 1](#) provides software requirements and general planning information about installing SMS 1.6.

[Chapter 2](#) discusses the Solaris Security Toolkit, and how it affects SMS during and after installation, upgrading, and version switching.

[Chapter 3](#) provides step-by-step instructions for installing or upgrading the SMS 1.6 software.

[Chapter 4](#) provides additional procedures that you might want to perform while using or updating the SMS 1.6 software, such as adding users to SMS.

[Chapter 5](#) describes how to configure SMS 1.6 software and install additional software packages on the domains of Sun Fire high-end systems.

[Glossary](#) is a list of acronyms and their definitions used in this document.

Using UNIX Commands

This document might not contain information about basic UNIX commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following documents for this information:

- Software documentation that you received with your system
- Solaris Operating System documentation, which is at:

<http://docs.sun.com>

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 | # |
| SMS superuser | sc: # |

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. % You have mail. |
| 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. Replace command-line variables with real names or values. | Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. To delete a file, type rm <i>filename</i> . |

* The settings on your browser might differ from these settings.

Related Documentation

The SMS documents are available at:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/High-End_Servers/Sun_Fire_e25K-e20K/SW_FW_Documentation/SMS/index.html

The other documents can be found by typing in the name of the document in Search at:

<http://www.sun.com/documentation/>

| Application | Title | Part Number | Format | Location |
|---------------------------|--|-------------|-------------|----------|
| Software overview | <i>Sun Fire High-End Systems Software Overview Guide</i> | 819-4658-10 | PDF HTML | Online |
| Administration | <i>System Management Services (SMS) 1.6 Administrator Guide</i> | 817-4660-10 | PDF HTML | Online |
| Reference (man pages) | <i>System Management Services (SMS) 1.6 Reference Manual</i> | 819-4662-10 | PDF HTML | Online |
| Release notes | <i>System Management Services (SMS) 1.6 Release Notes</i> | 819-4663-10 | PDF HTML | Online |
| Dynamic Reconfiguration | <i>Sun Fire High-End and Midrange Systems Dynamic Reconfiguration User Guide</i> | 819-1501-10 | PDF HTML | Online |
| OpenBoot | <i>OpenBoot 4.x Command Reference Manual</i> | 816-1177-10 | PDF HTML | Online |
| Site planning | <i>Sun Fire 15K/12K System Site Planning Guide</i> | 806-3510-12 | PDF HTML | Online |
| Security | <i>Solaris Security Toolkit 4.2 Administration Guide</i> | 819-1402-10 | PDF HTML | Online |
| Security | <i>Solaris Security Toolkit 4.2 Reference Manual</i> | 819-1503-10 | PDF HTML | Online |
| Security | <i>Solaris Security Toolkit 4.2 Release Notes</i> | 819-1504-10 | PDF HTML | Online |
| Security | <i>Solaris Security Toolkit 4.2 Man Page Guide</i> | 819-1505-10 | PDF HTML | Online |
| Solaris 10 OS IP services | <i>System Administration Guide: IP Services</i> | 816-4554 | PDF HTML | Online |

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Please include the title and part number of your document with your feedback:

System Management Services (SMS) 1.6 Installation Guide, part number 819-4659-10

Overview of SMS 1.6 Installation or Upgrade

This chapter provides background and planning information to prepare for installing the SMS 1.6 software:

- [“Types of Installations” on page 1](#)
- [“Valid Upgrade Paths” on page 3](#)
- [“Space Requirements” on page 6](#)
- [“Board Compatibility” on page 6](#)
- [“SC Software Requirements” on page 7](#)
- [“Conventions Used in Installation Examples” on page 9](#)

Note – All members of the Sun Fire server family can be configured as loosely coupled clusters. This document, however, does not address system management for clusters of Sun Fire high-end systems.

Types of Installations

SMS 1.6 arrives preinstalled on the system controllers (SCs) of Sun Fire high-end systems. You must manually install or upgrade to SMS 1.6 only when you:

- Make a fresh installation
- Restore previously installed versions of Solaris OS and SMS
- Upgrade to SMS 1.6

[FIGURE 1-1](#) illustrates the three types of SMS installations.

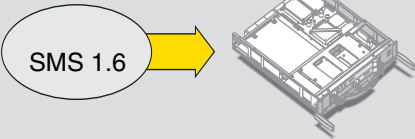
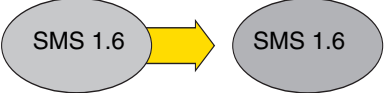
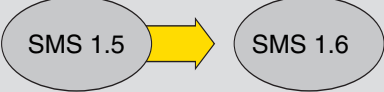
| | Instructions |
|--|--------------------|
| <p>Freshly Installing on an SC</p>  <p>If you do a fresh installation, you must install SMS using the <code>smsinstall</code> script.</p> | <p>See Page 15</p> |
| <p>Restoring Previously Installed Version of SMS on the Spare SC</p>  <p>If one SC fails, you need to install the previously installed version of SMS on the spare SC using the <code>smsinstall</code> script.</p> | <p>See Page 35</p> |
| <p>Upgrading to SMS 1.6</p>  <p>If you want to upgrade from an earlier version of SMS to SMS 1.6, you must upgrade using the <code>smsupgrade</code> script.</p> | <p>See Page 47</p> |

FIGURE 1-1 Reasons for Manually Installing SMS 1.6

SMS 1.6 is offered in the following packages:

- SMS 1.6 for the Solaris 9 Operating System
- SMS 1.6 for the Solaris 10 1/06 Operating System

Each set runs only the operating system for which it was designed. For instance, you cannot install the Solaris 9 packages of SMS 1.6 on a system controller that is running Solaris 10 software. If you do, you will receive a fatal error message, as described in the following section.

Fatal Error Messages



Caution – If you attempt to install an SMS 1.6 OS-specific package on an SC with a different OS, you will receive a fatal error, as described in this section.

Installing SMS 1.6 for Solaris 10 OS on SC With Solaris 9 OS

If you attempt to install SMS 1.6 for Solaris 10 OS on an SC that has Solaris 9 OS, you receive the following message.

```
Fatal error: One or more SMS packages are not installed.  
Log file is /var/sadm/system/logs/smsinstall. Exiting.
```

Reason: Attempting to install SMS1.6 for Solaris 10 OS (SMS1.6-S10) on an SC that has Solaris 9 OS running.

Action: Install the correct package, SMS1.6-S9, for the SC with Solaris 9 OS running.

Installing SMS 1.6 for Solaris 9 OS on SC With Solaris 10 OS

If you attempt to install SMS 1.6 for Solaris 9 OS on an SC that has Solaris 10 OS, you receive the following message.

```
Fatal error: Package SUNWscdvr does not support Solaris 5.10.  
Log file is /var/sadm/system/logs/smsinstall. Exiting.
```

Reason: Attempting to install SMS1.6 for Solaris 9 OS (SMS1.6-S9) on an SC that has Solaris 10 OS running.

Action: Install the correct package, SMS1.6-S10, for the SC with Solaris 10 OS running.

Valid Upgrade Paths

FIGURE 1-2 illustrates the valid SMS software upgrade paths on the SCs for the Solaris 8 OS, Solaris 9 OS, and Solaris 10 OS.

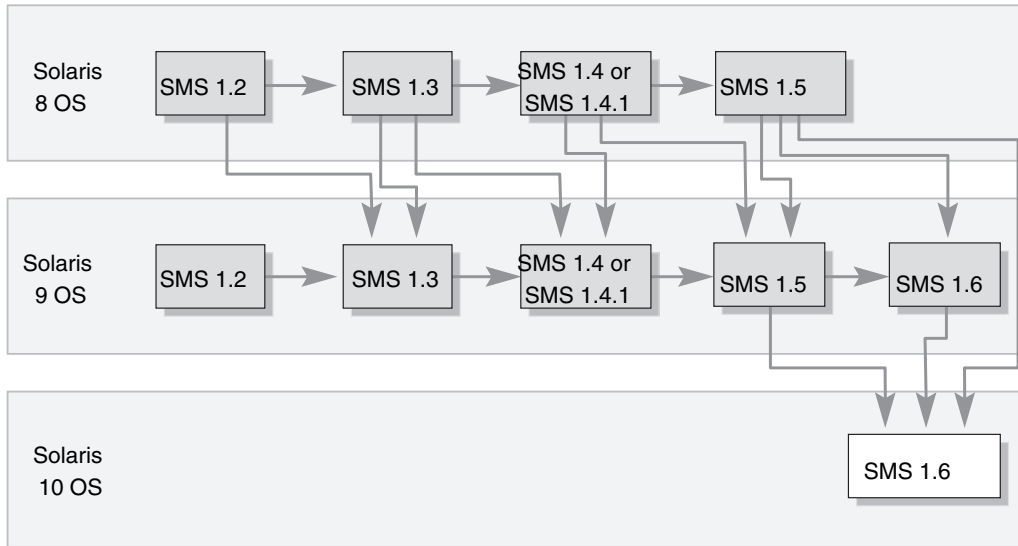


FIGURE 1-2 SMS Upgrade Paths



Caution – You can upgrade the Solaris OS from Solaris 8 OS to Solaris 10 OS or Solaris 9 OS to Solaris 10 OS before you upgrade SMS. If you do, you will receive an error until you upgrade SMS.

Note – SMS 1.1, SMS 1.2, SMS 1.3, and SMS 1.4 are no longer supported. Upgrade to SMS 1.5 or 1.6 as soon as possible. The only direct upgrade path to SMS 1.6 is from SMS 1.5. You must upgrade previous versions of SMS as shown in [FIGURE 1-2](#).

[TABLE 1-1](#) is a list of SMS versions and the corresponding package names by Solaris OS version.

TABLE 1-1 SMS Versions and Package Names by Solaris OS Version

| SMS Version | Solaris 8 OS Package Name | Solaris 9 OS Package Name | Solaris 10 OS Package Name |
|-------------|------------------------------|------------------------------|-------------------------------|
| SMS 1.2 | sms1.2_s8 | sms1.2_s9 | None |
| SMS 1.3 | sms1.3_s8 | sms1.3_s9 | None |
| SMS 1.4 | sms1.4_s8 | sms1.4_s9 | None |

TABLE 1-1 SMS Versions and Package Names by Solaris OS Version (*Continued*)

| SMS Version | Solaris 8 OS Package Name | Solaris 9 OS Package Name | Solaris 10 OS Package Name |
|-------------|---------------------------|---------------------------|----------------------------|
| SMS 1.4.1 | sms1.4.1_s8 | sms1.4.1_s9 | None |
| SMS 1.5 | sms1.5_s8 | sms1.5_s9 | None |
| SMS 1.6 | None | sms1.6_s9 | sms1.6_s10 |

Valid Paths for Version Switching

You can use the `smsversion` script to switch to any version of SMS that is still installed on your system, with these exceptions:

- Upgrade from SMS 1.4 to SMS 1.4.1 is permanent. Once you upgrade to SMS 1.4.1, you cannot return to SMS 1.4.
- If you upgrade from SMS 1.4 to SMS 1.4.1, SMS 1.5, and then to SMS 1.6, you cannot switch back to SMS 1.4 or 1.4.1, only to SMS 1.5.
- If you upgrade from SMS 1.5 to SMS 1.6, you can switch back to SMS 1.5.
- If you upgrade both SMS and the operating system, you cannot switch to the previous version of SMS unless you first reinstall the previous version of the operating system.
- If you switch from SMS 1.6 to SMS 1.5, you must manually undo the hardening on the SCs using the Solaris Security Toolkit, and then reharden and reboot.

This switching of SMS versions only applies if you have the same Solaris OS version running. The version switching does not apply if you have upgraded the Solaris OS version. Refer to previous versions of SMS Installation Guides for installation instructions prior to SMS 1.6.

Note – Hardening the SCs manually after upgrading to SMS 1.6 has security implications. See [“Switching SMS Versions” on page 92](#).

Space Requirements

The SMS packages require approximately 8 gigabytes (GB) of disk space on each system controller (SC) and domain. [TABLE 1-2](#) provides details by partition.

TABLE 1-2 SMS 1.6 Recommended Partition Sizes

| Partition | Size |
|-------------------------------|---------------------------------------|
| 0 / (root) | 8 GB |
| 1 /swap | 4 GB (2 GB and 4.5 GB also supported) |
| 4 OLDS/LVM database (metaadb) | 32 MB* |
| 5 OLDS/LVM database (metaadb) | 32 MB* |
| 7 /export/install | Remains free |

* SMS requires two disk partitions of at least 32 MB each, dedicated to storing the SC's state information (meta-device state) during failover.

Board Compatibility



Caution – SMS does not support mixed configurations of CP1500 and CP2140 boards on the SCs. You cannot use a CP1500 board on one SC and a CP2140 board on the other. Both SCs must use the same type of board.

SC Software Requirements

These are the *minimum* software requirements for SMS 1.6 on the system controllers. They vary by operating system.

Note – SMS 1.6 does not support Solaris 8 OS on the SCs.

Solaris 9 OS Requirements for SCs

As a minimum, the Solaris 9 OS version of SMS 1.6 requires:

- Solaris 9 4/04 OS release
- Same version of SMS software on both system controllers
- Installation of the Entire Distribution software group of the Solaris OS, including update version and installed patches, on both SCs. All patches are available at:

<http://sunsolve.sun.com>

- Patches:
 - 113027-03 patch
 - 111712-12 patch (for UltraSPARC® IV+ 1800 MHz only)

Solaris 10 OS Requirements for SCs

As a minimum, the Solaris 10 OS version of SMS 1.6 requires:

- Solaris 10 1/06 OS release
- Same version of SMS software on both system controllers
- Installation of the Entire Distribution software group of the Solaris OS, including update version and installed patches, on both SCs. All patches are available at:

<http://sunsolve.sun.com>

- Patches:
 - 121946-01 patch

Domain Software Requirements

These are the *minimum* software requirements for SMS 1.6 on domains. They vary by operating system.

Solaris 8 OS Requirements for Domains

As a minimum, the Solaris 8 OS requires:

- Solaris 8 2/02 OS release
- Patches:
 - 117002-01 patch
 - 110826-09 patch
 - 111335-18 patch

Solaris 9 OS Requirements for Domains

As a minimum, the Solaris 9 OS requires:

- Solaris 9 4/04 OS release.
- Patches:
 - 113027-03 patch
 - 112233-09 patch

Solaris 10 OS Requirements for Domains

As a minimum, the Solaris 10 OS requires:

- Solaris 10 3/05 (minimum for UltraSPARC III+, UltraSPARC III++, and UltraSPARC IV)
- Solaris 10 3/05 HW1 (minimum for UltraSPARC IV+ 1500 MHz and 1800 MHz only)

The Solaris 10 1/06 OS release is supported on the domains on all processors.

Conventions Used in Installation Examples

The examples in this installation guide use the following conventions to show the SC and domain user prompts.

| Prompt | Definition |
|---|---|
| <code>sc0:#</code> | Superuser on SC0, initially the main SC. |
| <code>sc1:#</code> | Superuser on SC1, initially the spare SC. |
| <code>domain_id.#</code> | Superuser on the domain. |
| <code>sc_name.sms-user.></code> | User prompt on the SC. <i>sc_name</i> is the <i>user-name</i> of an administrator, operator, configurator, or service personnel logged in to the SC. |
| <code>domain_id.domain-user.></code> | User prompts on the domain. <i>domain-user</i> is the <i>user-name</i> of the administrator, operator, configurator, or service personnel logged in to the domain. |

Security Considerations

For SMS 1.6, the Solaris Operating System is automatically hardened on the system controllers after a fresh installation. As a result, the system controllers are secure by default. This hardening takes effect after you install the SMS packages with the `smsinstall` script and reboot the system controllers.

If you are upgrading to SMS 1.6 from a previous version of SMS using the `smsupgrade` script, automatic hardening does not occur. You must manually harden the Solaris OS after the `smsupgrade` script completes.

This chapter discusses the security considerations for both types of SMS installations:

- [“Solaris Security Toolkit Software Requirements” on page 11](#)
- [“Security After Installation” on page 12](#)
- [“Security After Upgrade” on page 13](#)

[Chapter 3](#) outlines the procedures for each type of installation.

Solaris Security Toolkit Software Requirements

Solaris Security Toolkit 4.2 software works with either Solaris 9 OS or Solaris 10 OS. If you have an earlier version of the Solaris Security Toolkit, you must remove it. Otherwise, the installation and upgrade scripts terminate. Instructions are provided in [Chapter 3](#).

Security After Installation

Security measures vary according to the type of installation.

- Systems that ship from the factory with SMS 1.6 installed arrive with Solaris Security Toolkit 4.2 already installed and the operating system already hardened. You do not need to implement additional security measures.
- Systems that are upgraded to SMS 1.6 by Sun Support arrive with the Solaris Security Toolkit already installed, but might or might not be hardened. Contact Sun Support to find out whether or not your system will arrive hardened.
- If you install SMS 1.6 on new hardware by using the `smsinstall` command, Solaris Security Toolkit is installed on your system, and your system is hardened. You must reboot the system following the installation of SMS packages for the hardening to take effect. See Chapter 3 for instructions.
- If you upgrade from a major release of the Solaris OS to another major release (for example, from Solaris 9 OS to Solaris 10 OS), you must upgrade SMS. You can use the `smsupgrade` command to perform the reinstallation procedure, and the SCs are automatically hardened after a reboot.
- If you upgrade from a minor release of the Solaris OS to another release (for example, from Solaris 9 4/04 OS to Solaris 9 9/04 OS), you do not need to reinstall SMS.

In each of these cases, once the SCs are hardened, you can access the system only through console login, the serial port, or remotely through `ssh`. Other services from the SCs, such as network file system (NFS) server services, are disabled. Client services that you invoke externally from the SC still function, however. You can re-enable services as needed, but doing so is not recommended.

Note – The `ssh` daemon is part of Solaris 9 OS and Solaris 10 OS, and is installed when you install the Solaris 9 OS or Solaris 10 OS.

Security After Upgrade

You can upgrade to SMS 1.6 using the `smsupgrade` script (procedures summarized in [TABLE 3-1](#)). After the upgrade, you must harden the SCs manually. If you are running Solaris 9 OS and the script finds Solaris Security Toolkit 4.1.1 software on your system, the script leaves it. Otherwise, the script installs the Solaris Security Toolkit 4.2 software, but does not perform hardening. If you have a version of the Solaris Security Toolkit earlier than 4.1.1 with Solaris 9 OS or earlier than 4.2 with Solaris 10 OS, you must remove it before beginning the upgrade.

After the upgrade is complete, the system displays the manual hardening instructions.



Caution – Once you reboot and the system is hardened, you cannot log in to an SC remotely. If you want someone to be able to log in to an SC remotely, you must change your `/etc/hosts.allow` file in the Solaris Security Toolkit to `ALL` before you reboot. For more information, see [“To Upgrade SMS Software on the Spare SC” on page 59](#) or [“To Upgrade SMS Software on the Main SC” on page 70](#).

Installing or Upgrading SMS 1.6 Software

This chapter provides all the instructions for installing SMS 1.6 or upgrading to SMS 1.6 on Sun Fire high-end systems. The chapter includes the following topics:

- [“Freshly Installing SMS 1.6 Software on the SCs” on page 15](#)
- [“Restoring Previously Installed Versions of the Solaris OS and SMS Software” on page 35](#)
- [“Upgrading SMS Software to Version 1.6” on page 47](#)

Freshly Installing SMS 1.6 Software on the SCs

Note – Your Sun Fire system comes with the Solaris OS and SMS 1.6 preinstalled. You need to use the procedures in this section only if you want to do a fresh install on your system or are installing a new SC on your system. If the software is already installed, proceed to [“To Configure the Management Network” on page 23](#).

[TABLE 3-1](#) shows the sequence of procedures to freshly install SMS 1.6 software using the `smsinstall` script for both the main SC (SC0) and the spare SC (SC1). Perform the procedures in the sequence shown in the table. The sections following the figure are in the order that the procedures should be performed. Each procedure contains the page number where that specific procedure can be found in this document.

Note – You need to record the chassis serial number (CSN) only on the main SC. You do not need to record the CSN on the spare SC.

TABLE 3-1 Freshly Installing SMS 1.6 Software

| Main SC | Spare SC |
|--|--|
| 1. "To Prepare for Installation" on page 17 | |
| 2. "To Install the Solaris OS on the SC" on page 19 | |
| 3. "To Download SMS 1.6 Software From the Web" on page 19 | |
| 4. "To Install SMS Software" on page 20 | |
| 5. "To Install Patches on the SC" on page 23 | |
| 6. "To Configure the Management Network" on page 23 | |
| 7. "To Set Up Users and Groups" on page 28 | |
| 8. "To Record the Chassis Serial Number on the Main SC" on page 29 | |
| 9. "To Enable the Alternate Break Sequence" on page 30 | |
| 10. "To Reboot the System Controller" on page 31 | |
| 11. "To Upgrade the SC Flash PROMs" on page 31 | |
| 12. "To Finish the Setup Process" on page 32 | |
| | 13. "To Prepare for Installation" on page 17 |
| | 14. "To Install the Solaris OS on the SC" on page 19 |
| | 15. "To Download SMS 1.6 Software From the Web" on page 19 |
| | 16. "To Install SMS Software" on page 20 |
| | 17. "To Install Patches on the SC" on page 23 |
| | 18. "To Configure the Management Network" on page 23 |
| | 19. "To Set Up Users and Groups" on page 28 |
| | 20. "To Enable the Alternate Break Sequence" on page 30 |
| | 21. "To Reboot the System Controller" on page 31 |

(Procedures continue on next page)

TABLE 3-1 Freshly Installing SMS 1.6 Software (Continued)

| Main SC | Spare SC |
|--|--|
| | 22. “To Upgrade the SC Flash PROMs” on page 31 |
| | 23. “To Finish the Setup Process” on page 32 |
| 24. “To Upgrade the System Board Flash PROMs” on page 32 | |
| 25. “To Enable Failover” on page 34 | |

Note – The `smsinstall` script hardens the system controller after the first reboot. As pointed out in [“Security After Installation” on page 12](#), hardening disables most remote access services. Do not reboot the system without providing serial or console access to the SC, or having `ssh` configured to survive a reboot on the SC.

Note – If you are using `ssh`, you must change the `ssh` escape character to avoid conflict with the SMS console. See [“Changing the `ssh` Escape Character” on page 89](#) for more information.

▼ To Prepare for Installation

Before you begin the installation, do the following tasks.

1. **Gather the superuser passwords for both SCs.**
2. **Be sure you have `platadm` privileges to both SCs.**
3. **On both SCs, determine the directory into which you will download the SMS software from the web.**
4. **Before installing the SMS 1.6 packages, make sure that you have serial or console access to the SC or have Secure Shell (`ssh`) available on the SC.**

After you install SMS 1.6 and reboot the SC, the hardening performed by the `smsinstall` script disables remote access.

Note – If you are using `ssh` on the SC, you must change the `ssh` escape character to avoid conflict with the SMS console. See [“Changing the `ssh` Escape Character” on page 89](#) for more information.

5. **If you are freshly installing on new hardware:**

a. Become familiar with the `smsconfig` command and its options.

Refer to the `smsconfig(1M)` man page.

b. Fill out the information in the site planning guide for your Sun Fire system (*Sun Fire 15K/12K System Site Planning Guide* or *Sun Fire E25K/E20K System Site Planning Guide*).

You need this information to configure the Management Network (MAN) after installing the SMS 1.6 packages on new hardware. (See [“To Configure the Management Network” on page 23](#) for more information about the MAN.)

6. Gather the following publications before you start the installation or upgrade:

- Installation guide for the version of the Solaris OS that you plan to install
- *Sun Fire 15K/12K System Site Planning Guide* or *Sun Fire E25K/E20K System Site Planning Guide*

7. Check the *Solaris (SPARC Platform Edition) Release Notes* and the *Solaris Release Notes Supplement for Sun Hardware* for your version of the Solaris OS, the *System Management Services (SMS) 1.6 Release Notes*, and **SunSolve™ at <http://sunsolve.sun.com> for the latest information on issues, late-breaking news, and patch availability.**

8. Refer to the *Site Planning Guide* for your Sun Fire system when reconfiguring your MAN.

You need the following information from your worksheets:

- Platform name
- Chassis serial number
- Host-name IP addresses and submask for the I1 internal network
- Host-name IP addresses and submask for the I2 internal network
- Community host-name IP addresses and submask for the external network
- Host-name IP address for the SC logical interface
- Community host-name addresses for the domains

9. Install the release-appropriate Solaris patch cluster available at <http://sunsolve.sun.com> to ensure that SMS runs properly. Apply any patches to the Solaris OS before reinstalling or upgrading the SMS software.

Note – During installation, or whenever the other SC is at the OpenBoot™ PROM prompt or not running SMS, you might see “SC clocks NOT phase locked” messages in the platform log. You can ignore them.

▼ To Install the Solaris OS on the SC

1. **Install the Solaris OS, if it has not already been installed on the SC for you.**

Refer to the appropriate Solaris installation guide for instructions. Make sure that you:

- a. **Install the proper release of the Solaris OS, including patches (see “[SC Software Requirements](#)” on page 7).**

Without the proper version and patches, the availability daemons on the SC will not start, causing SMS daemon startup failures and an unusable SC.

- b. **Select the `Entire Distribution` group of the OS.**
- c. **Select the `English, C` locale. On the SC, SMS 1.6 does not support any Solaris OS locale other than English.**

2. **Verify that Java™ 1.2.2 software has been installed in the default directory.**

The default directory is `/usr/java1.2/bin/java`. If you are using the Sun Fire Interconnect software and Java 1.2.2 software is not installed in the default directory, SMS does not start.

Note – After installing Java 1.2.2 software, be sure to stop and restart SMS.

▼ To Download SMS 1.6 Software From the Web

Note – You can choose between SMS 1.6 software for Solaris 9 OS and SMS 1.6 software for Solaris 10 OS. You can install only the SMS 1.6 software for Solaris 9 OS on a system controller running the Solaris 9 OS; you can install only the SMS 1.6 software for Solaris 10 OS on a system controller running the Solaris 10 OS. Otherwise, the installation fails.

1. **Using your web browser, go to <http://www.sun.com/servers/sw/>**
2. **Select the `System Management Services (SMS)` link.**
3. **Select the correct SMS 1.6 software to download depending on the Solaris OS you are running:**
 - `Solaris 9 OS-SMS-1_6-S9-sparc.zip` file
 - `Solaris 10 OS-SMS-1_6-S10-sparc.zip` file
4. **Log in to the SC as superuser.**

5. Change directory to the location where you downloaded the software.

```
sc:# cd /download_directory
```

6. Extract the downloaded file, depending on which operating system you are using.

```
sc:# unzip SMS-1_6-S9-sparc.zip
```

or

```
sc:# unzip SMS-1_6-S10-sparc.zip
```

After the file is extracted, the SMS 1.6 packages are located in `/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product`.

Note – The `smsinstall` script and `smsupgrade` script are located in the directory `/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Tools`. You should use the scripts located in this directory, not the scripts that might already be installed in `/opt/SUNWSMS/bin`, to run the upgrade and installation processes.

▼ To Install SMS Software

1. Log in to the SC as superuser.
2. Change directory to the location of the `smsinstall` script.

```
sc:# cd /download_directory/sms_1_6_sparc/System_Management_Services_1.6/Tools
```

The `smsinstall` script automates many of the steps in the installation process.

3. Begin the installation process by running the `smsinstall(1M)` script.

```
sc:# ./smsinstall directory_name
```

where `directory_name` represents the directory (`/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product`) into which the SMS packages were downloaded (see [“To Download SMS 1.6 Software From the Web”](#) on page 19).

The Solaris Security Toolkit 4.2 package is installed. A message similar to this is displayed.

```
The following package is currently installed:
SUNWjass          Solaris Security Toolkit
                  (Solaris) 4.2
```

The script installs the SMS packages. Messages similar to this are displayed.

```
Installing SMS packages. Please wait...
pkgadd -n -d "../Product" -a /tmp/smsinstall.admin.24308
SUNWscdvr.u
SUNWSMSr SUNWSMSop SUNWSMSdf SUNWSMSjh SUNWSMSlp SUNWSMSmn
SUNWSMSob
SUNWSMSod SUNWSMSpd SUNWSMSpo SUNWSMSpp SUNWSMSsu SUNWufr.u
SUNWufu
SUNWwccmn
Copyright 2006 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.

Installation of <SUNWscdvr> was successful.
[...]
Verifying that all SMS packages are installed.OK
Setting up /etc/init.d/sms run control script for SMS 1.6
Setting up /etc/init.d/zoedsms run control script for SMS 1.6
/etc/opt/SUNWSMS/SMS1.6/startup/zoedsms.

Attempting to restart daemon picld
/etc/init.d/picld stop
/etc/init.d/picld start
```

Note – The `smsinstall(1M)` script automatically installs the SMS man pages in the directory `/opt/SUNWSMS/man/sman1m`. To avoid conflicts, do *not* change this location.

4. Conclude the installation process.

After installing the SMS packages, the script begins the hardening process.

```
Running Solaris Security Toolkit 4.2 hardening on System
Controller.
[NOTE] The following prompt can be disabled by setting
JASS_NOVICE_USER to 0.
[WARN] Depending on how the Solaris Security Toolkit is configured,
it is both possible and likely that by default all remote shell
and file transfer access to this system will be disabled upon
reboot effectively locking out any user without console access to
the system.

Are you sure that you want to continue? (YES/NO) [YES]
[NOTE] Executing driver, server-secure.driver
Solaris Security Toolkit hardening step executed successfully on
the System Controller but it will not take effect until the next
reboot.
Before rebooting, please make sure SSH or the serial line is setup
for use after the reboot.
smsinstall complete. Log file is /var/sadm/system/logs/smsinstall.
```

Note – Although the `smsinstall` script displays a YES/NO prompt asking whether you want to continue, you do not need to respond to the prompt. The script automatically continues the hardening process.

5. Before you reboot, if you want someone to be able to log in to an SC remotely, you must make a change in your `/etc/hosts.allow` file in the Solaris Security Toolkit.

Note – Once you reboot and the hardening takes effect, you cannot log in to an SC remotely.

- If you want to restrict access to the local subnetwork only, you do not have to make a change in the file, because the default for the Secure Shell (`sshd`) property is `LOCAL`. The line in the file should read as follows:
`sshd: LOCAL`
- If you want to allow users to log in remotely, change the `sshd` property to `ALL`. The line in the file should read as follows:
`sshd: ALL`

- If you want to restrict access to the other SC only, specify the other SC's name for the `sshd` property. For example, if the main SC is named `main-sc0` and the spare SC is named `spare-sc1`, the line in file for the main SC should read:

```
sshd: spare-sc1
```

The line in the file for the spare SC should read:

```
sshd: main-sc0
```

For more information about the `/etc/hosts.allow` file, refer to the *Solaris Security Toolkit 4.2 Reference Manual*.

▼ To Install Patches on the SC

SMS patches are available at <http://sunsolve.sun.com>.

Before you install patches for your SMS software, follow these guidelines and notify the affected administrators if necessary.

- System should be stable.
- No DR operations should be in progress.
- No domain should be starting or shutting down.
- No user-initiated `datasync` or `cmdsnc` operations should be in progress.

Complete any domain, board, or configuration changes *before* you begin patch installation.

Read all patch instructions (included with the patch) carefully before attempting to install a patch. Instructions in the patch procedure could preempt these instructions.

1. Log in to the SC with platform administrator privileges.
2. Install any patches on both SCs.

▼ To Configure the Management Network

1. In the procedure, you use the `smsconfig` script to create the network configuration for your SCs.
2. Read and fill out the information in the site planning guide for your Sun Fire high-end system.

Note – You can exclude a domain from the I1 network configuration by using the word `NONE` as the `net_id`. This applies only to the I1 network.

3. Log in to the SC as superuser.

4. Type the following to display, review, or change the MAN settings.

```
sc:# /opt/SUNWSMS/bin/smsconfig -m
```

5. Answer the questions based on the information gathered for your site in the site planning guide for your system.

The following example shows IPv4 and accepts the default settings included with your version of the Solaris OS.



Caution – The IP addresses shown in the following example are examples only. Refer to your site planning guide for valid IP addresses for your network. Using invalid network IP addresses could render your system unbootable under certain conditions.

Note – The IP addresses on the external network for failover, *eri0* and *eri3*, must be unique on each SC. The floating IP address is the same on both SCs.

For more information on the `smsconfig -m` command, refer to the “MAN Configuration” section of the *System Management Services (SMS) 1.6 Administrator Guide* and the `smsconfig` man page.

```
sc:# ./smsconfig -m
```

```
The platform name identifies the entire host machine to the SMS
software. The platform name occupies a different name space than
domain names (hostnames of bootable systems).
```

```
What is the name of the platform this SMS will service [sun15]?
```

```
sun15
```

```
Configuring the External Network for Community C1
```

```
Do you want to define this Community? [y,n] y
```

```
Two network interfaces controllers (NICs) are required for IPMP
network failover.
```

```
Enter NICs associated with community C1 [eri0 eri3]: [Return]
```

```
Enter hostname for eri0 [sun15-sc1-eri0]: [Return]
```

```
Enter IP address for eri0: 10.1.1.52
```

```
Enter hostname for eri3 [sun15-sc1-eri3]: [Return]
```

```
Enter IP address for sun15-sc1-eri3: 10.1.1.53
```

The Logical/Floating IP hostname and address will "float" over to whichever system controller (SC0 or SC1) is acting as the main SC.

Enter Logical/Floating IP hostname for community C1

[sun15-sc-C1]:**Return**

Enter IP address for sun15-sc-C1:**10.1.1.50**

Enter Netmask for community C1: **255.255.255.0**

Enter hostname for community C1 failover address

[sun15-sc1-C1-failover]:**Return**

Enter IP address for sun15-sc1-C1-failover:**10.1.1.51**

| Hostname | IP Address (platform=sun15) |
|-----------------------|-----------------------------|
| ----- | ----- |
| sun15-sc-C1 | 10.1.1.50 |
| sun15-sc1-C1-failover | 10.1.1.51 |
| sun15-sc1-eri0 | 10.1.1.52 |
| sun15-sc1-eri3 | 10.1.1.53 |

Do you want to accept these network settings? [y,n] **y**

Configuring the External Network for Community C2

Do you want to define this Community? [y,n] **n**

Configuring I1 Management Network - 'I1' is the Domain to SC MAN.
MAN I1 Network Identification

Enter the IP network number (base address) for the I1 network:

10.2.1.0

Enter the netmask for the I1 MAN network

[255.255.255.224]:**Return**

| Hostname | IP Address (platform=sun15) |
|-------------|-----------------------------|
| ----- | ----- |
| netmask-i1 | 255.255.255.224 |
| sun15-sc-i1 | 10.2.1.1 |
| sun15-a | 10.2.1.2 |
| sun15-b | 10.2.1.3 |
| sun15-c | 10.2.1.4 |
| sun15-d | 10.2.1.5 |
| sun15-e | 10.2.1.6 |
| sun15-f | 10.2.1.7 |
| sun15-g | 10.2.1.8 |
| sun15-h | 10.2.1.9 |
| sun15-i | 10.2.1.10 |
| sun15-j | 10.2.1.11 |
| sun15-k | 10.2.1.12 |
| sun15-l | 10.2.1.13 |

```
sun15-m      10.2.1.14
sun15-n      10.2.1.15
sun15-o      10.2.1.16
sun15-p      10.2.1.17
sun15-q      10.2.1.18
sun15-r      10.2.1.19
```

Do you want to accept these network settings? [y,n] **y**

Configuring I2 Management Network - 'I2' is for SC to SC MAN.
MAN I2 Network Identification

Enter the IP network number (base address) for the I2 network:

10.3.1.0

Enter the netmask for the I2 MAN network

[255.255.255.252]: **[Return]**

| Hostname | IP Address | (platform=sun15) |
|--------------|-----------------|------------------|
| ----- | ----- | |
| netmask-i2 | 255.255.255.252 | |
| sun15-sc0-i2 | 10.3.1.1 | |
| sun15-sc1-i2 | 10.3.1.2 | |

Do you want to accept these settings? [y,n] **y**

Creating /.rhosts to facilitate file propagation...done

MAN Network configuration modified!

Changes will take effect on next reboot.

The following changes are about to be applied to the "/etc/hosts"
hosts file.

```
-----
ADD: 10.2.1.2   sun15-a #smsconfig-entry#
ADD: 10.2.1.3   sun15-b #smsconfig-entry#
ADD: 10.2.1.4   sun15-c #smsconfig-entry#
ADD: 10.2.1.5   sun15-d #smsconfig-entry#
ADD: 10.2.1.6   sun15-e #smsconfig-entry#
ADD: 10.2.1.7   sun15-f #smsconfig-entry#
ADD: 10.2.1.8   sun15-g #smsconfig-entry#
ADD: 10.2.1.9   sun15-h #smsconfig-entry#
ADD: 10.2.1.10  sun15-i #smsconfig-entry#
ADD: 10.2.1.11  sun15-j #smsconfig-entry#
ADD: 10.2.1.12  sun15-k #smsconfig-entry#
ADD: 10.2.1.13  sun15-l #smsconfig-entry#
ADD: 10.2.1.14  sun15-m #smsconfig-entry#
ADD: 10.2.1.15  sun15-n #smsconfig-entry#
ADD: 10.2.1.16  sun15-o #smsconfig-entry#
ADD: 10.2.1.17  sun15-p #smsconfig-entry#
ADD: 10.2.1.18  sun15-q #smsconfig-entry#
```

```

ADD: 10.2.1.19 sun15-r #smsconfig-entry#
ADD: 10.2.1.1 sun15-sc-i1 #smsconfig-entry#
ADD: 10.1.1.50 sun15-sc-C1 #smsconfig-entry#
ADD: 10.1.1.51 sun15-sc1-C1-failover #smsconfig-entry#
ADD: 10.1.1.52 sun15-sc1-eri0 #smsconfig-entry#
ADD: 10.1.1.53 sun15-sc1-eri3 #smsconfig-entry#
ADD: 10.3.1.1 sun15-sc0-i2 #smsconfig-entry#
ADD: 10.3.1.2 sun15-sc1-i2 #smsconfig-entry#
-----
Update the hosts file, "/etc/hosts", with these changes? [y,n] y
Hosts file "/etc/hosts" has been updated.

The following information is about to be applied to the "/etc/
netmasks" file.
-----
ADD network: 10.1.1.50, mask: 255.255.255.0
ADD network: 10.2.1.0, mask: 255.255.255.224
ADD network: 10.3.1.0, mask: 255.255.255.224
-----
Update the netmasks file, "/etc/netmasks", with these changes?
[y,n] y
Netmasks files "etc/netmasks" has been updated.
smsconfig complete. Log file is /var/sadm/system/logs/smsconfig
sc:#

```

Note – Any changes made to the network configuration on one SC using `smsconfig -m` must be made to the other SC as well. Network configuration is not automatically propagated.

6. Edit the `/etc/nsswitch.conf` file.

The first entry for password, group, hosts, netmasks, and ethers should be files. To the right of files, list other naming services in use, such as nis or DNS, as in the following example.

```

sc: # vi /etc/nsswitch.conf
...
passwd:      files nis
group:       files nis
...
hosts:       files nis
...
netmasks:   files nis
...
ethers:      files nis
...

```

Note – `smsconfig` automatically updates the `/etc/netmasks` and the `/etc/inet/hosts` file with all the private host names and logical addresses for the SC.

7. Update your Solaris OS naming software, such as NIS, NIS+, or DNS, as needed.

▼ To Set Up Users and Groups

Note – You must add users and groups to both the main and spare SCs. Perform the following procedure twice, once for each SC.

The SMS user group IDs are created during initial installation. For a complete list of the user group IDs, see [TABLE 4-1](#).

1. Log in as superuser.
2. Type the following command for each user you want to add.

```
sc0:# /opt/SUNWSMS/bin/smsconfig -a -u username -G groupname domain_id|platform
```

where:

- *username* is the name of a user account on the system.
- *groupname* is one of the following valid group designations: `admn`, `rcfg`, `oper`, or `svc`.
- *domain_id* is the ID for a domain. Valid domain IDs are A through R and are case insensitive.

For example, to add a user to the `dmnaadmn` group with access to domain A directories, type the following.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -a -u fdjones -G admn a
fdjones has been added to the dmnaadmn group
All privileges to domain a have been applied.
```

Note – Do *not* manually add users from SMS groups in the `/etc/group` file. This can limit or deny access to users.

3. To list SMS groups and administrative privileges, use the following command.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -l domain_id|platform
```

For example, to display all users with platform privileges, type the following.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -l platform
fdjones
jtd
```

▼ To Record the Chassis Serial Number on the Main SC

You can skip this procedure if you are installing on the spare SC. You need to record the chassis serial number (CSN) only on the main SC. The chassis serial number is a unique alphanumeric text string, up to 20 characters in length, that identifies a Sun Fire high-end system. This serial number is displayed on a label located on the front of the system chassis, near the bottom center.

Note – SMS must be running before you can record the chassis serial number.

1. Log in to the main SC as a user with `platadm` privileges.
2. Determine whether the centerplane is powered on by typing the following command.

```
sc0:sms-user:> /opt/SUNWsms/bin/showboards -v | grep CS

CS0 On - - -
CS1 On - - -
```

- If the centerplane is powered on, go to Step 3.
- If the centerplane is not powered on, type the following command to turn it on.

```
sc0: # poweron cs0 cs1
```

3. Use the `showplatform -p csn` command to list the chassis serial number.

If a chassis serial number was previously recorded, it is displayed in the output as shown in the following example.

```
sc0:sms-user:> /opt/SUNWSms/bin/showplatform -p csn

CSN:
====
Chassis Serial Number: 353A00053
```

- If a chassis serial number is displayed, skip the next step.
- If the chassis serial number is not displayed, record it with the `setcsn` command, as shown in the following step.

4. Record the chassis serial number.

```
sc0:sms-user:> /opt/SUNWSMS/bin/setcsn -c chassis_serial_number
```

where the *chassis_serial_number* is the number that identifies your Sun Fire high-end system. You obtain the chassis serial number from a label on the front of the system chassis, near the bottom center.

▼ To Enable the Alternate Break Sequence

To facilitate failover in SMS, the default sequence to stop the system [Stop-A] has been changed to the following alternate: [Return] [~] [Control-B]. Use this procedure to enable the alternate break sequence.

1. Log in to the SC as superuser.

2. In the `/etc/default/kbd` file, uncomment the following line:

```
#KEYBOARD_ABORT=alternate
```

This takes effect when you reboot the SC. For more information about the Alternate Break Sequence, see [“Using the Alternate Break Sequence” on page 91](#).

▼ To Reboot the System Controller

Rebooting the SC enables the automatic hardening that you set up when you installed the SMS software.

1. Log in to the SC as superuser and change to the OpenBoot PROM prompt.

```
sc:# su -  
password: superuser_passwd  
sc:# shutdown -y -g0 -i0  
...[system message]  
ok
```

2. Reboot the SC.

```
ok boot -rv
```

▼ To Upgrade the SC Flash PROMs

You must have platform (platadm) privileges to run the flashupdate(1M) command.

1. Log in to the SC as a user with platadm privileges.
2. Use flashupdate to upgrade the fp0 flash PROM.

```
sc:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/SCOBPimg.di sc0/fp0
```

3. Use flashupdate again to upgrade the fp1 flash PROM, using the appropriate image for the type of board.
 - For the CP1500 board, use flashupdate with the nSSCPOST.di image.

```
sc:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/nSSCPOST.di sc0/  
fp1
```

- For the CP2140 board, use `flashupdate` with the `oSSCPOST.di` image.

```
sc:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/oSSCPOST.di sc0/
fp1
```

For more information on the `flashupdate(1M)` command, refer to the *System Management Services (SMS) 1.6 Reference Manual* or the `flashupdate` man page.

4. Log in to the SC as superuser and change to the OpenBoot PROM prompt.

```
sc:# su -
password: superuser_passwd
sc:# shutdown -y -g0 -i0
...[system message]
ok
```

5. Reboot the SC.

```
ok boot -rv
```

▼ To Finish the Setup Process

- If you have just finished setting up and rebooting the main SC, set up the spare SC the same way you set up the main SC, starting with the procedures in [“To Prepare for Installation” on page 17](#).
- If you have just finished setting up and rebooting the spare SC, update the system board flash PROMs and enable failover as described in the following sections:
 - [“To Upgrade the System Board Flash PROMs” on page 32](#)
 - [“To Enable Failover” on page 34](#)

▼ To Upgrade the System Board Flash PROMs

You must have platform privileges to run the `flashupdate(1M)` command.

1. Log in to the main SC as a user with `platadm` privileges.
2. Use `flashupdate` to upgrade the CPU flash PROMs in a domain.

- To update all the boards in a particular domain, use the `-d` option as shown in the following example.

```
sc0:sms-user:> flashupdate -d <domain-indicator> \opt/SUNWSMS/hostobjs/
sgcpu.flash
```

- To update a particular board in the domain, use the `-f` option as shown in the following example.

```
sc0:sms-user:> flashupdate -f /opt/SUNWSMS/hostobjs/sgcpu.flash location
```

The *location* argument can be either of the following:

board_loc

board_loc/FROM_id

Specify the *FROM_id* only when you want to update a particular FPRM (FP0 or FP1) on a system board. These are the possible values for *board_loc*, provided an I/O slot is occupied by an MCPMU board:

| Sun Fire 15K/E25K | Sun Fire 12K/E20K |
|-------------------|-------------------|
| SB(0...17) | SB(0...8) |
| IO(0...17) | IO(0...8) |

The following *FROM_id* forms are accepted for all platforms:

FP0, FP1

For example, the location SB4/FP0 indicates the FPRM 0 on the CPU board in slot 4.

3. Perform a system power-on self-test (POST) control application, `hpost`, per board with a dynamic reconfiguration operation to make the new firmware active on system boards.

- For single boards, use the `deleteboard(1M)` or `addboard(1M)` commands to perform an `hpost`.
- For all boards in a domain, use the `setkeyswitch(1M)` command to perform an `hpost`.



Caution – Doing a reboot will not activate the new firmware. Use the `setkeyswitch(1M)` command to activate the firmware.

▼ To Enable Failover

1. Log in to the SC as a user with `platadm` privileges.
2. Turn on failover.

```
sc:sms-user:> /opt/SUNWSMS/bin/setfailover on
```

3. Verify that failover is working.

```
sc:sms-user:> /opt/SUNWSMS/bin/showfailover -v
SC Failover Status: ACTIVATING
sc:sms-user:> /opt/SUNWSMS/bin/showfailover -v
SC Failover status: ACTIVE
```

After you issue the `setfailover` command, the SCs begin to synchronize. While the main SC synchronizes with the spare SC, the failover status reads `ACTIVATING`. Once the synchronization is complete, the status reads `ACTIVE`.

Restoring Previously Installed Versions of the Solaris OS and SMS Software

TABLE 3-2 shows the sequence of procedures to restore previously installed versions of Solaris OS and SMS, such as after a hardware failure and the spare SC is down. Perform the procedures in the sequence shown in the table on the spare SC. The sections following TABLE 3-2 are in the order that the procedures should be performed. Each procedure contains the page number where that specific procedure can be found in this document.

TABLE 3-2 Restoring the Same Versions of the Solaris OS and SMS Software

Spare SC

1. [“To Install the Previously Installed Solaris OS on the Spare SC” on page 35](#)
 2. [“To Install the Previously Installed Version of SMS on the Spare SC” on page 36](#)
 3. [“To Restore the SMS Configuration on the Spare SC” on page 39](#)
 4. [“To Install Any SMS Patches on the Spare SC” on page 39](#)
 5. [“To Configure the Management Network” on page 40](#)
 6. [“To Set Up Users and Groups” on page 45](#)
 7. [“To Enable the Alternate Break Sequence” on page 46](#)
 8. [“To Reboot the Spare SC” on page 46](#)
-

▼ To Install the Previously Installed Solaris OS on the Spare SC

1. **Install the previously installed Solaris OS you had on the spare SC.**

Refer to the appropriate Solaris installation guide for instructions. Make sure that you:

- a. **Install the proper release of the Solaris OS, including patches (see [“SC Software Requirements” on page 7](#)).**

Without the proper version and patches, the availability daemons on the SC do not start, causing SMS daemon startup failures and an unusable SC.

- b. **Select the Entire Distribution group of the OS.**

c. **Select the English, C, locale.**

On the SC, SMS 1.6 does not support any Solaris locale other than English.

2. **Verify that Java 1.2.2 software has been installed in the default directory. Type the following command.**

```
sc:# java -version
```

The default directory is `/usr/java1.2/bin/java`. If you are using the Sun Fire Interconnect and Java 1.2.2 software is not installed in the default directory, SMS does not start.

Note – After installing Java 1.2.2 software, be sure to stop and restart SMS.

▼ To Install the Previously Installed Version of SMS on the Spare SC

1. **Log in to the spare SC as superuser.**
2. **Change directory to the location of the `smsinstall` script.**

```
sc1:# cd /download_directory/sms_1_6_sparc/System_Management_Services_1.6/Tools
```

The `smsinstall` script automates many of the steps in the installation process.

3. Begin the installation process by running the `smsinstall(1M)` command.

```
sc1:# ./smsinstall directory_name
```

where `directory_name` represents the directory (`/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product`) into which the SMS packages were downloaded (see [“To Download SMS 1.6 Software From the Web”](#) on page 19).

The Solaris Security Toolkit 4.2 package is installed. A message similar to this one is displayed.

```
The following package is currently installed:
SUNWjass          Solaris Security Toolkit
                  (Solaris) 4.2
```

The script installs the SMS packages.

```
Installing SMS packages. Please wait...
pkgadd -n -d "../Product" -a /tmp/smsinstall.admin.24308
SUNWscdvr.u
SUNWSMSr SUNWSMSop SUNWSMSdf SUNWSMSjh SUNWSMSlp SUNWSMSmn
SUNWSMSob
SUNWSMSod SUNWSMSpd SUNWSMSpo SUNWSMSpp SUNWSMSsu SUNWufr.u
SUNWufu
SUNWwccmn
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Installation of <SUNWscdvr> was successful.
[...]
Verifying that all SMS packages are installed.OK
Setting up /etc/init.d/sms run control script for SMS 1.6
Setting up /etc/init.d/zoedsms run control script for SMS 1.6
/etc/opt/SUNWSMS/SMS1.6/startup/zoedsms.

Attempting to restart daemon picld
/etc/init.d/picld stop
/etc/init.d/picld start
```

Note – The `smsinstall(1M)` script automatically installs the SMS man pages in the directory `/opt/SUNWSMS/man/sman1m`. To avoid conflicts, do *not* change this location.

4. Conclude the installation process.

After installing the SMS packages, the script begins the hardening process.

```
Running Solaris Security Toolkit 4.2 hardening on System
Controller.
[NOTE] The following prompt can be disabled by setting
JASS_NOVICE_USER to 0.
[WARN] Depending on how the Solaris Security Toolkit is configured,
it is both possible and likely that by default all remote shell
and file transfer access to this system will be disabled upon
reboot effectively locking out any user without console access to
the system.

Are you sure that you want to continue? (YES/NO) [YES]
[NOTE] Executing driver, server-secure.driver
Solaris Security Toolkit hardening step executed successfully on
the System Controller but it will not take effect until the next
reboot.
Before rebooting, please make sure SSH or the serial line is setup
for use after the reboot.
smsinstall complete. Log file is /var/sadm/system/logs/smsinstall.
```

Note – Although the `smsinstall` script displays a YES/NO prompt asking you to continue, you do not need to respond to the prompt. The script automatically continues the hardening process.

5. Before you reboot, if you want someone to be able to log in to an SC remotely, you must make a change in your `/etc/hosts.allow` file in the Solaris Security Toolkit.

Note – Once you reboot and the hardening takes effect, you cannot log in to an SC remotely.

- If you want to restrict access to the local subnetwork only, you do not have to make a change in the file, because the default for the Secure Shell (`sshd`) property is `LOCAL`. The line in the file should read as follows:
`sshd: LOCAL`
- If you want to allow users to log in remotely, change the `sshd` property to `ALL`. The line in the file should read as follows:
`sshd: ALL`

- If you want to restrict access to the other SC only, you would specify the other SC's name for the `sshd` property. For example, if the main SC is named `main-sc0` and the spare SC is named `spare-sc1`, the line in file for the main SC should read:

```
sshd: spare-sc1
```

The line in the file for the spare SC should read:

```
sshd: main-sc0
```

For more information about the `/etc/hosts.allow` file, refer to the *Solaris Security Toolkit 4.2 Reference Manual*.

▼ To Restore the SMS Configuration on the Spare SC

- Run `smsrestore` on the *smsbackup* file.

```
sc1:# /opt/SUNWSMS/bin/smsrestore filename
```

where *filename* is the absolute path to the backup file that was created by `smsbackup(1M)`. The *filename* must contain the full path name for the file. This file can reside anywhere on the system, connected network, or tape device. If no *filename* is specified, you receive an error.

▼ To Install Any SMS Patches on the Spare SC

SMS patches are available at <http://sunsolve.sun.com>.

Before you install patches for your SMS software, follow these guidelines and notify the affected administrators if necessary.

- System should be stable.
- No DR operations should be in progress.
- No domain should be starting or shutting down.
- No user-initiated `datasync` or `cmdsycn` operations should be in progress.

Complete any domain, board, or configuration changes *before* you begin patch installation.

Read all patch instructions (included with the patch) carefully before attempting to install a patch. Instructions in the patch procedure could preempt these instructions.

1. Log in to the spare SC with platform administrator privileges.
2. Install any patches on the spare SC.

▼ To Configure the Management Network

1. In the procedure, you use the `smsconfig` script to create the network configuration for your spare SC.
2. Read and fill out the information in the site planning guide for your Sun Fire high-end system.

Note – You can exclude a domain from the I1 network configuration by using the word `NONE` as the `net_id`. This applies only to the I1 network.

3. Log in to the spare SC as superuser.
4. Type the following to display, review, or change the MAN settings.

```
sc1:# /opt/SUNWSMS/bin/smsconfig -m
```

5. Answer the questions based on the information gathered for your site in the site planning guide for your system.

The following example shows IPv4 and accepts the default settings included with your version of the Solaris OS.



Caution – The IP addresses shown in the following example are examples only. Refer to your site planning guide for valid IP addresses for your network. Using invalid network IP addresses could render your system unbootable under certain conditions.

Note – The IP addresses on the external network for failover, eri0 and eri3, must be unique on each SC. The floating IP address is the same on both SCs.

For more information on the smsconfig -m command, refer to the “MAN Configuration” section of the *System Management Services (SMS) 1.6 Administrator Guide* and the smsconfig man page.

```
sc1:# ./smsconfig -m

The platform name identifies the entire host machine to the SMS
software. The platform name occupies a different name space than
domain names (hostnames of bootable systems).

What is the name of the platform this SMS will service [sun15]?
sun15
Configuring the External Network for Community C1

Do you want to define this Community? [y,n] y
Two network interfaces controllers (NICs) are required for IPMP
network failover.
Enter NICs associated with community C1 [eri0 eri3]: [Return]

Enter hostname for eri0 [sun15-sc1-eri0]:[Return]
Enter IP address for eri0: 10.1.1.52

Enter hostname for eri3 [sun15-sc1-eri3]:[Return]
Enter IP address for sun15-sc1-eri3: 10.1.1.53

The Logical/Floating IP hostname and address will "float" over to
whichever system controller (SC0 or SC1) is acting as the main SC.

Enter Logical/Floating IP hostname for community C1
[sun15-sc-C1]:[Return]
Enter IP address for sun15-sc-C1:10.1.1.50
Enter Netmask for community C1: 255.255.255.0

Enter hostname for community C1 failover address
[sun15-sc1-C1-failover]:[Return]
Enter IP address for sun15-sc1-C1-failover:10.1.1.51

Hostname                               IP Address (platform=sun15)
-----                               -
sun15-sc-C1                             10.1.1.50
sun15-sc1-C1-failover                   10.1.1.51
sun15-sc1-eri0                          10.1.1.52
sun15-sc1-eri3                          10.1.1.53
```

Do you want to accept these network settings? [y,n] **y**

Configuring the External Network for Community C2

Do you want to define this Community? [y,n] **n**

Configuring I1 Management Network - 'I1' is the Domain to SC MAN.
MAN I1 Network Identification

Enter the IP network number (base address) for the I1 network:

10.2.1.0

Enter the netmask for the I1 MAN network

[255.255.255.224]:**[Return]**

| Hostname | IP Address (platform=sun15) |
|----------|-----------------------------|
|----------|-----------------------------|

| | |
|------------|-----------------|
| netmask-i1 | 255.255.255.224 |
|------------|-----------------|

| | |
|-------------|----------|
| sun15-sc-i1 | 10.2.1.1 |
|-------------|----------|

| | |
|---------|----------|
| sun15-a | 10.2.1.2 |
|---------|----------|

| | |
|---------|----------|
| sun15-b | 10.2.1.3 |
|---------|----------|

| | |
|---------|----------|
| sun15-c | 10.2.1.4 |
|---------|----------|

| | |
|---------|----------|
| sun15-d | 10.2.1.5 |
|---------|----------|

| | |
|---------|----------|
| sun15-e | 10.2.1.6 |
|---------|----------|

| | |
|---------|----------|
| sun15-f | 10.2.1.7 |
|---------|----------|

| | |
|---------|----------|
| sun15-g | 10.2.1.8 |
|---------|----------|

| | |
|---------|----------|
| sun15-h | 10.2.1.9 |
|---------|----------|

| | |
|---------|-----------|
| sun15-i | 10.2.1.10 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-j | 10.2.1.11 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-k | 10.2.1.12 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-l | 10.2.1.13 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-m | 10.2.1.14 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-n | 10.2.1.15 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-o | 10.2.1.16 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-p | 10.2.1.17 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-q | 10.2.1.18 |
|---------|-----------|

| | |
|---------|-----------|
| sun15-r | 10.2.1.19 |
|---------|-----------|

Do you want to accept these network settings? [y,n] **y**

Configuring I2 Management Network - 'I2' is for SC to SC MAN.
MAN I2 Network Identification

Enter the IP network number (base address) for the I2 network:

10.3.1.0

Enter the netmask for the I2 MAN network

[255.255.255.252]:**[Return]**

```

Hostname                IP Address    (platform=sun15)
-----
netmask-i2             255.255.255.252
sun15-sc0-i2           10.3.1.1
sun15-sc1-i2           10.3.1.2

Do you want to accept these settings? [y,n] y
Creating /.rhosts to facilitate file propagation...done
MAN Network configuration modified!
Changes will take effect on next reboot.
The following changes are about to be applied to the "/etc/hosts"
hosts file.
-----
ADD: 10.2.1.2    sun15-a #smsconfig-entry#
ADD: 10.2.1.3    sun15-b #smsconfig-entry#
ADD: 10.2.1.4    sun15-c #smsconfig-entry#
ADD: 10.2.1.5    sun15-d #smsconfig-entry#
ADD: 10.2.1.6    sun15-e #smsconfig-entry#
ADD: 10.2.1.7    sun15-f #smsconfig-entry#
ADD: 10.2.1.8    sun15-g #smsconfig-entry#
ADD: 10.2.1.9    sun15-h #smsconfig-entry#
ADD: 10.2.1.10   sun15-i #smsconfig-entry#
ADD: 10.2.1.11   sun15-j #smsconfig-entry#
ADD: 10.2.1.12   sun15-k #smsconfig-entry#
ADD: 10.2.1.13   sun15-l #smsconfig-entry#
ADD: 10.2.1.14   sun15-m #smsconfig-entry#
ADD: 10.2.1.15   sun15-n #smsconfig-entry#
ADD: 10.2.1.16   sun15-o #smsconfig-entry#
ADD: 10.2.1.17   sun15-p #smsconfig-entry#
ADD: 10.2.1.18   sun15-q #smsconfig-entry#
ADD: 10.2.1.19   sun15-r #smsconfig-entry#
ADD: 10.2.1.1    sun15-sc-i1 #smsconfig-entry#
ADD: 10.1.1.50   sun15-sc-C1 #smsconfig-entry#
ADD: 10.1.1.51   sun15-sc1-C1-failover #smsconfig-entry#
ADD: 10.1.1.52   sun15-sc1-eri0 #smsconfig-entry#
ADD: 10.1.1.53   sun15-sc1-eri3 #smsconfig-entry#
ADD: 10.3.1.1    sun15-sc0-i2 #smsconfig-entry#
ADD: 10.3.1.2    sun15-sc1-i2 #smsconfig-entry#
-----
Update the hosts file, "/etc/hosts", with these changes? [y,n] y
Hosts file "/etc/hosts" has been updated.

The following information is about to be applied to the "/etc/
netmasks" file.
-----
ADD network: 10.1.1.50, mask: 255.255.255.0
ADD network: 10.2.1.0, mask: 255.255.255.224
ADD network: 10.3.1.0, mask: 255.255.255.224
-----

```

```
Update the netmasks file, "/etc/netmasks", with these changes?
[y,n] y
Netmasks files "etc/netmasks" has been updated.
smsconfig complete. Log file is /var/sadm/system/logs/smsconfig
sc: #
```

Note – Any changes made to the network configuration on one SC using `smsconfig -m` must be made to the other SC as well. Network configuration is not automatically propagated.

6. Edit the `/etc/nsswitch.conf` file.

The first entry for `passwd`, `group`, `hosts`, `netmasks`, and `ethers` should be `files nis`. To the right of `files`, list other naming services in use, such as `nis` or `DNS`, as in the following example.

```
sc1: # vi /etc/nsswitch.conf
...
passwd:      files nis
group:       files nis
...
hosts:       files nis
...
netmasks:   files nis
...
ethers:      files nis
...
```

Note – `smsconfig` automatically updates the `/etc/netmasks` and the `/etc/inet/hosts` file with all the private host names and logical addresses for the SC.

7. Update your Solaris OS naming software, such as NIS, NIS+, or DNS, as appropriate.

▼ To Set Up Users and Groups

The SMS user group IDs are created during initial installation. For a complete list of the user group IDs, see [TABLE 4-1](#).

1. Log in to the spare SC as superuser.
2. Type the following command for each user you want to add.

```
sc1: # /opt/SUNWSMS/bin/smsconfig -a -u username -G groupname domain_id|platform
```

where:

- *username* is the name of a user account on the system.
- *groupname* is one of the following valid group designations: *adm*, *rcfg*, *oper*, or *svc*.
- *domain_id* is the ID for a domain. Valid domain IDs are A through R and are case insensitive.

For example, to add a user to the *dmnaadm* group with access to domain A directories, type the following.

```
sc1: # /opt/SUNWSMS/bin/smsconfig -a -u fdjones -G admn a
fdjones has been added to the dmnaadm group
All privileges to domain a have been applied.
```

Note – Do *not* manually add users from SMS groups in the */etc/group* file. This can limit or deny access to users.

3. To list SMS groups and administrative privileges, use the following command.

```
sc1: # /opt/SUNWSMS/bin/smsconfig -l domain_id|platform
```

For example, to display all users with platform privileges, type the following.

```
sc1: # /opt/SUNWSMS/bin/smsconfig -l platform
fdjones
jtd
```

▼ To Enable the Alternate Break Sequence

To facilitate failover in SMS, the default sequence to stop the system [St_{op}-A] has been changed to the following alternate: [Return] [~] [Control-B]. Use this procedure to enable the alternate break sequence.

1. **Log in to the spare SC as superuser.**
2. **In the `/etc/default/kbd` file, uncomment the following line:**

```
#KEYBOARD_ABORT=alternate
```

This takes effect when you reboot the spare SC. For more information about the Alternate Break Sequence, see [“Using the Alternate Break Sequence”](#) on page 91.

▼ To Reboot the Spare SC

Rebooting the SC enables the automatic hardening that you set up when you installed the SMS software.

1. **Log in to the spare SC as superuser and change to the OpenBoot PROM prompt.**

```
sc1:# su -  
password: superuser_passwd  
sc1:# shutdown -y -g0 -i0  
...[system message]  
ok
```

2. **Reboot the spare SC.**

```
ok boot -rv
```

Upgrading SMS Software to Version 1.6

TABLE 3-3 shows the sequence of procedures to upgrade a previous version of SMS software to version 1.6. You use the `smsupgrade` command to upgrade the SMS software in these instances:

- You are upgrading the Solaris OS on the SCs from one major release to another (for example, from Solaris 9 OS to Solaris 10 OS), and you want to upgrade the SMS software to version 1.6.
- You are not upgrading the Solaris OS, but you want to upgrade to SMS 1.6 software from an earlier SMS version. See FIGURE 1-2 for a diagram of upgrade paths from previous SMS versions.

The `smsupgrade` script automatically backs up and restores the SMS environment during the upgrade process.

If you already have SMS 1.6 software installed and you want to upgrade the Solaris OS on the SCs to a minor release (for example, you want to upgrade from Solaris 9 4/04 OS to Solaris 9 9/04 OS), you do not need to upgrade your SMS software. You can back up the SMS environment, upgrade the Solaris OS, and then restore the SMS environment. See “[Manually Backing Up and Restoring the SMS 1.6 Environment](#)” on page 99 for instructions.

▼ To Do Before Starting the Upgrade

Before you begin the upgrade procedure, do these tasks.

1. Gather the superuser passwords for both SCs.
2. Be sure you have `platadm` privileges to both SCs.
3. On both SCs, determine the directory into which you will download the SMS software from the web.
4. Ensure that the SC data is synchronized between the two SCs by typing this command on the main SC.

```
sc0:# /opt/SUNWsms/bin/setdatasync backup
```

5. Ensure that both SC clocks are phase-locked. You can do this by looking at the most recent messages in the platform logs, which say whether the SC clocks are locked or not.

Note – During installation, or whenever the other SC is at the OpenBoot PROM prompt or not running SMS, you might see “SC clocks NOT phase locked” messages in the platform log. You can ignore them.

6. Before installing the SMS 1.6 packages, make sure that you have serial or console access to the SC or have Secure Shell (ssh) available on the SC.

After you install SMS 1.6 and reboot the SC, the hardening performed by the `smsinstall` script disables remote access.

Note – If you are using `ssh` on the SC, you must change the `ssh` escape character to avoid conflict with the SMS console. See “[Changing the ssh Escape Character](#)” on [page 89](#) for more information.

7. Gather the following publications before you start the installation or upgrade:

- Installation guide for the version of the Solaris OS that you plan to install
- *Sun Fire 15K/12K System Site Planning Guide* or *Sun Fire E25K/E20K System Site Planning Guide*

8. Check the Solaris (SPARC Platform Edition) Release Notes and the Solaris Release Notes Supplement for Sun Hardware for your version of the Solaris OS, the System Management Services (SMS) 1.6 Release Notes, and <http://sunsolve.sun.com> for the latest information on issues, late-breaking news, and patch availability.

9. Refer to the site planning guide for your Sun Fire system when reconfiguring your MAN.

You need the following information from your worksheets:

- Platform name
- Chassis serial number
- Host-name IP addresses and submask for the I1 internal network
- Host-name IP addresses and submask for the I2 internal network
- Community host-name IP addresses and submask for the external network
- Host-name IP address for the SC logical interface
- Community host-name addresses for the domains

10. Install the release-appropriate Solaris patch cluster available at <http://sunsolve.sun.com>, to ensure that SMS runs properly. Apply any patches to the Solaris OS before reinstalling or upgrading the SMS software.

▼ To Start the Upgrade

TABLE 3-3 shows the upgrade process for both the main SC (SC0) and the spare SC (SC1). Perform the procedures in the sequence shown in the table. The sections following the figure are in the order that the procedures should be performed. Each procedure contains the page number where that specific procedure can be found in this document.

TABLE 3-3 Upgrading SMS Software to Version 1.6

| Main SC | Spare SC |
|--|---|
| 1. "To Unharden the Main SC" on page 51 | |
| 2. "To Disable Failover on the Main SC" on page 52 | |
| 3. "To Back Up the SMS Environment on the Main SC" on page 52 | |
| | 4. "To Unharden the Spare SC" on page 54 |
| | 5. "To Back Up the SMS Environment on the Spare SC" on page 55 |
| | 6. "To Upgrade the Solaris OS on the Spare SC (Optional)" on page 56 |
| | 7. "To Download SMS 1.6 Software From the Web for the Spare SC" on page 57 |
| | 8. "To Remove the Solaris Security Toolkit from the Spare SC If You Have a Previous Package" on page 58 |
| | 9. "To Upgrade SMS Software on the Spare SC" on page 59 |
| | 10. "To Install Any SMS Patches on the Spare SC" on page 64 |
| | 11. "To Manually Harden the Spare SC" on page 65 |
| | 12. "To Switch Control to the Spare SC" on page 66 |
| | 13. "To Upgrade the Spare SC Flash PROMs" on page 67 |
| | 14. "To Reboot the Spare System Controller" on page 67 |
| 15. "To Upgrade the Solaris OS on the Main SC (Optional)" on page 68 | |
| 16. "To Download SMS 1.6 Software From the Web for the Main SC" on page 69 | |

(Procedures continue on next page)

TABLE 3-3 Upgrading SMS Software to Version 1.6 (Continued)

| Main SC | Spare SC |
|---|----------|
| 17. "To Remove the Solaris Security Toolkit from the Main SC If You Have a Previous Package" on page 70 | |
| 18. "To Upgrade SMS Software on the Main SC" on page 70 | |
| 19. "To Install Any SMS Patches on the Main SC" on page 75 | |
| 20. "To Manually Harden the Main SC" on page 76 | |
| 21. "To Reboot the Main System Controller" on page 77 | |
| 22. "To Upgrade the Main SC Flash PROMs" on page 77 | |
| 23. "To Switch Control Back to the Main SC" on page 78 | |
| 24. "To Enable Failover" on page 78 | |
| 25. "To Upgrade the System Board Flash PROMs" on page 79 | |

▼ To Unharden the Main SC

To undo the hardening manually, perform the following procedure.

1. **Log in to the main SC as superuser.**
2. **Type the following command at the `sc` prompt to undo the hardening.**
(Both the `smsinstall` and the `smsupgrade` scripts install the Solaris Security Toolkit in `/opt/SUNWjass/.`)

```
sc1:# /opt/SUNWjass/bin/jass-execute -u
```

The system prompts you to select a hardening operation (called a Solaris Security Toolkit run) to undo.

```
[xc8p13-sc0/] /opt/SUNWjass/bin/jass-execute -u
[NOTE] Executing driver, undo.driver

Please select a Solaris Security Toolkit run to restore through:
1.  December 20, 2005 at 11:01:30 (/var/opt/SUNWjass/run/
20041220110130)
Choice ('q' to exit)? 1
[NOTE] Restoring to previous run from /var/opt/SUNWjass/run/
20041220110130
[...]
```

3. **Type the number of the run you want to undo at the CHOICE ('q' to exit)? prompt.**

For more information about using the Solaris Security Toolkit, refer to the *Solaris Security Toolkit 4.2 Administration Guide* or the *Solaris Security Toolkit 4.2 Reference Manual*.

▼ To Disable Failover on the Main SC

Before you disable failover on the main SC, be sure SMS is running and your configuration remains stable. No commands should be active and no hardware should be changed during the reinstallation process.

1. **Log in to the main SC as a user with `platadm` privileges.**
2. **Disable failover by typing the following command.**

```
sc0:sms-user:> /opt/SUNWSMS/bin/setfailover off
```

▼ To Back Up the SMS Environment on the Main SC

Note – The `smsupgrade` script automatically backs up and restores the SMS environment during the upgrade process. However, your system is more secure if you perform your own manual backup here also.

If you have a recent SMS backup file, you do not have to perform this procedure. Note, however, that the `sms_backup.X.X.cpio` file of one SC cannot be used by the other SC. They are SC-specific files and are not interchangeable.

1. **Log in to the main SC (`sc0`) as superuser.**
2. **Stop SMS.**

```
sc0:# /etc/init.d/sms stop
```

3. **Back up the SMS environment.**

Run `smsbackup` or have the latest copy of the `smsbackup` file (`sms_backup.X.X.cpio`) accessible to the disk.

Note – The `sms_backup.X.X.cpio` file of one SC cannot be used by the other SC. They are SC-specific files and are not interchangeable.

```
sc0:# /opt/SUNWSMS/bin/smsbackup directory_name
```

where *directory_name* is the name of the directory in which the backup file is created. This file can reside in any directory on the system, connected network, or tape device to which you have read/write privileges. If you do not specify a *directory_name*, the backup file is created in `/var/tmp`.

The *directory_name* you specify must be mounted as a UNIX file system (UFS). Specifying a temporary file system (TMPFS), such as `/tmp`, causes `smsbackup` to fail.

If you are not certain that your *directory_name* is mounted as a UFS, type the following command.

```
sc0:# /usr/bin/df -F ufs directory_name
```

A UFS returns directory information. Any other type of file system returns a warning.



Caution – Before you upgrade the Solaris OS on the SC or run `smsupgrade`, be sure that SMS is stopped.

4. Start SMS on the main SC.

▼ To Unharden the Spare SC

To undo the hardening manually, perform the following procedure.

1. **Log in to the spare SC as superuser.**
2. **Type the following command at the `sc` prompt to undo the hardening.**
(Both the `smsinstall` and the `smsupgrade` scripts install the Solaris Security Toolkit in `/opt/SUNWjass/.`)

```
sc1:# /opt/SUNWjass/bin/jass-execute -u
```

The system prompts you to select a hardening operation (called a Solaris Security Toolkit run) to undo.

```
[xc8p13-sc0/] /opt/SUNWjass/bin/jass-execute -u
[NOTE] Executing driver, undo.driver

Please select a Solaris Security Toolkit run to restore through:
1.  December 20, 2005 at 11:01:30 (/var/opt/SUNWjass/run/
20041220110130)
Choice ('q' to exit)? 1
[NOTE] Restoring to previous run from /var/opt/SUNWjass/run/
20041220110130
[...]
```

3. **Type the number of the run you want to undo at the CHOICE ('q' to exit)? prompt.**

For more information about using the Solaris Security Toolkit, refer to the *Solaris Security Toolkit 4.2 Administration Guide* or the *Solaris Security Toolkit 4.2 Reference Manual*.

▼ To Back Up the SMS Environment on the Spare SC

Note – `smssupgrade` automatically backs up and restores the SMS environment during the upgrade process. However, your system is more secure if you perform your own manual backup here also.

If you have a recent SMS backup file, you do not have to perform this procedure. Note, however, that the `sms_backup.X.X.cpio` file of one SC cannot be used by the other SC. They are SC-specific files and are not interchangeable.

1. Log in to the spare SC (`sc1`) as superuser.
2. Stop SMS.

```
sc1:# /etc/init.d/sms stop
```

3. Back up the SMS environment.

Run `smssbackup` or have the latest copy of the `smssbackup` file (`sms_backup.X.X.cpio`) accessible to the disk.

Note – The `sms_backup.X.X.cpio` file of one SC cannot be used by the other SC. They are SC-specific files and are not interchangeable.

```
sc1:# /opt/SUNWSMS/bin/smsbackup directory_name
```

where *directory_name* is the name of the directory in which the backup file is created. This file can reside in any directory on the system, connected network, or tape device to which you have read/write privileges. If you do not specify a *directory_name*, the backup file is created in `/var/tmp`.

The *directory_name* you specify must be mounted as a UNIX file system (UFS). Specifying a temporary file system (TMPFS), such as `/tmp`, causes `smsbackup` to fail.

If you are not certain that your *directory_name* is mounted as a UFS, type the following command.

```
sc1:# /usr/bin/df -F ufs directory_name
```

A UFS returns directory information. Any other type of file system returns a warning.

▼ To Upgrade the Solaris OS on the Spare SC (Optional)

This procedure is optional. If you do not want to upgrade the Solaris OS and you just want to upgrade the SMS software, skip this procedure. Proceed directly to [“To Download SMS 1.6 Software From the Web for the Spare SC” on page 57](#).



Caution – Before you upgrade the Solaris OS on the SC or run `smsupgrade`, be sure that SMS is stopped.

1. Upgrade the Solaris OS.

Refer to the appropriate Solaris installation guide for instructions. Make sure that you:

- a. **Install the proper release of the Solaris OS, including patches (see [“SC Software Requirements” on page 7](#)).**

Without the proper version and patches, the availability daemons on the SC do not start, causing SMS daemon startup failures and an unusable SC.

b. Select the Entire Distribution group of the OS.

c. Select the English, C, locale.

On the SC, SMS 1.6 does not support any Solaris locale other than English.

2. Verify that Java 1.2.2 software has been installed in the default directory. Type the following command.

```
sc1:# java -version
```

The default directory is `/usr/java1.2/bin/java`. If you are using the Sun Fire Interconnect and Java 1.2.2 software is not installed in the default directory, SMS does not start.

Note – After installing Java 1.2.2 software, be sure to stop and restart SMS.

3. Install any recommended or required Solaris OS patches.

▼ To Download SMS 1.6 Software From the Web for the Spare SC

Note – You can choose between SMS 1.6 software for Solaris 9 OS and SMS 1.6 software for Solaris 10 OS. You can install only the SMS 1.6 software for Solaris 9 OS on a system controller running the Solaris 9 OS; you can install only the SMS 1.6 software for Solaris 10 OS on a system controller running the Solaris 10 OS. Otherwise, the installation fails.

1. Using your web browser, go to:

<http://www.sun.com/servers/highend/sms.html>

2. Select the SMS 1.6 software to download depending on the Solaris OS you are running:

- Solaris 9 OS-SMS-1_6-S9-sparc.zip file
- Solaris 10 OS-SMS-1_6-S10-sparc.zip file

3. Log in to the spare SC (sc1) as superuser.

4. Change directory to the location where you downloaded the software.

```
sc1:# cd /download_directory
```

5. Extract the downloaded file.

```
sc1:# unzip SMS-1_6-S9-sparc.zip
      OR
sc1:# unzip SMS-1_6-S10-sparc.zip
```

After the file is extracted, the SMS 1.6 packages are located in `/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product`.

Note – The `smsinstall` script and `smsupgrade` script are located in the directory `/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Tools`. Use the scripts located in this directory, *not* the scripts that might already be installed in `/opt/SUNWSMS/bin`, to run the upgrade and installation processes.

6. Download any recommended or required patches for SMS from:

<http://sunsolve.sun.com>

▼ To Remove the Solaris Security Toolkit from the Spare SC If You Have a Previous Package

1. Use the `pkgrm` command to remove the Solaris Security Toolkit package.

```
sc1% pkgrm SUNWjass
```

A message similar to this one is displayed for each package.

```
The following package is currently installed:
  SUNWjass      Solaris Security Toolkit
                (Solaris) 4.1.1

Do you want to remove this package?
```

2. To remove each package, enter `y` for Yes.

Here is an example. The message varies by package.

```
Do you want to remove this package? y

## Removing installed package instance <SUNWjass>
## Verifying package dependencies.
## Processing package information.
/opt/SUNWjass/sysidcfg
/opt/SUNWjass/rules.SAMPLE
/opt/SUNWjass/nomatch.beg
/opt/SUNWjass/man/windex
/opt/SUNWjass/man/sman7/server-secure.driver.7

[...]
```

▼ To Upgrade SMS Software on the Spare SC



Caution – Before you upgrade the Solaris OS on the SC or run `smsupgrade`, be sure that SMS is stopped.

1. Log in to the spare SC (`sc1`) as superuser.
2. Change directory to the location of the `smsupgrade` script.

```
sc1:# cd /download_directory/sms_1_6_sparc/  
System_Management_Services_1.6/Tools
```

Note – The `smsupgrade(1M)` script automatically installs the SMS man pages in the directory `/opt/SUNWSMS/man/sman1m`. To avoid conflicts, do *not* change this location.

3. Begin the upgrade process by running the `smsupgrade(1M)` script.

```
sc1:# ./smsupgrade directory_name
```

where *directory_name* represents the directory (*/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product*) into which the SMS packages were downloaded (see [“To Download SMS 1.6 Software From the Web for the Spare SC” on page 57](#)).

The `smsupgrade` script first backs up any existing SMS environment as in this example.

```
Attempting to stop daemon picld
/etc/init.d/picld stop
Verifying that all SMS packages are installed
.....OK
Backing up SMS to /var/tmp/sms_backup.1.6.cpio before upgrade.
Please wait...
smsbackup /var/tmp
smsbackup: Backup configuration file created: /var/tmp/
sms_backup.1.6.cpio
SMS backup complete.
```

Note – The name of the SMS backup file depends upon the version from which you are upgrading. In this example, the version is SMS 1.6.

After backing up the SMS environment, the `smsupgrade` script detects the version of the Solaris Security Toolkit previously installed on the SC. As with the `sminstall` script, the result of the `smsupgrade` script depends on whether:

- No Solaris Security Toolkit exists on the SC
- Version 4.2 of the Solaris Security Toolkit already exists on the SC
- A prior version of the Solaris Security Toolkit exists on the SC

Each case is described below.

- If no Solaris Security Toolkit is installed on the SC, the `smsupgrade` script installs the 4.2 package.

```
Checking if Solaris Security Toolkit is already installed.
Installing Solaris Security Toolkit package SUNWjass
Copyright 2005 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.

Installation of <SUNWjass> was successful.
```

- If Solaris Security Toolkit 4.2 is already installed, the `smsupgrade` script performs an integrity check to make sure the files have not been damaged or modified.

```
Checking if Solaris Security Toolkit is already installed.

Checking Solaris Security Toolkit package SUNWjass version
info. Version is 4.2.

Performing integrity check on previously installed package
SUNWjass
```

If the toolkit passes the integrity check, the upgrade process finishes automatically as described in [Step 4](#). If the toolkit files have been damaged or modified, the script displays an error with instructions to remove the toolkit.

```
ERROR: /opt/SUNWjass/Drivers/user.init.SAMPLE
       file size <2467> expected <2474> actual
       file cksum <4574> expected <5119> actual
Failed integrity check for package SUNWjass. Please remove the
package before continuing.
```

- If the SC is running Solaris 9 OS, and an incompatible version of the Solaris Security Toolkit exists on the SC, the script notifies you with an error message similar to the following.

```
Checking if Solaris Security Toolkit is already installed.

Checking Solaris Security Toolkit version info.
Solaris Security Toolkit version is 4.1.

Solaris Security Toolkit version 4.1 is not compatible with
this version of SMS. The minimum compatible version is 4.1.1.

Please uninstall the current version of Solaris Security
Toolkit before re-running the command smsupgrade. Aborting at
Solaris Security Toolkit check for command smsupgrade.
```

Note – If you are running Solaris 9 OS on your SC, and you already have Solaris Security Toolkit 4.1.1 on the SC, you can keep using that version.

- If the SC is running Solaris 10 1/06 OS, and an incompatible version of the Solaris Security Toolkit exists on the SC, the script notifies you with an error message similar to the following.

```
Checking if Solaris Security Toolkit is already installed.

Checking Solaris Security Toolkit version info.
Solaris Security Toolkit version is 4.1.1.

Solaris Security Toolkit version 4.1.1 is not compatible with
this version of SMS. The minimum compatible version is 4.2.

Please uninstall the current version of Solaris Security
Toolkit before re-running the command smsupgrade. Aborting at
Solaris Security Toolkit check for command smsupgrade.
```

If you receive an error message, take the following steps.

a. Remove the damaged or modified package.

i. Use the `pkgrm` command to remove the Solaris Security Toolkit package.

```
sc% pkgrm SUNWjass
```

A message similar to this one is displayed for each package.

```
The following package is currently installed:
SUNWjass      Solaris Security Toolkit
              (Solaris) 4.1.1

Do you want to remove this package?
```

ii. To remove each package, enter `y` for Yes.

Here is an example. The message varies by package.

```
Do you want to remove this package? y

## Removing installed package instance <SUNWjass>
## Verifying package dependencies.
## Processing package information.
/opt/SUNWjass/sysidcfg
/opt/SUNWjass/rules.SAMPLE
/opt/SUNWjass/nomatch.beg
/opt/SUNWjass/man/windex
/opt/SUNWjass/man/sman7/server-secure.driver.7

[...]
```

b. After removing the package, start smsupgrade again.

4. Conclude the upgrade process.

After verifying the integrity of the toolkit, the script installs the SMS packages.

```
Installing SMS packages. Please wait...
pkgadd -n -d "../Product" -a /tmp/smsinstall.admin.24308
SUNWscdvr.u
SUNWSMSr SUNWSMSop SUNWSMSdf SUNWSMSjh SUNWSMSlp SUNWSMSmn
SUNWSMSob
SUNWSMSod SUNWSMSpd SUNWSMSpo SUNWSMSpp SUNWSMSsu SUNWufr.u
SUNWufu
SUNWwccmn
Copyright 2006 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.

Installation of <SUNWscdvr> was successful.
Installation of <SUNWSMSr> was successful.
```

Note – The smsupgrade(1M) script automatically installs the SMS man pages in the directory /opt/SUNWSMS/man/sman1m. To avoid conflicts, do *not* change this location.

After installing the SMS 1.6 packages, the `smsupgrade` script restores the previous SMS environment and starts `picld`. The screen output includes instructions about manually hardening the SC.

```
Attempting to start daemon picld
/etc/init.d/picld start
Attempting to start zoed...
zoed started.
It is recommended to harden the System Controller after an SMS
upgrade. Execute the following to do this:
  1) /opt/SUNWjass/bin/jass-execute -q server-secure.driver
  2) Reboot the System Controller

Before rebooting, please make sure SSH or the serial or console
line is setup for use after the reboot

smsupgrade complete. Log file is /var/sadm/system/logs/smsupgrade.
```

▼ To Install Any SMS Patches on the Spare SC

SMS patches are available at <http://sunsolve.sun.com>.

Before you install patches for your SMS software, follow these guidelines and notify the affected administrators if necessary.

- System should be stable.
- No DR operations should be in progress.
- No domain should be starting or shutting down.
- No user-initiated `datasync` or `cmdsnc` operations should be in progress.

Complete any domain, board, or configuration changes *before* you begin patch installation.

Read all patch instructions (included with the patch) carefully before attempting to install a patch. Instructions in the patch procedure could preempt these instructions.

1. **Log in to the spare SC (`sc1`) with platform administrator privileges.**
2. **Install any patches on the spare SC.**

▼ To Manually Harden the Spare SC

The `smsupgrade` command does not automatically harden the SC. To manually harden the SCs after upgrading SMS software, follow the instructions shown on the screen or in this section.

1. Log in to the spare SC as superuser.

```
sc1:# su -  
password: superuser_passwd
```

2. Type the following command to harden.

```
sc1:# /opt/SUNWjass/bin/jass-execute -q -d server-secure.driver
```

Note – The `-q` (quiet) option suppresses verbose output from the system when you execute this command.

The system responds with the prompt `Are you sure?`

3. Type `yes` to proceed.

4. Before you reboot, if you want someone to be able to log in to an SC remotely, you must make a change in your `/etc/hosts.allow` file in the Solaris Security Toolkit.

Note – Once you reboot and the hardening takes effect, you cannot log into an SC remotely.

- If you want to restrict access to the local subnetwork only, you do not have to make a change in the file, because the default for the Secure Shell (`sshd`) property is `LOCAL`. The line in the file should read as follows:

```
sshd: LOCAL
```

- If you want to allow users to log in remotely, change the `sshd` property to `ALL`. The line in the file should read as follows:

```
sshd: ALL
```

- If you want to restrict access to the other SC only, you would specify the other SC's name for the `sshd` property. For example, if the main SC is named `main-sc0` and the spare SC is named `spare-sc1`, the line in file for the spare SC should read:

```
sshd: main-sc0
```

For more information about the `/etc/hosts.allow` file, refer to the *Solaris Security Toolkit 4.2 Reference Manual*.

▼ To Switch Control to the Spare SC

1. Log in to the main system controller (`sc0`) as superuser .
2. Stop SMS.

```
sc0:# /etc/init.d/sms stop
```

3. Log in to the spare SC (`sc1`) and change to the OpenBoot PROM prompt.

```
sc1:# shutdown -y -g0 -i0
...[system message]
ok
```

Note – Before rebooting, make sure you have serial or console access to the SC, or have `ssh` available on the SC. Starting with SMS 1.6 software, Solaris Security Toolkit 4.2 software disables all remote access services except `ssh` on Solaris 9 OS.

If you are using `ssh`, you must change the `ssh` escape character to avoid conflict with the SMS console. See [“Changing the ssh Escape Character” on page 89](#) for more information.

4. Reboot the spare SC.

```
ok boot -rv
```

After you reboot the spare SC, SMS starts with the spare SC (`sc1`) acting as the main SC. However, this document continues to refer to `SC0` as the main SC and `SC1` as the spare SC.

This procedure assumes that `smsconfig -m` has already been run. If `smsconfig -m` has not been run, you receive the following error and SMS exits.

```
sms: smsconfig(1M) has not been run. Unable to start sms services.
```

▼ To Upgrade the Spare SC Flash PROMs

You must have platform (`platadm`) privileges to run the `flashupdate(1M)` command.

1. Log in to the spare SC as a user with `platadm` privileges.
2. Use `flashupdate` to upgrade the `fp0` flash PROM.

```
sc1:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/SCOBPimg.di
sc1/fp0
```

3. Use `flashupdate` again to upgrade the `fp1` flash PROM, using the appropriate image for the type of board.

- For the CP1500 board, use `flashupdate` with the `nSSCPOST.di` image.

```
sc1:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/nSSCPOST.di
sc1/fp1
```

- For the CP2140 board, use `flashupdate` with the `oSSCPOST.di` image.

```
sc1:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/oSSCPOST.di
sc1/fp1
```

For more information on the `flashupdate(1M)` command, refer to the *System Management Services (SMS) 1.6 Reference Manual* or the `flashupdate` man page.

▼ To Reboot the Spare System Controller

1. Log in to the spare SC as superuser and change to the OpenBoot PROM prompt.

```
sc1:# su -
password: superuser_passwd
sc1:# shutdown -y -g0 -i0
...[system message]
ok
```

2. Reboot the spare SC.

```
ok boot -rv
```

▼ To Upgrade the Solaris OS on the Main SC (Optional)

This procedure is optional. If you do not want to upgrade the Solaris OS and you just want to upgrade the SMS software, skip this procedure. Proceed directly to [“To Download SMS 1.6 Software From the Web for the Main SC” on page 69.](#)



Caution – Before you upgrade the Solaris OS on the SC or run `smsupgrade`, be sure that SMS is stopped.

1. Upgrade the Solaris OS.

Refer to the appropriate Solaris installation guide for instructions. Make sure that you:

a. Install the proper release of the Solaris OS, including patches (see [“SC Software Requirements” on page 7.](#))

Without the proper version and patches, the availability daemons on the SC do not start, causing SMS daemon startup failures and an unusable SC.

b. Select the Entire Distribution group of the OS.

c. Select the English, C, locale.

On the SC, SMS 1.6 does not support any Solaris locale other than English.

2. Verify that Java 1.2.2 software has been installed in the default directory. Type the following command.

```
sc0:# java -version
```

The default directory is `/usr/java1.2/bin/java`. If you are using the Sun Fire Interconnect and Java 1.2.2 software is not installed in the default directory, SMS does not start.

Note – After installing Java 1.2.2 software, be sure to stop and restart SMS.

3. Install any required Solaris OS patches.

▼ To Download SMS 1.6 Software From the Web for the Main SC

Note – You can choose between SMS 1.6 software for Solaris 9 OS and SMS 1.6 software for Solaris 10 OS. You can install only the SMS 1.6 software for Solaris 9 OS on a system controller running the Solaris 9 OS; you can install only the SMS 1.6 software for Solaris 10 OS on a system controller running the Solaris 10 OS. Otherwise, the installation fails.

1. Using your web browser, go to:

<http://www.sun.com/servers/highend/sms.html>

2. Select the SMS 1.6 software to download depending on the Solaris OS you are running:

- Solaris 9 OS–SMS-1_6-S9-sparc.zip file
- Solaris 10 OS–SMS-1_6-S10-sparc.zip file

3. Log in to the main SC (sc0) as superuser.

4. Change directory to the location where you downloaded the software.

```
sc0:# cd /download_directory
```

5. Extract the downloaded file.

```
sc0:# unzip SMS-1_6-S9-sparc.zip
      OR
sc0:# unzip SMS-1_6-S10-sparc.zip
```

After the file is extracted, the SMS 1.6 packages are located in `/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product`.

Note – The `smsinstall` script and `smsupgrade` script are located in the directory `/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Tools`. Use the scripts located in this directory, *not* the scripts that might already be installed in `/opt/SUNWSMS/bin`, to run the upgrade and installation processes.

6. Download any recommended or required patches for SMS from:

<http://sunsolve.sun.com>

▼ To Remove the Solaris Security Toolkit from the Main SC If You Have a Previous Package

1. Use the `pkgrm` command to remove the Solaris Security Toolkit package.

```
sc0% pkgrm SUNWjass
```

A message similar to this one is displayed for each package.

```
The following package is currently installed:  
  SUNWjass      Solaris Security Toolkit  
                (Solaris) 4.1.1  
  
Do you want to remove this package?
```

2. To remove each package, enter `y` for Yes.

Here is an example. The message varies by package.

```
Do you want to remove this package? y  
  
## Removing installed package instance <SUNWjass>  
## Verifying package dependencies.  
## Processing package information.  
/opt/SUNWjass/sysidcfg  
/opt/SUNWjass/rules.SAMPLE  
/opt/SUNWjass/nomatch.beg  
/opt/SUNWjass/man/windex  
/opt/SUNWjass/man/sman7/server-secure.driver.7  
  
[...]
```

▼ To Upgrade SMS Software on the Main SC



Caution – Before you upgrade the Solaris OS on the SC or run `smsupgrade`, be sure that SMS is stopped.

1. Log in to the main SC (`sc0`) as superuser.

2. Change directory to the location of the `smsupgrade` script.

```
sc0:# cd /download_directory/sms_1_6_sparc/  
System_Management_Services_1.6/Tools
```

Note – The `smsupgrade(1M)` script automatically installs the SMS man pages in the directory `/opt/SUNWSMS/man/sman1m`. To avoid conflicts, do *not* change this location.

3. Begin the upgrade process by running the `smsupgrade(1M)` script.

```
sc0:# ./smsupgrade directory_name
```

where `directory_name` represents the directory (`/download_directory/sms_1_6_sparc/System_Management_Services_1.6/Product`) into which the SMS packages were downloaded (see [“To Download SMS 1.6 Software From the Web for the Main SC”](#) on page 69).

The `smsupgrade` script first backs up any existing SMS environment, as in this example.

```
Attempting to stop daemon picld  
/etc/init.d/picld stop  
Verifying that all SMS packages are installed  
.....OK  
Backing up SMS to /var/tmp/sms_backup.1.6.cpio before upgrade.  
Please wait...  
smsbackup /var/tmp  
smsbackup: Backup configuration file created: /var/tmp/  
sms_backup.1.6.cpio  
SMS backup complete.
```

Note – The name of the SMS backup file depends upon the version from which you are upgrading. In this example, the version is SMS 1.6.

After backing up the SMS environment, the `smsupgrade` script detects the version of the Solaris Security Toolkit previously installed on the SC. As with the `smsinstall` script, the result of the `smsupgrade` script depends on whether:

- No Solaris Security Toolkit exists on the SC
- Version 4.2 of the Solaris Security Toolkit already exists on the SC

- A prior version of the Solaris Security Toolkit exists on the SC

Each case is described below.

- If no Solaris Security Toolkit is installed on the SC, the smsupgrade script installs version 4.2.

```
Checking if Solaris Security Toolkit is already installed.  
Installing Solaris Security Toolkit package SUNWjass  
Copyright 2005 Sun Microsystems, Inc. All rights reserved.  
Use is subject to license terms.
```

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

- If Solaris Security Toolkit 4.2 is already installed, the smsupgrade script performs an integrity check to make sure the files have not been damaged or modified.

```
Checking if Solaris Security Toolkit is already installed.  
  
Checking Solaris Security Toolkit package SUNWjass version  
info. Version is 4.2.
```

```
Performing integrity check on previously installed package  
SUNWjass
```

If the toolkit passes the integrity check, the upgrade process finishes automatically as described in [Step 4](#). If the toolkit files have been damaged or modified, the script displays an error with instructions to remove the toolkit.

```
ERROR: /opt/SUNWjass/Drivers/user.init.SAMPLE  
       file size <2467> expected <2474> actual  
       file cksum <4574> expected <5119> actual  
Failed integrity check for package SUNWjass. Please remove the  
package before continuing.
```

- If the SC is running Solaris 9 OS, and an incompatible version of the Solaris Security Toolkit exists on the SC, the script notifies you with an error message similar to the following.

```
Checking if Solaris Security Toolkit is already installed.

Checking Solaris Security Toolkit version info.
Solaris Security Toolkit version is 4.1.

Solaris Security Toolkit version 4.1 is not compatible with
this version of SMS. The minimum compatible version is 4.1.1.

Please uninstall the current version of Solaris Security
Toolkit before re-running the command smsupgrade. Aborting at
Solaris Security Toolkit check for command smsupgrade.
```

Note – If you are running Solaris 9 OS on your SC, and you already have Solaris Security Toolkit 4.1.1 on the SC, you can keep using that version.

- If the SC is running Solaris 10 1/06 OS, and an incompatible version of the Solaris Security Toolkit exists on the SC, the script notifies you with an error message similar to the following.

```
Checking if Solaris Security Toolkit is already installed.

Checking Solaris Security Toolkit version info.
Solaris Security Toolkit version is 4.1.1.

Solaris Security Toolkit version 4.1.1 is not compatible with
this version of SMS. The minimum compatible version is 4.2.

Please uninstall the current version of Solaris Security
Toolkit before re-running the command smsupgrade. Aborting at
Solaris Security Toolkit check for command smsupgrade.
```

If you receive an error message, take the following steps.

a. Remove the damaged or modified package.

- i. Use the `pkgrm` command to remove the Solaris Security Toolkit package.**

```
sc0% pkgrm SUNWjass
```

A message similar to this one is displayed for each package.

```
The following package is currently installed:
  SUNWjass          Solaris Security Toolkit
                   (Solaris) 4.1.1

Do you want to remove this package?
```

ii. To remove each package, enter `y` for Yes.

Here is an example. The message varies by package.

```
Do you want to remove this package? y

## Removing installed package instance <SUNWjass>
## Verifying package dependencies.
## Processing package information.
/opt/SUNWjass/sysidcfg
/opt/SUNWjass/rules.SAMPLE
/opt/SUNWjass/nomatch.beg
/opt/SUNWjass/man/windex
/opt/SUNWjass/man/sman7/server-secure.driver.7

[...]
```

b. After removing the package, start `smsupgrade` again.

4. Conclude the upgrade process.

After verifying the integrity of the toolkit, the script installs the SMS packages.

```
Installing SMS packages. Please wait...
pkgadd -n -d "../Product" -a /tmp/smsinstall.admin.24308
SUNWscdvr.u
SUNWSMSr SUNWSMSop SUNWSMSdf SUNWSMSjh SUNWSMSlp SUNWSMSmn
SUNWSMSob
SUNWSMSod SUNWSMSpd SUNWSMSpo SUNWSMSpp SUNWSMSsu SUNWufr.u
SUNWufu
SUNWwccmn
Copyright 2006 Sun Microsystems, Inc. All rights reserved.
Use is subject to license terms.

Installation of <SUNWscdvr> was successful.
Installation of <SUNWSMSr> was successful.
```

Note – The `smsupgrade(1M)` script automatically installs the SMS man pages in the directory `/opt/SUNWSMS/man/sman1m`. To avoid conflicts, do *not* change this location.

After installing the SMS 1.6 packages, the `smsupgrade` script restores the previous SMS environment and starts `picld`. The screen output includes instructions about manually hardening the SC.

```
Attempting to start daemon picld
/etc/init.d/picld start
Attempting to start zoed...
zoed started.
It is recommended to harden the System Controller after an SMS
upgrade. Execute the following to do this:
  1) /opt/SUNWjass/bin/jass-execute -q server-secure.driver
  2) Reboot the System Controller

Before rebooting, please make sure SSH or the serial or console
line is setup for use after the reboot

smsupgrade complete. Log file is /var/sadm/system/logs/smsupgrade.
```

▼ To Install Any SMS Patches on the Main SC

SMS patches are available at <http://sunsolve.sun.com>.

Before you install patches for your SMS software, follow these guidelines and notify the affected administrators if necessary.

- System should be stable.
- No DR operations should be in progress.
- No domain should be starting or shutting down.
- No user-initiated `datasync` or `cmdsnc` operations should be in progress.

Complete any domain, board, or configuration changes *before* you begin patch installation.

Read all patch instructions (included with the patch) carefully before attempting to install a patch. Instructions in the patch procedure could preempt these instructions.

1. Log in to the main SC (`sc0`) with platform administrator privileges.
2. Install any SMS patches on the main SC.

▼ To Manually Harden the Main SC

The `smupgrade` script does not automatically harden the SC. To manually harden the SC after upgrading SMS software, follow the instructions shown on the screen or in this section.

1. **Log in to the main SC as superuser.**
2. **Type the following command to harden.**

```
sc0:# /opt/SUNWjass/bin/jass-execute -q -d server-secure.driver
```

Note – The `-q` (quiet) option suppresses verbose output from the system when you execute this command.

The system responds with the prompt `Are you sure?`

3. **Type `yes` to proceed.**
The system hardens the main SC.
4. **Before you reboot, if you want someone to be able to log in to an SC remotely, you must make a change in your `/etc/hosts.allow` file in the Solaris Security Toolkit.**

Note – Once you reboot and the hardening takes effect, you cannot log into an SC remotely.

- If you want to restrict access to the local subnetwork only, you do not have to make a change in the file, because the default for the Secure Shell (`sshd`) property is `LOCAL`. The line in the file should read as follows:
`sshd: LOCAL`
- If you want to allow users to log in remotely, change the `sshd` property to `ALL`. The line in the file should read as follows:
`sshd: ALL`
- If you want to restrict access to the other SC only, you would specify the other SC's name for the `sshd` property. For example, if the main SC is named `main-sc0` and the spare SC is named `spare-sc1`, the line in file for the main SC should read:
`sshd: spare-sc1`

For more information about the `/etc/hosts.allow` file, refer to the *Solaris Security Toolkit 4.2 Reference Manual*.

▼ To Reboot the Main System Controller

1. Log in to the main SC as superuser and change to the OpenBoot PROM prompt.

```
sc0:# su -  
password: superuser_passwd  
sc0:# shutdown -y -g0 -i0  
...[system message]  
ok
```

2. Reboot the main SC.

```
ok boot -rv
```

▼ To Upgrade the Main SC Flash PROMs

You must have platform (platadm) privileges to run the flashupdate(1M) command.

1. Log in to the main SC as a user with platadm privileges.
2. Use flashupdate to upgrade the fp0 flash PROM.

```
sc0:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/SCOBPimg.di sc0/fp0
```

3. Use flashupdate again to upgrade the fp1 flash PROM, using the appropriate image for the type of board.

- For the CP1500 board, use flashupdate with the nSSCPOST.di image.

```
sc0:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/nSSCPOST.di  
sc0/fp1
```

- For the CP2140 board, use flashupdate with the oSSCPOST.di image.

```
sc0:sms-user:> flashupdate -f /opt/SUNWSMS/firmware/oSSCPOST.di  
sc0/fp1
```

For more information on the flashupdate(1M) command, refer to the *System Management Services (SMS) 1.6 Reference Manual* or the flashupdate man page.

▼ To Switch Control Back to the Main SC

1. Log in to the spare SC (sc1) as superuser.
2. Stop SMS.

```
sc1:# /etc/init.d/sms stop
```

3. Log in to the main SC (sc0) and change to the OpenBoot PROM prompt.

```
sc0:# shutdown -y -g0 -i0  
...[system message]  
ok
```

4. Reboot the main SC.

```
ok boot -rv
```

Wait for all processes to start on the main SC before proceeding to the next step. Use the `showenvironment` command to verify that all SMS processes have started on the main SC.

5. Use the `/etc/init.d/sms` script to restart SMS on the spare SC.

```
sc1:# /etc/init.d/sms start
```

▼ To Enable Failover

1. Log in to the main SC as a user with `platadm` privileges.
2. Turn on failover.

```
sc0:sms-user:> /opt/SUNWSMS/bin/setfailover on
```


3. Verify that failover is working.

```
sc0:sms-user:> /opt/SUNWSMS/bin/showfailover -v
SC Failover Status: ACTIVATING
sc0:sms-user:> /opt/SUNWSMS/bin/showfailover -v
SC Failover status: ACTIVE
```

After you issue the `setfailover` command, the SCs begin to synchronize. While the main SC synchronizes with the spare SC, the failover status reads `ACTIVATING`. Once the synchronization is complete, the status reads `ACTIVE`.

▼ To Upgrade the System Board Flash PROMs

You must have platform privileges to run the `flashupdate(1M)` command.

1. Log in to the main SC as a user with `platadm` privileges.
2. Use `flashupdate` to upgrade the CPU flash PROMs in a domain.
 - To update all the boards in a particular domain, use the `-d` option as shown in the following example.

```
sc0:sms-user:> flashupdate -d <domain-indicator> \opt/SUNWSMS/hostobjs/
sgcpu.flash
```

- To update a particular board in the domain, use the `-f` option as shown in the following example.

```
sc0:sms-user:> flashupdate -f /opt/SUNWSMS/hostobjs/sgcpu.flash location
```

The *location* argument can be either of the following:

board_loc

board_loc/FPROM_id

Specify the *FPROM_id* only when you want to update a particular FEPROM (FP0 or FP1) on a system board. These are the possible values for *board_loc*, provided an I/O slot is occupied by an MCPUC board:

| Sun Fire 15K/E25K | Sun Fire 12K/E20K |
|-------------------|-------------------|
| SB(0...17) | SB(0...8) |
| IO(0...17) | IO(0...8) |

The following *FEPROM_id* forms are accepted for all platforms:

FP0, FP1

For example, the location *SB4/FP0* indicates the FEPROM 0 on the CPU board in slot 4.

3. Perform a system power-on self-test (POST) control application, *hpost*, per board with a dynamic reconfiguration operation to make the new firmware active on system boards.

- For single boards, use the *deleteboard(1M)* or *addboard(1M)* commands to perform an *hpost*.
- For all boards in a domain, use the *setkeyswitch(1M)* command to perform an *hpost*.



Caution – Doing a reboot will not activate the new firmware. Use the *setkeyswitch(1M)* command to activate the firmware.

Additional SMS 1.6 Software Procedures

This chapter contains additional procedures that you might want to perform while using or updating the SMS 1.6 software. The topics covered in this chapter include:

- [“Adding Users to SMS” on page 81](#)
- [“Installing SMS Patches” on page 85](#)
- [“Configuring an SC as an NTP Client” on page 86](#)
- [“Stopping and Starting SMS” on page 88](#)
- [“Changing the ssh Escape Character” on page 89](#)
- [“Using the Alternate Break Sequence” on page 91](#)
- [“Switching SMS Versions” on page 92](#)
- [“Checking the Solaris Security Toolkit Version” on page 97](#)
- [“Manually Backing Up and Restoring the SMS 1.6 Environment” on page 99](#)
- [“Changing IP Address or Host Name of SC or Domain” on page 102](#)

Adding Users to SMS

The SMS security model uses group membership to provide users with the authority to perform various system management tasks. The level and type of system management available depends on a user’s group membership. For more information, refer to Chapter 2, “SMS Security” in the *System Management Services (SMS) 1.6 Administrator Guide*.

Note – Adding users using `smsconfig` must be performed on both the main and spare SCs once software installation and network configuration are completed.

The SMS user group IDs are created during initial installation. [TABLE 4-1](#) lists the user groups that are set up for you.

TABLE 4-1 User Group IDs Created During Installation

| User Group ID | User Group Description |
|---------------|------------------------------|
| platadm | Platform Administrator Group |
| platsvc | Platform Service Group |
| platooper | Platform Operator Group |
| dmnaadm | Domain A Administrator Group |
| dmnbadm | Domain B Administrator Group |
| dmncadm | Domain C Administrator Group |
| dmndadm | Domain D Administrator Group |
| dmneadm | Domain E Administrator Group |
| dmnfadm | Domain F Administrator Group |
| dmngadm | Domain G Administrator Group |
| dmnhadm | Domain H Administrator Group |
| dmniadm | Domain I Administrator Group |
| dmnjadm | Domain J Administrator Group |
| dmnkadm | Domain K Administrator Group |
| dmnladm | Domain L Administrator Group |
| dmnmadm | Domain M Administrator Group |
| dmnnadm | Domain N Administrator Group |
| dmnoadm | Domain O Administrator Group |
| dmnpadm | Domain P Administrator Group |
| dmnqadm | Domain Q Administrator Group |
| dmnradm | Domain R Administrator Group |
| dmnarcfg | Domain A Configuration Group |
| dmnbrcfg | Domain B Configuration Group |
| dmncrcfg | Domain C Configuration Group |
| dmndrcfg | Domain D Configuration Group |
| dmnecfg | Domain E Configuration Group |
| dmnfrcfg | Domain F Configuration Group |
| dmngrcfg | Domain G Configuration Group |

TABLE 4-1 User Group IDs Created During Installation (*Continued*)

| User Group ID | User Group Description |
|---------------|------------------------------|
| dmnhrcfg | Domain H Configuration Group |
| dmnircfg | Domain I Configuration Group |
| dmnjrcfg | Domain J Configuration Group |
| dmnkrcfg | Domain K Configuration Group |
| dmnlrcfg | Domain L Configuration Group |
| dmnmrcfg | Domain M Configuration Group |
| dmnnrcfg | Domain N Configuration Group |
| dmnorcfg | Domain O Configuration Group |
| dmnprcfg | Domain P Configuration Group |
| dmnqrcfg | Domain Q Configuration Group |
| dmnrrcfg | Domain R Configuration Group |

▼ To Add Users to SMS Groups and Configure Directory Access

SMS provides the ability to add users to SMS groups and refine user access to directories in the domains. This functionality protects domain integrity and system security.

1. Log in as superuser.
2. Type the following command for each user you want to add.

```
sc0:# /opt/SUNWSMS/bin/smsconfig -a -u username -G groupname domain_id |platform
```

where:

- *username* is the name of a user account on the system.
- *groupname* is one of the following valid group designations: *adm*, *rcfg*, *oper*, or *svc*.

- *domain_id* is the ID for a domain. Valid domain IDs are A through R and are case insensitive.

For example, to add a user to the `dmnaadm` group with access to domain A directories, type the following.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -a -u fdjones -G admn a
fdjones has been added to the dmnaadm group
All privileges to domain a have been applied.
```

Note – Do *not* manually add or remove users from SMS groups in the `/etc/group` file. This can limit or deny access to users.

3. To list SMS groups and administrative privileges, use the following command.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -l domain_id|platform
```

For example, to display all users with platform privileges, type the following.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -l platform
fdjones
jtd
```

4. Type the following command for each user you want to remove.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -r -u username -G groupname domain_id|platform
```

where:

- *username* is the name of a valid user account on the system.
- *groupname* is one of the following group designations: `adm`, `rcfg`, `oper`, or `svc`.
- *domain_id* is the ID for a domain. Valid domain IDs are A through R and are case insensitive.

For example, to remove `fdjones` from the `dmnbadm` group, type the following.

```
sc0: # /opt/SUNWSMS/bin/smsconfig -r -u fdjones -G admn B
fdjones has been removed from the dmnbadm group.
All access to domain B is now denied.
```

Note – Do *not* manually add or remove users from SMS groups in the `/etc/group` file. This can limit or deny access to users.

Installing SMS Patches

SMS patches are available at <http://sunsolve.sun.com>.

Before you install patches for your SMS software, follow these guidelines and notify the affected administrators if necessary.

- System should be stable.
- No DR operations should be in progress.
- No domain should be starting or shutting down.
- No user-initiated `datasync` or `cmdsnc` operations should be in progress.

Complete any domain, board, or configuration changes *before* you begin patch installation.

Read all patch instructions (included with the patch) carefully before attempting to install a patch. Instructions in the patch procedure could preempt these instructions.

This example assumes that the main SC is `sc0` and the spare SC is `sc1`.

▼ To Install a Patch on an SC

1. Log in to the main SC (`sc0`) with platform administrator privileges.
2. Turn failover off. Type the following.

```
sc0:sms-user:> /opt/SUNWSMS/bin/setfailover off
```

3. Stop the SMS processes on the main SC.

```
sc0:# /etc/init.d/sms stop
```

4. Stop the SMS process on the spare SC.

```
sc1:# /etc/init.d/sms stop
```

5. Install the patch on both SCs.
6. Start the SMS processes on the main SC first.

```
sc0:# /etc/init.d/sms start
```

Wait for all processes to start before proceeding to the next step. Use the `showenvironment` command to verify that all SMS processes have started.

7. Start the SMS processes on the spare SC (sc1).

```
sc1:# /etc/init.d/sms start
```

8. Enable failover on the main SC (sc0).

```
sc0:sms-user:> /opt/SUNWSMS/bin/setfailover on
```

Configuring an SC as an NTP Client

To keep the most accurate time of day on Sun Fire high-end systems, configure both system controllers and each bootable domain in the platform as Network Time Protocol (NTP) clients of the same NTP servers.

▼ To Configure an SC as an NTP Client

Before proceeding, make sure that the platform has the most up-to-date patches, and that the latest recommended patch cluster is installed on the domains and system controllers.

The default NTP configuration file is `/etc/inet/ntp.conf`. It must contain a minimum of three NTP time servers with independent time sources. (For a list of public NTP time servers, refer to <http://www.ntp.org>.)

1. Insert the names of three NTP servers into the NTP configuration file of each SC and bootable domain.

Insert the following lines, replacing *ntp_server* with the actual name of the NTP server.

```
server ntp_server prefer
server ntp_server2
server ntp_server3
```

The server name followed by the *prefer* argument is the primary NTP server.

2. Add the name of the drift file.

The drift file records the frequency offset of the local clock oscillator. It is read at startup to set the initial frequency offset. Use the *driftfile* argument, followed by the name of the file.

```
driftfile filename
```

3. Add instructions for generating statistics.

These instructions consist of one line for a statistics path followed by a line for each type of statistics that is to be collected.

```
statsdir /var/ntp/ntpstats
filegen peerstats file peerstats type day enable
filegen loopstats file loopstats type day enable
filegen clockstats file clockstats type day enable
```

The first line indicates the path in which the statistics files are saved. The following lines each indicate the type of statistic (peer statistics, loop filter statistics, and clock driver statistics).

For more information about the available options, consult the *xntp(1M)* man page.

Stopping and Starting SMS

The following procedure describes how to manually stop and start SMS.

▼ To Manually Stop and Restart SMS

1. **Log in to the SC as a user with platform administrator privileges.**

You must have platform administrator privileges to run the `setfailover` command.

2. **Turn off failover.**

```
sc0:sms-user:> /opt/SUNWSMS/bin/setfailover off
```

3. **Log out as a platform administrator.**

4. **Log in to the SC as a user with superuser privileges.**

You must have superuser privileges to perform the following tasks.

5. **Use the `/etc/init.d/sms` script to stop SMS.**

```
sc0:# /etc/init.d/sms stop
```

6. **Use the `/etc/init.d/sms` script to restart SMS.**

```
sc0:# /etc/init.d/sms start
```

7. **Log out as superuser.**

8. **Log in to the SC as a user with platform administrator privileges.**

9. **Turn on failover.**

```
sc0:sms-user:> /opt/SUNWSMS/bin/setfailover on
```

10. Type the following command.

```
sc0:sms-user:> /opt/SUNWSMS/bin/showenvironment
```

11. Wait until `showenvironment` finishes displaying all board status.

At this point, you can log out and begin using SMS.

Changing the ssh Escape Character

The default Secure Shell (`ssh`) escape character is `~` (tilde). The SMS console uses the same character for escape sequences. This means that you must use a different escape character for `ssh`.

There are three ways to use a different escape character for `ssh`:

- Create a file in your home directory called `.ssh/config`, and specify the character you would like to use instead of `~`. This method is permanent until you change or delete the `.ssh/config` file, and it ensures that you always use the new escape character when you run `ssh`.
- Reset the escape character on the command line. This method changes the `ssh` escape character for the duration of the `ssh` session. Once you exit the `ssh` session, the escape character reverts to `~`.
- Use `~~` (two tildes) instead of a single tilde when you want to send an escape character to `ssh`. A single tilde sends the escape character to the SMS console instead. This method requires no special settings, but you must use the `~~` each time.

Note – You can use any alphanumeric character as an escape character, but it is best to choose one that does not conflict with other commands and which cannot be confused with system or command prompts.

The following sections explain how to change the `ssh` escape character.

▼ To Permanently Change the ssh Escape Character

1. Do one of the following:

- If you already have a `.ssh/config` file in your home directory, open that in your text editor.
- If you do not already have a `.ssh/config` file in your home directory, use your text editor to create one.

2. Type the following text into the file.

```
EscapeChar ^
```

In this example, the caret (^) is the new escape character.

3. Save the file as `.ssh/config`.

The next time you start `ssh`, the program will recognize ^ as the new escape character. This change remains permanent unless you delete the `.ssh/config` file, or specify another escape character.

▼ To Change the Escape Character for a Single ssh Session

The `ssh` command contains a `-e` option that enables you to specify a different escape character for the duration of the `ssh` session. You can specify the new escape character when you log in to `ssh`. Once you exit `ssh`, the default escape character reverts to `~`.

To change the escape character for a single session, follow these steps. In this example, the caret (^) character is the new escape character.

1. Log in to `ssh` from the system prompt, including the `-e^` option as shown in the example.

You can use a different escape character in place of ^.

```
% ssh -e^ login-options
```

login-options stands for the other options you normally use when logging in using `ssh`, such as the remote host name, login name, and so on.

Note – Be sure to specify an escape character when you use the `-e` option. If you use the `-e` option without specifying an escape character, all escape characters are disabled for the duration of your `ssh` session.

2. When you have finished using `ssh` in this session, type the new escape character (^ in this example), followed by a period.

```
sc:# ^.  
%
```

This exits `ssh`, and returns you to the local system prompt.

Using the Alternate Break Sequence

Since SMS 1.3, the default sequence to stop the system [Stop-A] has been changed to the following alternate: [Return] [~] [Control-B].

This was done to facilitate failover. The Solaris 8 OS introduced this new feature, which gives the system the ability to force a hanging system to halt when required without allowing random or spurious breaks to cause an unintentional stop.

Note – This default stop sequence works only with serial devices acting as consoles and not for systems with keyboards of their own. There must be an interval of more than 0.5 seconds between characters, and the entire string must be entered in less than 5 seconds.

▼ To Enable the Alternate Break Sequence

1. Log in to the SC as superuser.
2. In the `/etc/default/kbd` file, uncomment the following line:
`#KEYBOARD_ABORT=alternate`
3. Reboot the SC.

Switching SMS Versions

SMS enables you to switch between versions of SMS using the `smversion` script. The two versions must both be a minimum of SMS 1.5 and must both reside on the same version of the Solaris OS. This means that SMS 1.6 cannot switch to SMS versions earlier than 1.5. For SMS 1.6 on Solaris 9 OS, you can switch back to SMS 1.5. For SMS 1.6 software on Solaris 10 OS, you cannot switch back to SMS 1.5, because Solaris 10 OS supports only SMS 1.6. For more information about the `smversion` command, refer to the *System Management Services (SMS) 1.6 Administrator Guide*.

Switching to other SMS versions from SMS 1.6 has security implications. SMS 1.6 uses a different security profile than previous versions of SMS. This profile automatically hardens the SCs when you run the `sminstall` command. Since this hardening is not undone by the `smversion` command, you must manually undo the hardening before switching to a version of SMS other than 1.6.

To switch to another SMS version from SMS 1.6, follow this sequence. These procedures are explained in detail later in this section.

1. Undo hardening manually (using the Solaris Security Toolkit).
2. Switch to another version of SMS (using the `smversion` command).
3. Rearden manually (using the Solaris Security Toolkit).
4. Reboot the system.

The changes take effect after you reboot the system. If you do not remove the hardening manually, it remains in effect after the version switch, and this can impact SMS functionality.

▼ To Manually Undo Hardening

You can use the Solaris Security Toolkit to administer any aspect of Solaris security on the system controllers. Refer to the *Solaris Security Toolkit 4.2 Administrator Guide* or the *Solaris Security Toolkit 4.2 Reference Manual*. Both the `sminstall` and the `smupgrade` scripts install the Solaris Security Toolkit in `/opt/SUNWjass/`.

To undo the hardening manually, perform the following procedure. You must perform the procedure twice: once on the main SC, and once on the spare SC.

1. **Log in to the SC as superuser.**

2. Type the following command at the `sc` prompt to undo the hardening.

```
sc:# /opt/SUNWjass/bin/jass-execute -u
```

The system prompts you to select a hardening operation (called a Solaris Security Toolkit run) to undo.

```
[xc8p13-sc0/] /opt/SUNWjass/bin/jass-execute -u
[NOTE] Executing driver, undo.driver

Please select a Solaris Security Toolkit run to restore through:
1. December 20, 2005 at 11:01:30
(/var/opt/SUNWjass/run/20041220110130)
Choice ('q' to exit)? 1
[NOTE] Restoring to previous run from
/var/opt/SUNWjass/run/20041220110130
[...]
```

3. Type the number of the run you want to undo at the Choice ('q' to exit)? prompt.
4. Change to the OpenBoot PROM prompt.

```
sc:# shutdown -y -g0 -i0
...[system message]
ok
```

5. Reboot the SC.

```
ok boot -rv
```

You can now switch to another version of SMS.

▼ To Switch to a Different Version of SMS

Perform the following steps on the SC on which you want to switch to a different version of SMS. The two SMS software installations must be adjacent and co-resident on the SC.

Note – You must run the same versions of SMS on both SCs.

1. **Log in to the spare SC as superuser.**
2. **Make certain your configuration is stable.**
Being stable means the following commands should *not* be running: `smsconfig`, `poweron`, `poweroff`, `setkeyswitch`, `cfgadm`, `rcfgadm`, `addtag`, `deletetag`, `addboard`, `moveboard`, `deleteboard`, `setbus`, `setdefaults`, `setobpparams`, `setupplatform`, `enablecomponent`, or `disablecomponent`. If any of these commands are running, stop them before proceeding.
3. **Use `smsbackup` to back up your SMS configuration.**
See [“To Back Up the SMS Environment” on page 100](#).
4. **Deactivate failover by typing the following command at the SC superuser prompt.**

```
sc:# /opt/SUNWSMS/bin/setfailover off
```

5. **Stop SMS by typing the following command.**

```
sc:# /etc/init.d/sms stop
```

6. **Type the following command to run `smsversion`.**

```
sc:# /opt/SUNWSMS/bin/smsversion version-number
```

where *version-number* is the SMS version to which you want to switch. The example in this procedure shows a switch from SMS 1.6 to SMS 1.5.

7. Follow the prompts shown on the screen.

The following example shows sample screen output.

```
sc:# /opt/SUNWSMS/bin/smsversion 1.5
smsversion: Active SMS version 1.6 >
You have requested SMS Version 1.5

Is this correct? [y,n] y
smsversion: Downgrading SMS from 1.6> to 1.5>.
smsversion: SMS version 1.5 installed
To move to a different version of SMS an archive of
critical files will be created. What is the name of
the directory or tape device where the archive will be
stored? [/var/tmp] [Return]

smsversion: Backup configuration file created: /var/tmp/
sms_backup.1.5.cpio
smsversion: Switching to target version 1.5>.
smsversion: New Version 1.5> Active
smsversion: Active SMS version 1.5>
To restore the previous SMS configuration setting type:
smsrestore /var/tmp/sms_backup.1.5.cpio
```

8. Type the following command to run smsrestore.

```
sc:# /opt/SUNWSMS/bin/smsrestore filename
```

where *filename* is the absolute path to the backup file that you created in [Step 3](#) using smsbackup. The *filename* argument must contain the full path name for the file. This file can reside anywhere on the system, connected network, or tape device. If no *filename* is specified, you receive an error.

9. If the SMS version you selected in [Step 6](#) requires changes to your network configuration, run smsconfig -m and then reboot the SC. Then log in to the SC as superuser again.

If you do not need to make network changes, proceed to the next step.

10. Stop SMS on the main SC (sc0).

```
sc0:# /etc/init.d/sms stop
```

11. Type the following command to start SMS on the spare SC (sc1).

```
sc1:# /etc/init.d/sms start
```

12. Repeat [Step 1](#) through [Step 11](#) to switch SMS versions on the main SC (sc0).
13. Reactivate failover using the following command.

```
sc0:# /opt/SUNWSMS/bin/setfailover on
```

The version switching procedure is now complete. To restore security on the SC, you must reharden the SC.

▼ To Reharden After the Version Switch

To reharden the SCs after the version switch is complete, perform the following procedure. You must perform the procedure twice: once on the main SC, and once on the spare SC.

1. Log in to the main SC as superuser.

```
sc0:# su -  
password: superuser_passwd
```

2. Type the following command to reharden.

```
sc0:# /opt/SUNWjass/bin/jass-execute -q -d server-secure.driver
```

The system responds with the prompt `Are you sure?`

3. Type `yes` to proceed.
4. Change to the OpenBoot PROM prompt.

```
sc0:# shutdown -y -g0 -i0  
...[system message]  
ok
```

5. Reboot the main SC.

```
ok boot -rv
```

The system rehardens the main SC.

6. Repeat the procedure on the spare SC (sc1).

Note – The `-q` (quiet) option suppresses verbose output from the system when you execute this command.

Checking the Solaris Security Toolkit Version

This section contains procedures that describe how to check the version of Solaris Security Toolkit. If the version of the Solaris Security Toolkit software is out of date, you can use the procedures in this section to uninstall the software.

▼ To Determine Which Version of Solaris Security Toolkit Is Installed

1. Log in to the SC.

2. Type the `pkginfo` command with the `-l` option.

```
sc% pkginfo -l SUNWjass
```

The `pkginfo` command can be executed by the `sms-svc` user.

The `-l` option provides information about the package. Look for the `VERSION` field as in the following output example.

```
PKGINST: SUNWjass
  NAME: Solaris Security Toolkit
CATEGORY: Application
  ARCH: Solaris
VERSION: 4.2
  BASEDIR: /opt/SUNWjass
  VENDOR: Sun Microsystems, Inc.
  DESC: The Solaris Security Toolkit is a collection of tools
and scripts used to automate the security hardening and
verification of a system running the Solaris OS.
  PSTAMP: on81-dhpg20041018104950
INSTDATE: Nov 08 2005 12:29
HOTLINE: Please contact your Sun service representative.
STATUS: completely installed
  FILES:      385 installed pathnames
           33 directories
           10 executables
           2809 blocks used (approx)
```

If the Solaris Security Toolkit has not been installed, `pkginfo` returns a message similar to the following.

```
ERROR: information for "SUNWjass" was not found
```

▼ To Remove an Incompatible Version of the Solaris Security Toolkit

The SMS 1.6 version of the `smsinstall` script installs Solaris Security Toolkit 4.2 only if no previous versions are already installed. If you have modified any files in the Solaris Security Toolkit that you want to preserve, save them before following these steps. If you have added configuration files according to the instructions in the Solaris Security Toolkit documentation, you do not need to save them. They will be preserved.

1. Log in to the SC.
2. Use the `pkgrm` command to remove the Solaris Security Toolkit package.

```
sc% pkgrm SUNWjass
```

A message similar to this one is displayed for each package.

```
The following package is currently installed:
  SUNWjass          Solaris Security Toolkit
                   (Solaris) 4.2

Do you want to remove this package?
```

3. To remove each package, type `y` for Yes.

Here is an example. The message varies by package.

```
Do you want to remove this package? y

## Removing installed package instance <SUNWjass>
## Verifying package dependencies.
## Processing package information.
/opt/SUNWjass/sysidcfg
/opt/SUNWjass/rules.SAMPLE
/opt/SUNWjass/nomatch.beg
/opt/SUNWjass/man/windex
/opt/SUNWjass/man/sman7/server-secure.driver.7

[...]
```

Manually Backing Up and Restoring the SMS 1.6 Environment

The procedure in this section describes how to manually back up and restore SMS 1.6 on the SCs.

▼ To Back Up the SMS Environment

Do the following tasks to back up and restore SMS 1.6 on the SCs.

1. Log in to the SC as superuser.
2. Disable failover by typing the following command.

```
sc:sms-user:> /opt/SUNWSMS/bin/setfailover off
```

3. Stop SMS.

```
sc:# /etc/init.d/sms stop
```

4. Back up the SMS environment.

Run `smsbackup` or have the latest copy of the `smsbackup` file (`sms_backup.X.X.cpio`) accessible to the disk.

Note – The `sms_backup.X.X.cpio` file of one SC cannot be used by the other SC. They are SC-specific files and are not interchangeable.

```
sc:# /opt/SUNWSMS/bin/smsbackup directory_name
```

where *directory_name* is the name of the directory in which the backup file is created. This file can reside in any directory on the system, connected network, or tape device to which you have read/write privileges. If you do not specify a *directory_name*, the backup file is created in `/var/tmp`.

The *directory_name* you specify must be mounted as a UNIX file system (UFS). Specifying a temporary file system (TMPFS), such as `/tmp`, causes `smsbackup` to fail.

If you are not certain that your *directory_name* is mounted as a UFS, type the following command.

```
sc:# /usr/bin/df -F ufs directory_name
```

A UFS returns directory information. Any other type of file system returns a warning.

5. Start SMS.

```
sc:# /etc/init.d/sms start
```

6. Enable failover.

```
sc:sms-user:> /opt/SUNWSMS/bin/setfailover on
```

▼ To Restore SMS 1.6 Software

1. Disable failover.

```
sc:sms-user:> /opt/SUNWSMS/bin/setfailover off
```

2. Stop SMS.

```
sc:# /etc/init.d/sms stop
```

3. Run `smsrestore` on the `smsbackup` file.

```
sc:# /opt/SUNWSMS/bin/smsrestore filename
```

where *filename* is the absolute path to the backup file that was created by `smsbackup(1M)`. The *filename* must contain the full path name for the file. This file can reside anywhere on the system, connected network, or tape device. If no *filename* is specified, you receive an error.

4. Start SMS.

```
sc:# /etc/init.d/sms start
```

5. Enable failover.

```
sc:sms-user:> /opt/SUNWSMS/bin/setfailover on
```

Changing IP Address or Host Name of SC or Domain

This section describes how to change the IP address or host name of a domain or system controller.

▼ To Change the IP Address of an SC or Domain

1. Update your name service maps with the new IP address.
2. Reboot the domain or system controller.

▼ To Change the Host Name of a Domain or SC

1. Update your name service maps with the new host name.
2. Change the host name in the following files in the domain:

```
/etc/inet/hosts  
/etc/nodename  
/etc/hostname.interface-card-name  
/etc/net/ticlts/hosts  
/etc/net/ticlos/hosts  
/etc/net/ticotsord/hosts
```

3. Reboot the domain or SC.
4. Change the host name in the following files, if applicable:

```
/etc/defaultdomain (only if your NIS domain name has changed)  
/etc/hostname.* (only if your host name is specified in the file)  
/etc/hostname6.* (only if your host name is specified in the file)
```
5. If the host name was changed in the SC, run the `smsconfig -m` command.

For more information about the `smsconfig(1M)` command, refer to the *System Management Services (SMS) 1.6 Reference Manual* or the SMS 1.6 man pages.

Setting Up and Installing Software on Domains

This chapter contains the following instruction for installing the Solaris Operating System and additional software packages on Sun Fire high-end system domains:

- [“Creating a Domain” on page 103](#)
- [“Setting Up and Installing the Solaris Operating System on the Domain” on page 109](#)
- [“Configuring Domain Networks” on page 115](#)
- [“Installing Additional Software Packages on Domains” on page 117](#)

Creating a Domain

This section describes the following procedures for creating a new domain:

- [“To Build a New Domain on the System Controller” on page 104](#)
- [“To Activate the Domain” on page 106](#)
- [“To Open a Console for the Domain” on page 108](#)

Note – You must have a valid `idprom.image` file for the domain in the `/var/opt/SUNWSMS/data/domain_id` directory to create a domain. Contact your Sun service representative if this file is missing.

▼ To Build a New Domain on the System Controller

The examples in this guide use the definitions in [TABLE 5-1](#) for the various system prompts.

TABLE 5-1 SMS-Specific System Prompts

| Prompt | Definition |
|--------------------------------------|---|
| <code>sc0: #</code> | Superuser on the main SC. |
| <code>domain_id: #</code> | Superuser on the domain. |
| <code>sc_name:sms-user:></code> | User prompt on the SC. <i>sms-user</i> is the user-name of an administrator, operator, configurator, or service person logged in to the SC. |
| <code>domain_id:sms-user:></code> | User prompt on the domain. <i>sms-user</i> is the user-name of the administrator, operator, configurator, or service person logged in to the domain. |

The privileges allotted to the user are determined by the platform or domain groups to which the user belongs. In these examples, the *sms-user* is assumed to have both platform and domain administrator privileges, unless otherwise noted.

Note – In the following example, a platform administrator creates a domain by adding boards to the domain. The platform administrator must first run `setupplatform(1M)` and place the boards in the domain available component list before a domain administrator can run `addboard(1M)`.

1. Log in as a user with `plataadm` privileges, and create a domain by adding boards.

```
sc0:sms-user:> addboard -d domain_id -c assign location [location]
```

where:

- *domain_id* is the ID of the domain (A through R) that you are creating

- *location* corresponds to board location. The following *location* forms are accepted.

| Valid Form for Sun Fire 15K/E25K | Valid Form for Sun Fire 12K/E20K |
|----------------------------------|----------------------------------|
| SB(0...17) | SB(0..8) |
| IO(0...17) | IO(0..8) |

For example, the following command adds CPU boards in slots 2, 4, and 7 to domain A.

```
sc0:sms-user:> addboard -d A -c assign SB2 SB4 SB7
```

The next example adds I/O boards in slots 3, 5, and 8 to domain A.

```
sc0:sms-user:> addboard -d A -c assign IO3 IO5 IO8
```

2. Use the `deleteboard(1M)` command if you need to remove boards from an inactive domain.

```
sc0:sms-user:> deleteboard -c unassign location [location]
```

where *location* is the board location. The following *location* forms are accepted.

| Valid Form for Sun Fire 15K/E25K | Valid Form for Sun Fire 12K/E20K |
|----------------------------------|----------------------------------|
| SB(0...17) | SB(0..8) |
| IO(0...17) | IO(0..8) |

For example, the following command removes the CPU board in slot 2 from domain A.

```
sc0:sms-user:> deleteboard -c unassign SB2
```

The next example removes the I/O board in slot 3 from domain A.

```
sc0:sms-user:> deleteboard -c unassign IO3
```

3. Use the `addtag(1M)` command to add a tag for the domain.

```
sc0:sms-user:> addtag -d domain_id domain_tag
```

where:

- *domain_id* is the ID of the domain (A through R) you are creating.
- *domain_tag* is the name of the new tag you are adding for the domain, such as `domainA`.

For example, the following command adds the tag for domain A to the platform configuration database (PCD).

```
sc0:sms-user:> addtag -d A domainA
```

4. Use the `deletetag(1M)` command if you want to remove a tag.

```
sc0:sms-user:> deletetag -d domain_id
```

where *domain_id* is the ID of the domain from which you want to remove a tag (A through R).

For example, the following command deletes the tag for domain A from the PCD.

```
sc0:sms-user:> deletetag -d A
```

▼ To Activate the Domain

Note – To install the Solaris OS and SMS on a domain, you must have a valid `/var/opt/SUNWSMS/data/domain_id/idprom.image` file, where *domain_id* is A through R. If you do *not* have this file already, contact your Sun service representative.

SMS contains a virtual key switch for each domain, which controls the states of the domain. The `showkeyswitch(1M)` command displays the position of the virtual key switch, and the `setkeyswitch(1M)` command changes the position of the virtual key switch. The valid positions of the virtual key switch are `on`, `standby`, `off`, `diag`, and `secure`. For more information, refer to the *System Management Services (SMS) 1.6 Reference Manual*.

1. Display the domain status.

```
sc0:sms-user:> showkeyswitch -d domain_id
```

where *domain_id* is the ID of the domain (A through R) for which you want to check status.

For example, the following command shows the status of domain A.

```
sc0:sms-user:> showkeyswitch -d A
```

2. Activate the domain as a user with domain administrator (dmnaadm) privileges.

```
sc0:sms-user:> setkeyswitch -d domain_id position
```

where:

- *domain_id* is the ID of the domain (A through R) you want to activate.
- *position* is whether you want the virtual keyswitch in the *on* (activate), *off* (deactivate), *standby*, *diag*, or *secure* position.

For example, the following command activates domain A.

```
sc0:sms-user:> setkeyswitch -d A on
```

3. If you need to deactivate a domain, set the *position* of the virtual keyswitch to *off*.

For example, the following command deactivates domain A.

```
sc0:sms-user:> setkeyswitch -d A off
```

▼ To Open a Console for the Domain

The conditions required for a network console are:

- Network was properly installed and configured on both the SC and the domain in question using the site planning guide for your Sun Fire system and `smsconfig`.
- Network connection exists between the SC and the domain in question.
- IPSec configuration on both SC and the domain in question were properly installed and configured using `smsconfig`. For more information on IPSec, refer to the `kmcd(1M)` man page and the *System Management Services (SMS) 1.6 Administrator Guide*.

● Open an active console for the domain.

```
sc0:sms-user:> console -d domain_id
```

where `domain_id` is the ID of the domain (A through R) for which you want to open a console.

For example, the following command opens a console for domain A.

```
sc0:sms-user:> console -d A
```

In the domain console, `vi(1)` runs properly and the escape sequences (tilde commands) work as intended only if the environment variable `TERM` has the same setting as that of the console.

For example:

```
domain_id:sms-user:> setenv TERM xterm
```

For more information on the domain console, refer to the *System Management Services (SMS) 1.6 Administrator Guide* and the `console` man page.

Setting Up and Installing the Solaris Operating System on the Domain

This section describes the recommended procedures for setting up and installing the Solaris OS for the domain

:

- [“To Set Up the Domain as an Install Client” on page 109](#)
- [“To Install the Solaris Operating System on the Domain” on page 111](#)
- [“To Set OpenBoot PROM Environment Variables for the Domain” on page 113](#)

Note – If you had the Solaris OS preinstalled on your system or you have run the `sys-unconfig(1M)` command on the domain, see [“Configuring Domain Networks” on page 115](#) before proceeding.

To be most efficient, create an install server to install the Solaris OS software for a domain over the network. You should be familiar with setting up network install servers before beginning this procedure. Following are sources for more information.

- Refer to the installation guide for your version of the Solaris OS for information on configuring network install servers.
- Refer to the installation guide for your version of the Solaris OS for information on setting up the spare SC as an install client.
- See [Chapter 1](#) in this document for partition and Solaris OS distribution information.

▼ To Set Up the Domain as an Install Client

After you have created an install server on `sc0`, you are ready to install the Solaris OS software for the domain over the network. The system needs to identify the name of the domain, and you add this information by using the `add_install_client(1M)` command.



Caution – If you are installing the Solaris OS from more than one jumpstart server, be sure you have only one jumpstart boot server per subnet. If you have more than one jumpstart boot server per subnet, run the `rm_install_client(1M)` command on the extra servers and leave only the SC as the jumpstart boot server.

Refer to the reference manual for your version of the Solaris OS for more information about the `add_install_client(1M)` and `rm_install_client(1M)` commands.

1. Obtain the MAN Ethernet address at the OpenBoot PROM prompt by typing the following.

```
ok banner
Sun Fire 15000, using IOSRAM based Console
Copyright 1998-2001 Sun Microsystems, Inc. All rights reserved.
OpenBoot 4.5, 3072 MB memory installed, Serial #####.
Ethernet address 8:0:20:0:0:0, Host ID: 80200000.
```

The output displayed is an *example* only and does not reflect the specific information that appears on your system.

2. As superuser on SC0, set up the host domain as an install client.

```
sc0: # /install_dir_path/Solaris_9/Tools/add_install_client -e
domain_man_etheraddr -s scI1_hostname:/install_dir_path -c
scI1_hostname:/install_dir_path domain_hostname sun4u
```

where:

- `install_dir_path` specifies the directory where the CD images were copied.
- `domain_man_etheraddr` is the Ethernet address for the domain.
- `scI1_hostname` is the host name given to the SC I1 network during the `smsconfig -m` procedure.
- `domain_hostname` is the name given to the domain I1 network interface assigned during the `smsconfig -m` procedure.

You originally defined the domain host name (for example, SC I1) on the worksheet in the site planning guide for your Sun Fire system.

▼ To Install the Solaris Operating System on the Domain

1. Display the functioning network interfaces.

```
ok watch-net-all
```

Note – If the system is using a Fast Ethernet board with Lucent PHY, an error message claiming the device failed the test might appear. Ignore the error message or set the OpenBoot PROM parameter `diag-switch?` to `false`. Changing the switch setting keeps the error message from reappearing.

If `watch-net-all` reports a failure on the device associated with `man-net`, contact your Sun representative.

2. Network boot the domain from the SC using the Management Network (MAN).

```
ok boot man-net
```

Install the Solaris OS for the domain.

Refer to the installation guide for your version of the Solaris OS for detailed installation instructions. Refer to the site planning guide for your Sun Fire high-end system for site-specific and system-dependent information when prompted during installation.

Note – You can choose any Solaris OS locale you want for the operating system on the domain. The SCs must have the English locale installed, but the domains do not have the same requirement.

3. Change the domain node name.

When using the SC as an install server for a domain, change the domain's node name after the installation is complete. This reduces the amount of network traffic generated between the domain and SC over the MAN. Change the node name of the domain to the node name of one of its external network interfaces (for example, `qfe0`).

To change the domain's node name, do the following.

a. Log in to the domain as superuser.

- b. Type the following commands at the prompts, substituting the node name you chose for *new_nodename*.

```
domain_id:# uname -S new_nodename  
domain_id:# echo new_nodename > /etc/nodename
```

- c. Log out.

4. Remove the domain from the network install server list.

After installing the domain software, take these steps to remove the domain from the install server list.



Caution – If you do not remove the domain from the install server list, the domain does not boot from the boot disk or from the network.

- a. Log in to the SC as superuser.

- b. Type the following.

```
sc0: # /install_dir_path/Solaris_9/Tools/rm_install_client domain_hostname
```

- c. In preparation for [Step 4](#) of the *next* procedure, note the physical disk location.

For example, type the following.

```
sc0: # ls -la /dev/dsk/c0t17d0s0  
lrwxrwxrwx  1 root      root           77 Oct 12 17:38  
/dev/dsk/c0t17d0s0 ->  
../../../../devices/pci@3c,600000/pci@1/SUNW,q1c@4/fp@0,0/ssd@w21000020  
370dac0c,0:a
```

- d. Log out.

▼ To Set OpenBoot PROM Environment Variables for the Domain

1. At the domain console's `ok` prompt, remove any duplicate entries in the `devalias` list.

```
ok nvunalias duplicate_alias
```

where `duplicate_alias` is the alias of the duplicate entry.

Note – This sequence must be repeated once per duplication. `nvunalias` removes only one device alias at a time; it removes the last entry in the list of device aliases.

2. Display the OpenBoot PROM device tree to use in creating the device aliases.

```
ok show-devs
```

3. Display the functioning network interfaces.

```
ok watch-net-all
```

Note – If the system is using a Fast Ethernet board with Lucent PHY, an error message claiming the device failed the test might appear. Ignore the error message or set the OpenBoot PROM parameter `diag-switch?` to `false`. Changing the switch setting keeps the error message from reappearing.

4. Set the `bootdisk_alias` so that it refers to the device on which you are installing the Solaris OS.

```
ok nvalias bootdisk_alias device_string
```

where:

- `bootdisk_alias` is the alias for the device on which you are installing the Solaris OS.

- *device_string* is the string for the device on which you are installing the Solaris OS, as displayed in [Step 3](#).

For example:

```
nvalias disk /pci@3c,600000/pci@1/SUNW,q1c@4/fp@0,0/disk@w21000020370dac0c,0:a
```

Note – Enter the `nvalias` command on a single line. In the preceding example, the *ssd* in the physical disk location changed to *disk* in the boot string.

5. Record the newly created NVRAM data.

```
ok nvstore
```

Note – Make sure that the OpenBoot PROM parameter `use-nvramrc` is set to `True` so that the new user-defined *bootdisk_alias* is evaluated during startup.

6. Use the `setenv` command to set the default boot device to the correct alias.

```
ok setenv boot-device bootdisk_alias
```

where *bootdisk_alias* is the user-defined alias you established in [Step 4](#). The boot device must correspond to the bootable disk on which you are installing the Solaris OS. Be sure you set this variable correctly, because it is used in case of a panic and autoboot.

7. Now that you have set up an alias for your boot device, boot the disk by typing the following.

```
ok boot
```

Configuring Domain Networks

If you had the Solaris OS preinstalled on a domain or if you ran the `sys-unconfig(1M)` command on a domain, you must manually configure the MAN information on that domain.

Note – Do not add the domain as an install client on the SC before booting the domain, as described in [“To Set Up the Domain as an Install Client” on page 109](#).

▼ To Configure Domain Networks

1. Log in to the domain as superuser.
2. Type the following.

```
domain_id:#ndd -get /dev/dman man_get_hostinfo
```

The following is an example of the output displayed.

```
manc_magic = 0x4d414e43
manc_version = 01
manc_csum = 0x0
manc_ip_type = AF_INET
manc_dom_ipaddr = 10.1.1.3
manc_dom_ip_netmask = 255.255.255.224
manc_dom_ip_netnum = 10.1.1.0
manc_sc_ipaddr = 10.1.1.1
manc_dom_eaddr = 0:0:be:a8:48:26
manc_sc_eaddr = 8:0:20:f9:e4:54
manc_iob_bitmap = 0x400 io boards = 10.1,
manc_golden_iob = 10
```

3. Add or edit a `network-i1` entry to `/etc/netmasks`, using the following format.

```
manc_dom_ip_netnum manc_dom_ip_netmask
```

For example:

```
10.1.1.0 255.255.255.224
```

4. Create an `/etc/hostname.d/man0` file with the following content.

```
manc_dom_ipaddr netmask + broadcast + private up
```

For example:

```
10.1.1.3 netmask + broadcast + private up
```

5. Ensure that the `manc_sc_ipaddr` IP address matches the corresponding entry in `/etc/syslog.conf`.

```
domain_id:# cat /etc/syslog.conf
```

```
...  
*.notice @10.1.1.1
```

If the two entries do not match, edit the `/etc/syslog.conf` file. Save the file and exit.

6. Type the following.

```
domain_id:# ifconfig dman0 plumb  
domain_id:# ifconfig dman0 manc_dom_ipaddr netmask + broadcast +  
private up
```

where `manc_dom_ipaddr` is the domain IP address listed in `/etc/netmasks`.

The domain is now configured.

Installing Additional Software Packages on Domains

The additional software packages are on separate media. Install the software packages to the domains one at a time.

Note – Do not install these additional software packages on the SCs; install them only on the domains. For information on installing software on the Sun Fire high-end system SCs, refer to the *Sun Fire 15K Open System Controller (OpenSC) White Paper*.

There is no particular order in which the packages must be installed. Following are additional packages that you might want to install:

- Sun Remote Services (SRS)
- Veritas Volume Manager (VM)
- Load Sharing Facility (LSF) 3.2.3
- Sun™ Studio 11 tool set and compilers
- Sun™ ClusterTools 5
- C programming language and compiler
- Fortran 77 programming language and compiler
- ORACLE® database software

▼ To Install Additional Software Packages

Log in to the SC as superuser.

7. **Insert the installation CD for the software you want to install into the CD-ROM drive on the SC.**
8. **Use the `share(1M)` command to share the CD across the network.**
 - a. **Verify that the `nfsd` server is running.**

```
sc0:#ps -ef | grep nfsd
```

- b. **Add a CD-ROM entry to the `/etc/dfs/dfstab` file.**

```
share -F nfs -o ro,anon=0 /cdrom/cdrom0
```

c. Propagate the CD-ROM image to NFS.

```
sc0: # /etc/init.d/nfs.server start
```

9. Log in to the domain as superuser.

10. Create and mount the `/cdrom` directory for the domain.

```
domain_id: # mkdir /cdrom
domain_id: # mount SC-11: /cdrom/cdrom0 /cdrom
```

where `SC-11`: is the node name you specified for the SC 11 network.

11. Add the additional software package.

```
domain_id: # cd /cdrom/install_disk_name
domain_id: # pkgadd -d . software_package_name
```

where:

- `install_disk_name` is the name of the installation disk from which you are installing.
- `software_package_name` is the name of the software package you are adding.

The `pkgadd(1M)` command might display several messages and ask several installation questions for each package, some relating to space, others asking whether it is OK to continue. Answer these questions, and when asked whether to proceed, answer yes.

12. Unmount the CD.

```
domain_id: # cd /
domain_id: # umount /cdrom
```

13. Log out of the domain and log in to the SC as superuser.

14. Eject the installation CD from the CD-ROM drive on the SC.

```
sc0: # cd /
sc0: # eject cdrom
```


Glossary

This glossary defines abbreviations in the *Systems Management Services (SMS) 1.6 Installation Guide*.

A

ASIC application-specific integrated circuit

C

CD compact disc

CD-ROM compact disc-read-only memory

CSN chassis serial number

D

DNS Domain Name Service

E

eri Ethernet RIO Interface

F

FPROM Flash Programmable Read-only Memory

G

GB gigabyte

GHz gigahertz

H

HTML Hypertext Markup Language

I

I1 Internal Sun Fire high-end systems Network 1 (domain-to-SC management network)

I2 Internal Sun Fire high-end systems Network 2 (SC-to-SC management network)

ID identification

IP Internet Protocol

IPMP IP Network Multipathing

IPv4 Internet Protocol version 4

L

LSF Load Sharing Facility

M

MAN Management Network

MB megabyte

MCPU MaxCPU board

MHz megahertz

N

NFS Network File System

NIC Network Interface Card

NTP Network Time Protocol

NIS, NIS+ Network Information Service

O

OS operating system

P

PCD Platform Configuration Database

PDF Portable Document Format

POST power-on self-test
PROM Programmable Read-only Memory

R

RIO Read Input/Output ASIC

S

SC system controller
SC0 main system controller initially
SC1 spare system controller initially
SLVM Solaris Logical Volume Management
SMS System Management Services
SRS Sun Remote Services
SSH Secure Shell
ssh(1) Secure Shell command

T

TMPFS temporary file system

U

UFS UNIX file system



V

VM Veritas Volume Manager

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