System Management Services (SMS) 1.5 Installation Guide

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Contents

Preface

This guide contains instructions for installing version 1.5 of System Management Services (SMS) software on a Sun Fire™ high-end system, or upgrading to it from previous versions. In addition, this manual discusses the Secure By Default (SBD) feature of the Solaris™ Security Toolkit, and how SBD affects SMS installation, upgrading, and version switching.

Before You Read This Book

This guide is intended for the Sun Fire high-end system administrator who has a working knowledge of UNIX® systems, particularly those based on the Solaris™ Operating System. If you do not have such knowledge, read the Solaris User and System Administrator documentation provided with your system hardware, and consider UNIX system administration training.

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.

How This Book Is Organized

This guide contains the following information:

Chapter 1 provides software requirements and general planning information about installing SMS 1.5.

Chapter 2 discusses the Secure By Default feature of 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 1.5 software.

Chapter 4 provides miscellaneous installation topics, such as how to install additional software packages.

Chapter 5 describes how to configure SMS 1.5 software on the domains of Sun Fire high-end systems.

Using UNIX Commands

This document might not contain information on 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 at:

  `http://www.sun.com/documentation`

Shell Prompts

Shell	Prompt
C shell	*machine-name*`%`
C shell superuser	*machine-name*`#`
Bourne shell and Korn shell	`$`
Bourne shell and Korn shell superuser	`#`
SMS superuser	`sc:#`

Typographic Conventions

Typeface[1]	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. To delete a file, type **`rm`** *filename*.

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

Related Documentation

Application	Title	Part Number
Software Overview	*Sun Fire High-End Systems Software Overview Guide*	819-1338
Administrator Guide	*System Management Services (SMS) 1.5 Administrator Guide*	817-7295
Reference (man pages)	*System Management Services (SMS) 1.5 Reference Manual*	817-7296
Release Notes	*System Management Services (SMS) 1.5 Release Notes*	817-7297
Options	*Sun Fire High-End and Midrange Systems Dynamic Reconfiguration User Guide*	819-1501
	OpenBoot™ 4.x Command Reference Manual	816-1177
	Sun Fire 15K/12K System Site Planning Guide	806-3510

Application	Title	Part Number
	Sun Fire Link Fabric Administrator's Guide	806-1405
	Securing the Sun Fire 12K and 15K Domains	817-1357
	Securing the Sun Fire 12K and 15K System Controllers	817-1358
	System Administration Guide: IP Services	806-4075

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System Management Services (SMS) 1.5 Installation Guide, part number 817-7294-10

CHAPTER 1

Overview

This chapter provides background and planning information to prepare for installing the SMS 1.5 software:

Types of Installations

SMS 1.5 arrives preinstalled on the system controllers (SCs) of Sun Fire high-end systems. You must manually install or upgrade to SMS 1.5 only when:

- You install a new SC
- You upgrade the OS to a major release
- You upgrade from a previous release of SMS

FIGURE 1-1 illustrates the four types of SMS installations.

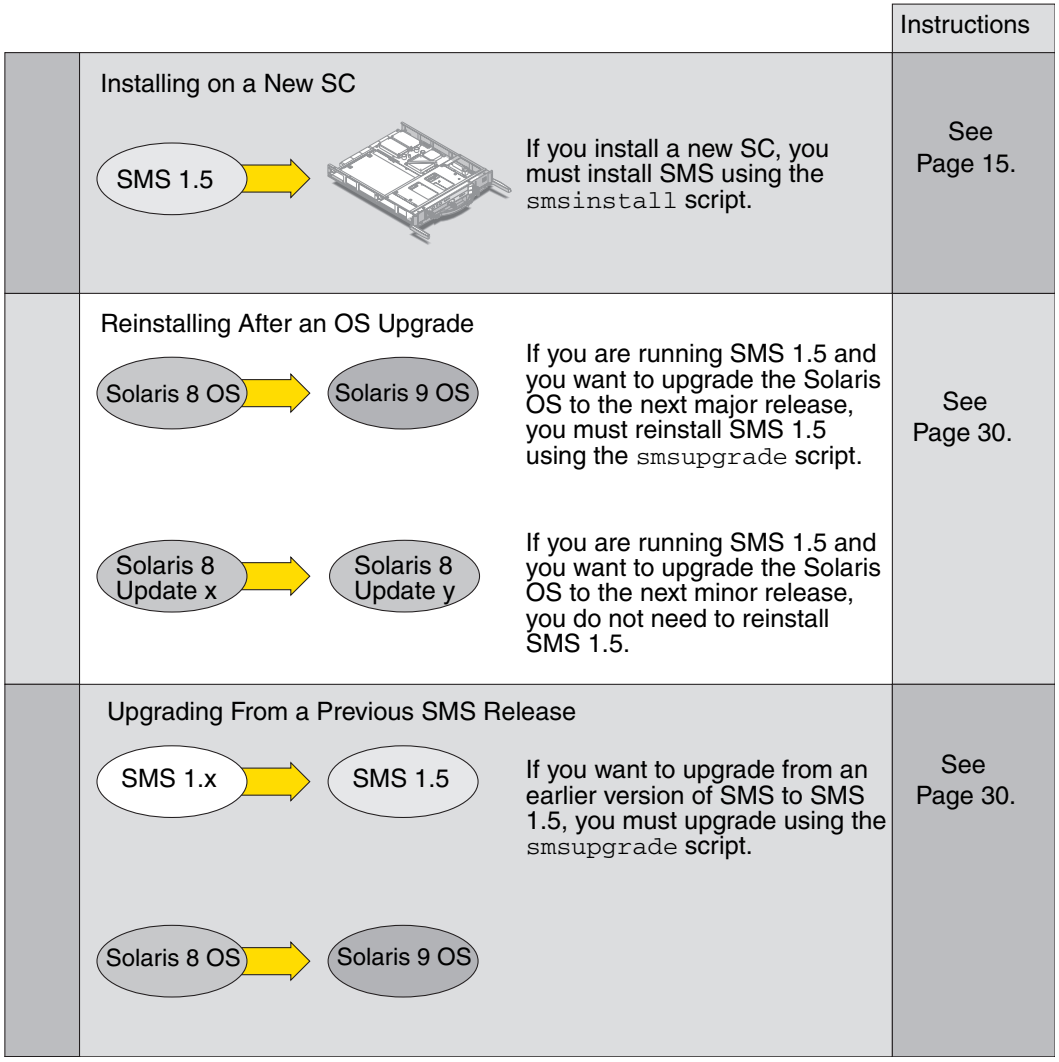

FIGURE 1-1 Reasons for Manually Installing SMS 1.5

SMS 1.5 is offered in the following packages:

- SMS 1.5 for the Solaris 8 operating system
- SMS 1.5 for the Solaris 9 operating system

Each set runs only the operating system for which it was designed. For instance, you cannot install the Solaris 8 packages of SMS 1.5 on a system controller that is running Solaris 9 software.

Note – At the time this document was prepared, SMS 1.5 supports the Solaris 10 OS on the domains only; SCs must run Solaris 8 or Solaris 9 software.

Valid Upgrade Paths

The following figure illustrates the valid SMS software upgrade paths on the SCs for the Solaris 8 and Solaris 9 operating systems:

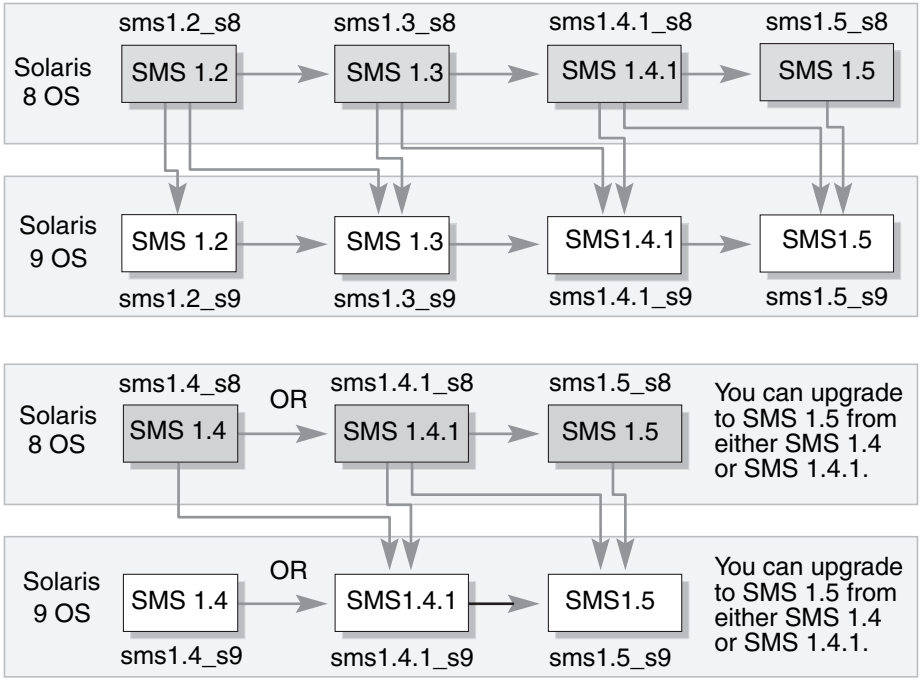

FIGURE 1-2 SMS Upgrade Paths

Note – SMS 1.1, SMS 1.2, and SMS 1.4 are no longer supported. Upgrade to SMS 1.3, 1.4.1, or 1.5 as soon as possible. Also note that there is no upgrade path from SMS 1.3 to SMS 1.5. You must upgrade from SMS 1.3 directly to SMS 1.4.1, and then to SMS 1.5. You can also upgrade from SMS 1.4 directly to SMS 1.5 without having to install SMS 1.4.1.

Valid Paths for Version Switching

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

- The 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. This means that:
  - If you upgrade from SMS 1.4 to SMS 1.5, you can switch back to SMS 1.4.
  - If you upgrade from SMS 1.4 to SMS 1.4.1 and then to SMS 1.5, you cannot switch back to SMS 1.4, only to SMS 1.4.1.
- 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 1.5 to any previous version of SMS, you must manually undo the hardening on the SCs using the Solaris Security Toolkit, then reharden and reboot.

Note – Hardening the SCs manually after upgrading to SMS 1.5 has security implications. See "Switching SMS Versions" on page 49.

Space Requirements

The SMS packages require approximately 18 Gbyte of disk space on each system controller (SC) and domain. The following table provides details by partition.

TABLE 1-1 SMS Software Partition Sizes (approximate)

Partition	Size
`0 /(root)`	8 Gbyte
`1 /swap`	4.5 Gbyte
`4 SLVM database`	11.5 Mbyte*
`5 SLVM database`	11.5 Mbyte*
`7 /export/home`	6.84 Gbyte

* SMS requires two disk partitions of at least 11.5 Mbyte each, dedicated to storing the SC's state information (metadevice state) during failover.

Hardware Compatibility

The following table shows the minimum software requirements for each type of board.

TABLE 1-2 Hardware Compatiblity

Board Type	System Controllers	Domains	SMS version
UltraSPARC III	Solaris 8 2/04 OS Solaris 9 4/04 OS	Solaris 8 2/04 OS Solaris 9 4/04 OS	SMS 1.4.1
UltraSPARC IV, 1.65 GHz	Solaris 8 2/04 OS Solaris 9 4/04 OS	Solaris 8 2/04 OS Solaris 9 4/04 OS Solaris 10 OS	SMS 1.5

SMS 1.5 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.

Software Requirements

These are the *minimum* software requirements for SMS 1.5. They vary by operating system.

Solaris 8 Requirements

As a minimum, the Solaris 8 OS version of SMS 1.5 requires:

- Solaris 8 2/02 OS release
- Same version of SMS software on both system controllers (SCs)
- 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:
  - 117002-01 patch
  - 108434-17 patch (required for the SCs)
  - 110826-09 patch for Solaris 8 on each domain (not required for SC)

- 111335-18 patch for Solaris 8 on each domain (not required for SC)

- The Solaris 8 version of SMS 1.5 has binary dependencies on these Solaris libraries:
  - `/usr/lib/libnvpair.so.1`
  - `/usr/lib/libuuid.so.1`
  - `/usr/lib/fm/libdiagcode.so.1`

  The fixes for these libraries are available respectively through patches 108528-24, 115831-01, and 115829-01, or higher.

  Apply the patches to both the SCs and domains.

- On the SCs, Java™ 1.2.2 must be installed in the default directory (`/usr/java1.2/bin/java`). Java 1.2.2 is normally installed in this directory during Solaris `Entire Distribution` installation.

Caution – If you are using the Sun Fire Interconnect and Java 1.2.2 is not installed on the SCs or is not installed in its default directory, SMS will fail to load.

Solaris 9 OS Requirements

As a minimum, the Solaris 9 OS version of SMS 1.5 requires:

- Solaris 9 4/04 OS release
- Same version of SMS software on both system controllers (SCs)
- 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:
  - The 113027-03 patch
  - The 111712-12 patch (required for the SCs)
  - Either the Solaris 9 12/03 version, or patch 112233-09 for all Solaris 9 domains (not required on the SC)
- On the SCs, Java 1.2.2 installed in the default directory (`/usr/java1.2/bin/java`). Java 1.2.2 is normally installed in this directory during Solaris `Entire Distribution` installation

Caution – If you are using the Sun Fire Interconnect, and Java 1.2.2 is not installed on the SCs or is not installed in its default directory, SMS will fail to load.

Solaris 10 OS Requirements

SMS 1.5 currently supports Solaris 10 OS only on the domains, not on the system controllers (SCs). The SCs require either Solaris 8 OS or Solaris 9 OS.

CHAPTER 2

Security Considerations

As of SMS 1.5, 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 1.5 from a previous version of SMS using the `smsupgrade` command, automatic hardening does not occur. You must manually harden the Solaris OS on the SCs.

This chapter discusses the security considerations for both types of SMS installations. Chapter 3 outlines the procedures for each type of installation.

Solaris Security Toolkit Software Requirements

SMS 1.5 requires Solaris Security Toolkit 4.1.1 software. If you have an earlier version, you must remove it or the installation and upgrade scripts will abort. 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 1.5 installed arrive with Solaris Security Toolkit 4.1.1 already installed and the operating system already hardened. You do not need to implement additional security measures.

- Systems that are upgraded to SMS 1.5 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 1.5 on new hardware by using the `smsinstall` command, Solaris Security Toolkit will be installed on your system, and your system will be 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 8 to Solaris 9), you must reinstall SMS. You can use the `smsinstall` command to perform the reinstallation procedure, and the SCs will automatically be 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 to Solaris 9 9/04), you do not need to reinstall SMS.

In each of these cases, once the SCs are hardened, you can only access the system through console login or the serial port (on Solaris 8 or Solaris 9), or remotely through `ssh` (installed in Solaris 9 only). Other services from the SCs, such as NFS server services, are disabled. Client services that you invoke externally from the SC still function, however. You can reenable services as needed, but doing so is not recommended.

Note – The `ssh` utility is part of Solaris 9 only, and is installed when you install the Solaris 9 OS. For more information about using `ssh` with the Solaris 8 OS, refer to the Sun Blueprint article entitled *Building OpenSSH — Tools and Tradeoffs, Updated for OpenSSH 3.7.1p2*, at:

`http://www.sun.com/blueprints/0404/817-6261.pdf`

For more information about how to configure OpenSSH on Solaris 8 OS, refer to the Sun Blueprint article *Configuring the Secure Shell* at:

`http://www.sun.com.blueprints/0404/817-2485.pdf`

Security After Upgrade

You can upgrade to SMS 1.5 using the `smsupgrade` script (steps summarized in FIGURE 3-2). After the upgrade, you must harden the SCs manually. The `smsupgrade` script installs version 4.1.1 of the Solaris Security Toolkit, but does not perform hardening. If you have a version of the Solaris Security Toolkit earlier than 4.1.1, you must remove it before beginning the upgrade.

After the upgrade is complete, the system displays the manual hardening instructions. For more information, see "To Upgrade SMS Software to Version 1.5" on page 31.

Security After You Switch SMS Versions

SMS 1.5 uses a different security profile than do previous versions of SMS. Since any hardening performed either manually or by the SMS 1.5 `smsinstall` script is not undone by the `smsversion` command, you must manually undo the hardening before switching to a version of SMS other than 1.5.

For more information, see "Switching SMS Versions" on page 42.

CHAPTER 3

Installing or Upgrading SMS 1.5 Software

This chapter provides all the instructions for installing SMS 1.5 or upgrading to SMS 1.5 on Sun Fire High-End Systems. The chapter includes the following topics:

Preparing to Install or Upgrade SMS Software

The steps required for installation and upgrade are similar, and must be repeated almost identically on the spare and main SC. The differences depend on whether you are:

- Installing SMS 1.5 on new hardware
- Upgrading to SMS 1.5 from a previous release of SMS
- Reinstalling SMS 1.5 after an OS upgrade

Preparing for Installation

- Gather the superuser passwords for both SCs.
- Be sure you have `platadmn` privileges to both SCs.

- On both SCs, determine the directory into which you will download the SMS software from the web.
- Before installing the SMS 1.5 packages, make sure that you have serial or console access to the SC or have `ssh` available on the SC. After you install SMS 1.5 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 60 for more information.

- If you are going to install SMS 1.5 on new hardware:
  - Become familiar with the `smsconfig` command and its options. (Refer to the `smsconfig`(1m) man page.)
  - 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 will need it to configure the MAN network after installing the SMS 1.5 packages on new hardware. (See "To Configure the MAN Network" on page 22 for more information about the MAN network.)
- Gather the following publications, printouts, and patches before you start the installation or upgrade:
  - the *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*
- 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) 1.5 Release Notes*, and `sunsolve.sun.com` for the latest information on issues, late-breaking news, and patch availability.
- Refer to the *Site Planning Guide* for your Sun Fire system when reconfiguring your MAN network. You will need the following information from your worksheets:
  - Platform name
  - Chassis serial number
  - Hostname IP addresses and submask for the I1 internal network
  - Hostname IP addresses and submask for the I2 internal network
  - Community hostname IP addresses and submask for the external network
  - Hostname IP address for the SC logical interface
  - Community hostname addresses for the domains
- We recommend that you install the release-appropriate Solaris Patch Cluster available at `http://sunsolve.sun.com`, to ensure that SMS runs properly. Any patches to the Solaris OS should be applied before reinstalling or upgrading the SMS software.

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

Conventions Used in the Installation Examples

The examples in this chapter use the following conventions to show the SC and domain user prompts:

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

Installing SMS 1.5 Software on New Hardware

Note – Your new Sun Fire system comes with the Solaris OS and SMS 1.5 preinstalled. You only need to use the procedures in this section if you are installing a new SC on your system. If the software is already installed, proceed to "To Configure the MAN Network" on page 22.

The following diagram shows the sequence of steps to install SMS 1.5 on new hardware using the `smsinstall` command.

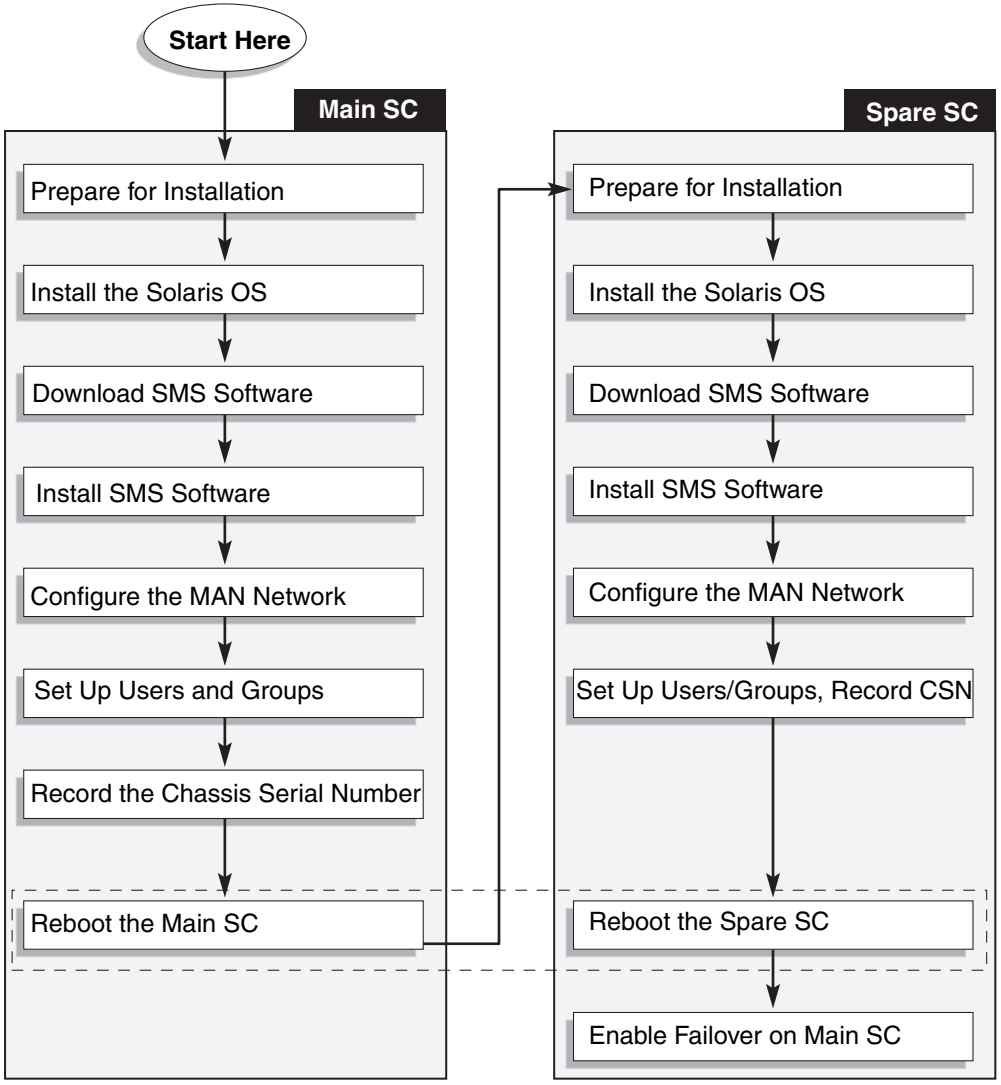

FIGURE 3-1 Installing SMS 1.5 on New Hardware

Note – Starting with SMS 1.5, the `smsinstall` script hardens the system controller after the first reboot. As pointed out in "Security After Installation" on page 9, 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 60 for more information.

▼ 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:

   - Install the proper release of the Solaris OS, including patches (see "Software Requirements" on page 6). Without the proper version and patches, the availability daemons on the SC will not start, causing SMS daemon startup failures and an unusable SC.
   - Select the "Entire Distribution" of the OS.
   - Select the English, "C," locale. On the SC, SMS 1.5 does not support any Solaris locale other than English.

2. **Verify that Java 1.2.2 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 is not installed in the default directory, SMS will not start.

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

▼ To Download SMS 1.5 Software From the Web

1. **Using your web browser, go to** `http://www.sun.com/servers/sw/`
2. **Select the System Management Services (SMS) link.**
3. **Select the** `Click here to download` **link.**

   The `sms_1_5_sparc.zip` file is downloaded.

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.**

```
sc:# unzip sms_1_5_sparc.zip
```

After the file is extracted, the SMS 1.5 packages will be located in */download_directory*`/sms_1_5_sparc/System_Management_Services_1.5/Product`.

Note – The `smsinstall` and `smsupgrade` scripts will be located in */download_directory*`/sms_1_5_sparc/System_Management_Services_1.5/Product/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_dir/sms_1_5_sparc/System_Management_Services_1.5/Tools
```

`smsinstall` is a script that automates many of the steps in the installation process.

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

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

where:

directory_name represents the */download_directory*`/sms_1_5sparc/System_Management_Services_1.5/Product` directory into which the SMS packages were downloaded (See "To Download SMS 1.5 Software From the Web" on page 17).

The `smsinstall` script first detects whether there are previous versions of SMS installed on the disk. If the script detects a previous version, it aborts the installation procedure. If you have a previous version of SMS installed, you must use the

smsupgrade script to upgrade your existing SMS version. See "Upgrading SMS Software to Version 1.5" on page 30 for more information about the smsupgrade script.

Next, smsinstall attempts to detect the version of the Solaris Security Tookit previously installed on the SC. The result depends on whether:

- No Solaris Security Toolkit exists on the SC, or
- Solaris Security Toolkit 4.1.1 is already installed on the SC, or
- A prior version of the Solaris Security Toolkit exists on the SC

Each case is described as follows.

- If no Solaris Security Toolkit is installed on the SC, the smsinstall script installs version 4.1.1 and then proceeds to Step 4:

```
Checking if Solaris Security Toolkit is already installed.
Installing Solaris Security Toolkit package SUNWjass
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Installation of <SUNWjass> was successful.
Installing Solaris Security Toolkit package SUNBEfixm

Installation of <SUNBEfixm> was successful.
Installing Solaris Security Toolkit package SUNBEmd5

Installation of <SUNBEmd5> was successful.
Solaris Security Toolkit packages installed successfully.
```

- If Solaris Security Tookit 4.1.1 is installed, the smsinstall 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 4.1.1.

Performing integrity check on previously installed package
SUNWjass
```

If the toolkit passes the integrity check, the smsinstall script skips the Solaris Security Toolkit installation and proceeds directly to installing the SMS packages. If they 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 an incompatible version of the Solaris Security Toolkit exists on the SC, the script notifies you with this error message:

```
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 smsinstall. Aborting at
Solaris Security Toolkit check for command smsinstall.
```

a. Remove the modified or damaged version.

See "To Remove an Incompatible Version of the Solaris Security Toolkit" on page 55.

b. After removing the incompatible toolkit, run `smsinstall` again.

4. **Conclude the installation 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 SUNWufrx.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 1.5
Setting up /etc/init.d/zoedsms run control script for SMS 1.5
/etc/opt/SUNWSMS/SMS1.5/startup/zoedsms.

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

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

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

```
Running Solaris Security Toolkit 4.1.1 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, sunfire_15k_sc-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.

Next, configure the MAN (Management) network as described in the following section. In the procedure, you use the `smsconfig` command to create the network configuration for your SCs.

▼ To Configure the MAN Network

Use this task only if you are installing SMS 1.5 for the first time on new hardware.

1. **Read and fill out the information in the** *Site Planning Guide* for your Sun 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.

---

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

3. **Type the following to display, review, or change the MAN Network settings:**

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

4. **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 provided with the Supplemental CD 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) 1.5 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.

5. **Edit the `/etc/nsswitch.conf` file.**

   The first entry for `password`, `group`, `hosts`, `netmasks` and `ethers` should be `files`. List other naming services in use, such as `nis` or `DNS`, next. For 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.

6. **Update your Solaris Naming software (NIS, NIS+, DNS, etc), as appropriate.**

▼ 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_id* s 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:

```
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:

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

▼ To Record the Chassis Serial Number

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.

1. **Log in to the SC as a user with** `platadm` **privileges.**
2. **Confirm that the centerplane is powered on.**

   a. **If the centerplane is powered on, type the following command:**

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

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

   b. **If it is not powered on, type the following command to turn it on:**

```
sc0: # poweron cp0
```

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

   If a chassis serial number was previously recorded, it will be displayed in the output. For example:

```
sc: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.**

```
sc1: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.

Proceed to the next section to reboot the SC. Rebooting the SC enables the automatic hardening that you set up when you installed the SMS software.

▼ To Reboot the System Controller

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 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 "Preparing for Installation" on page 13.
- If you have just finished setting up and rebooting the spare SC, enable failover as described in the following section.

▼ To Enable Failover

1. **Log in to the SC as a user with `platadmn` 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.

Upgrading SMS Software to Version 1.5

The following diagram shows the sequence of steps to upgrade a previous version of SMS software to version 1.5. 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 8 OS to Solaris 9 OS), and you want to upgrade the SMS software to version 1.5.
- You are not upgrading the Solaris OS, but you want to upgrade to SMS 1.5 software from an earlier SMS version. See FIGURE 1-2 for a diagram of upgrade paths from previous SMS versions.

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

If you already have SMS 1.5 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 to Solaris 9 9/04), 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 1.5 Environment" on page 46 for instructions.

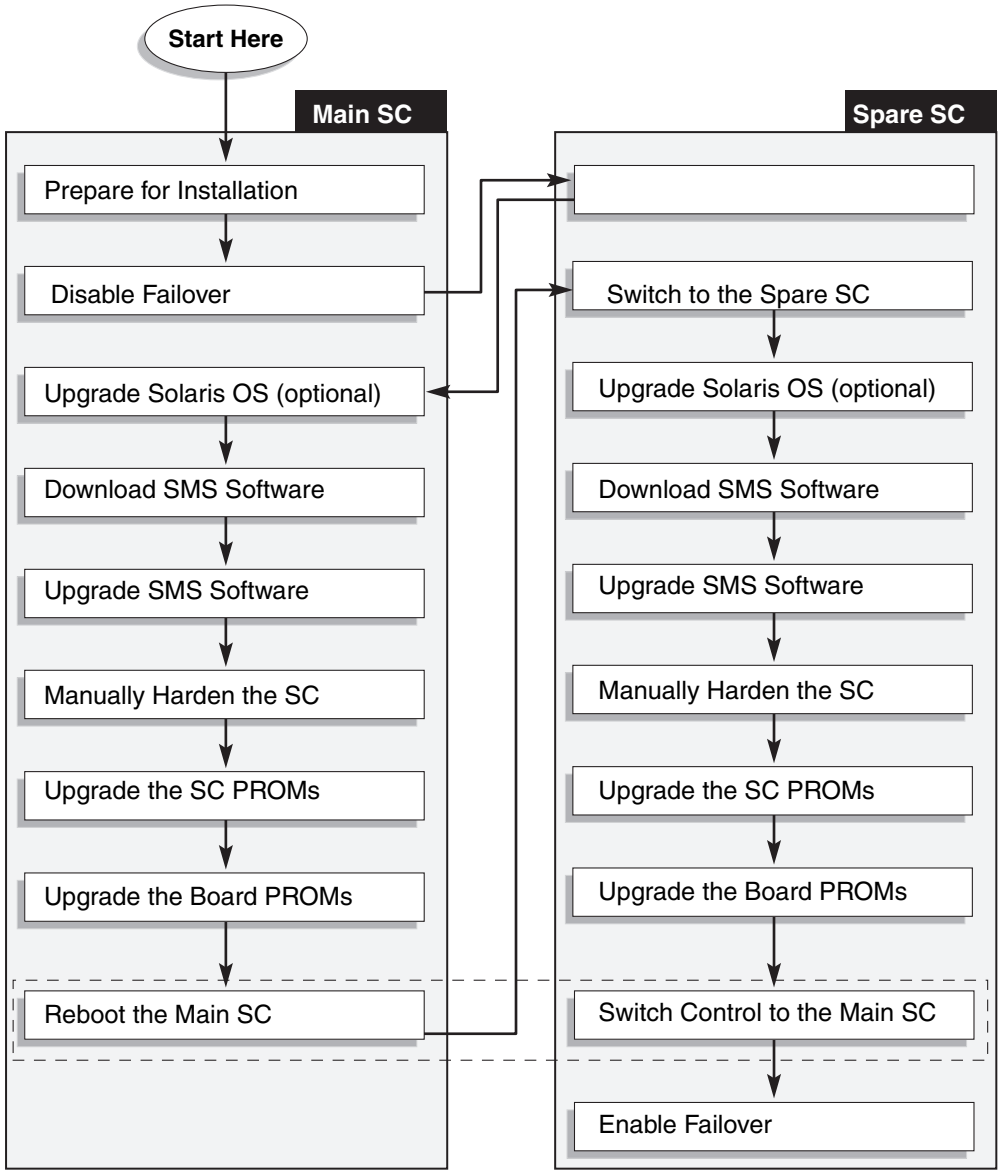

FIGURE 3-2 Upgrading SMS Software to Version 1.5

Before You Start

- **Prepare for the upgrade. See "Preparing for Installation" on page 13.**

▼ To Back Up the SMS Environment

Note – `smsupgrade` automatically backs up and restores the SMS environment during the upgrade process, so you do not need to perform a manual backup and restore. The procedures are included in this section for reference.

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 SC as superuser.**
2. **Stop SMS.**

```
sc:# /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.

```
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 UFS file system. Specifying a TMPFS file system, such as `/tmp`, will cause `smsbackup` to fail.

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

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

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

▼ To Upgrade the Solaris OS on the SC

Note – 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 1.5 Software From the Web" on page 17.

1. **Upgrade the Solaris OS.**

   Refer to the appropriate Solaris Installation Guide for instructions. Make sure that you:

   - Install the proper release of the Solaris OS, including patches (see "Software Requirements" on page 6). Without the proper version and patches, the availability daemons on the SC will not start, causing SMS daemon startup failures and an unusable SC.
   - Select the "Entire Distribution" of the OS.
   - Select the English, "C," locale. On the SC, SMS 1.5 does not support any Solaris locale other than English.

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

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

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

3. **If you upgraded the Solaris OS version from a previous version, run the `smsrestore` command to reinstall SMS.**

   See "Manually Backing Up and Restoring the SMS 1.5 Environment" on page 46.

▼ To Download SMS 1.5 Software From the Web

1. **Using your web browser, go to** `http://www.sun.com/servers/sw/`
2. **Select the System Management Services (SMS) link.**
3. **Select the** `Click here to download` **link.**
   The `sms_1_5_sparc.zip` file is downloaded.
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.**

```
sc:# unzip sms_1_5_sparc.zip
```

After the file is extracted, the SMS 1.5 packages will be located in */download_directory*`/sms_1_5_sparc/System_Management_Services_1.5/Product`.

Note – The `smsinstall` and `smsupgrade` scripts will be located in */download_directory*`/sms_1_5_sparc/System_Management_Services_1.5/Product/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 Disable Failover on the Main SC

Before you disable failover on the main SC, make sure 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** `platadmn` **privileges.**
2. **Disable failover by typing the following command:**

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

▼ To Upgrade SMS Software

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

```
sc1:# cd
/download_directory/sms_1_5_sparc/System_Management_Services_1.5/Tools
```

Note – `smsupgrade`(1M) automatically installs the online System Management Services (SMS) Reference Manual (man) pages in `/opt/SUNWSMS/man/sman1m`. To avoid conflicts, do *not* change this location.

---

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

```
sc:# ./smsupgrade directory_name
```

where:

directory_name represents the */download_directory*`/sms_1_5sparc/System_Management_Services_1.5/Product` directory into which the SMS packages were dowloaded (See "To Download SMS 1.5 Software From the Web" on page 17).

`smsupgrade` first backs up any existing SMS environment. For 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.1.4.1.cpio before upgrade.
Please wait. . .
smsbackup /var/tmp
smsbackup: Backup configuration file created:
/var/tmp/sms_backup.1.4.1.cpio
SMS backup complete.
```

Note – The name of the SMS backup file depends upon whether you are upgrading from SMS 1.4 or SMS 1.4.1.

After backing up the SMS environment, the `smsupgrade` script detects the version of the Solaris Security Tookit 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, or
- Version 4.1.1 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 4.1.1. Proceed to Step 4.

```
Checking if Solaris Security Toolkit is already installed.
Installing Solaris Security Toolkit package SUNWjass
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Use is subject to license terms.

Installation of <SUNWjass> was successful.
Installing Solaris Security Toolkit package SUNBEfixm

Installation of <SUNBEfixm> was successful.
Installing Solaris Security Toolkit package SUNBEmd5

Installation of <SUNBEmd5> was successful.
Solaris Security Toolkit packages installed successfully.
```

- If Solaris Security Tookit 4.1.1 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 4.1.1.

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 an incompatible version of the Solaris Security Toolkit exists on the SC, the script notifies you with this error message:

```
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.
```

a. Remove the damaged or modified package.

See "To Remove an Incompatible Version of the Solaris Security Toolkit" on page 55.

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 SUNWufrx.u
SUNWufu
SUNWwccmn
Copyright 2005 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.

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

Note – `smsupgrade`(1M) 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 1.5 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 \
       sunfire_15k_sc-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.
```

5. **To manually harden the SC, follow the instructions shown on the screen. (These instructions are repeated in "Switching SMS Versions" on page 49.)**

   Next, you must reboot the SC as shown in the following section.

▼ To Reboot the System Controller

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. **Make sure you have access to the following drivers:**

```
sc#:# ls -l /dev/uflash*
lrwxrwxrwx  1  root  other   62 Oct 12 20:30 /dev/uflash0 ->
../devices/pci@1f,0/pci@1,1/ebus@1/flashprom@10,400000:uflash0
lrwxrwxrwx  1  root  other   62 Oct 12 20:30 /dev/uflash1 ->
../devices/pci@1f,0/pci@1,1/ebus@1/flashprom@10,800000:uflash1
```

   If the drivers are not available, run the following command as superuser on the SC:

```
sc#:# /usr/sbin/devfsadm -i uflash
```

2. **Log in to the SC as a user with `platadmn` privileges.**

3. **Use `flashupdate` to upgrade the `fp0` Flash PROM.**

   This example uses `sc1` as the system controller. Make sure to change the "`sc1`" designation to the appropriate system controller in this step and the next.

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

4. **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
sc1/fp1
```

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

```
sc: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) 1.5 Reference Manual* or the `flashupdate` man page.

▼ To Upgrade the System Board Flash PROMs

Use this task only if you are upgrading SMS software. It is not necessary for a new installation. You must have platform privileges to run the `flashupdate`(1M) command.

1. **Make sure you have access to the following drivers:**

```
sc#:# ls -l /dev/uflash*
lrwxrwxrwx  1  root  other   62 Oct 12 20:30 /dev/uflash0 ->
../devices/pci@1f,0/pci@1,1/ebus@1/flashprom@10,400000:uflash0
lrwxrwxrwx  1  root  other   62 Oct 12 20:30 /dev/uflash1 ->
../devices/pci@1f,0/pci@1,1/ebus@1/flashprom@10,800000:uflash1
```

   If the drivers are not available, run the following command as superuser on the SC:

```
sc#:# /usr/sbin/devfsadm -i uflash
```

2. **Log in to the SC as a user with `platadmn` privileges.**

3. **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:

```
sc: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:

```
sc: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 FPROM (FP0 or FP1) on a system board. These are the possible values for *FPROM_id*, provided an I/O slot is occupied by an MCPU board:

  Sun Fire 15K/E25K, Sun Fire 12K/E20K

  `SB(0...17), SB(0...8)`

  `IO(0...17), IO(0...8)`

  The following *FPROM_id* forms are accepted:

  `FP(0|1), FP(0|1)`

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

4. **Reboot the SC again. See "To Reboot the System Controller" on page 38.**

▼ To Finish the Upgrade Process

If you have just finished upgrading SMS software on the main SC, perform the following steps:

1. **Switch control to the spare SC as described in "To Switch Control to the Spare SC" on page 47.**
2. **Upgrade SMS software on the spare SC in the same way as you did on the main SC, starting with the procedure in "Upgrading SMS Software to Version 1.5" on page 30.**

If you have just finished upgrading SMS software on the spare SC, perform these steps to complete the installation on both SCs:

1. **Switch control back to the main SC as shown in "To Switch Control Back to the Main SC" on page 48.**
2. **Enable failover. See the next section.**

▼ To Enable Failover

1. **Log in to the SC as a user with `platadmn` 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.

Reinstalling the SMS Software After a Minor Operating System Upgrade

If you are upgrading the Solaris OS on your SCs to a minor version (for example, if you want to upgrade the Solaris 9 OS from Solaris 9 4/04 to Solaris 9 8/04), you do not need to reinstall the SMS software. The procedure in this section describes how to perform the upgrade.

Before You Start

- **Prepare for the upgrade. See "Preparing for Installation" on page 13.**

▼ To Back Up the SMS Environment

Note – `smsupgrade` automatically backs up and restores the SMS environment during the upgrade process, so you do not need to perform a manual backup and restore. The procedures are included in this section for reference.

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 SC as superuser.**

2. **Stop SMS.**

```
sc:# /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.

```
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 UFS file system. Specifying a TMPFS file system, such as `/tmp`, will cause `smsbackup` to fail.

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

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

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

▼ To Upgrade the Solaris OS on the SC

Note – 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 1.5 Software From the Web" on page 17.

---

1. **Upgrade the Solaris OS.**

Refer to the appropriate Solaris Installation Guide for instructions. Make sure that you:

- Install the proper release of the Solaris OS, including patches (see "Software Requirements" on page 6). Without the proper version and patches, the availability daemons on the SC will not start, causing SMS daemon startup failures and an unusable SC.
- Select the "Entire Distribution" of the OS.
- Select the English, "C," locale. On the SC, SMS 1.5 does not support any Solaris locale other than English.

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

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

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

Next, you must manually restore the SMS software environment as outlined in the next section.

▼ To Restore SMS 1.5 Software

- **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 will receive an error.

Finishing the Restore Process

If you have just restored SMS 1.5 on the main SC, perform the following steps:

1. **Reboot the main SC.**
2. **Switch control to the spare SC and repeat the procedures in this section on the spare SC.**

If you have just restored SMS on the spare SC, perform these steps:

1. **Reboot the spare SC as described in the following section.**
2. **Switch control back to the main SC.**
3. **Enable failover.**

▼ 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 system controller (SC1) and change to the OpenBoot PROM prompt.**

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

4. **Reboot the spare SC.**

```
ok boot -rv
```

Note – Before rebooting, make sure you have either serial or console access to the SC, or have `ssh` available on the SC. Starting with SMS 1.5, the `smsinstall` script disables all remote access services except `ssh` on Solaris 9. Solaris 8 does not have `ssh`, unless you have installed it separately.

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 60 for more information.

After you reboot the spare SC, SMS will start with the spare SC acting as the main SC.

Manually Backing Up and Restoring the SMS 1.5 Environment

The procedure in this section describes how to manually back up and restore SMS 1.5 on the SCs.

▼ To Back Up the SMS Environment

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 SC as superuser.**
2. **Stop SMS.**

```
sc:# /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.

```
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 UFS file system. Specifying a TMPFS file system, such as `/tmp`, will cause `smsbackup` to fail.

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

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

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

▼ To Restore SMS 1.5 Software

- **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 will receive an error.

Finishing the Restore Process

If you have just restored SMS 1.5 on the main SC, perform the following steps:

1. **Reboot the main SC.**
2. **Switch control to the spare SC and repeat the procedures in this section on the spare SC.**

If you have just restored SMS on the spare SC, perform these steps:

1. **Reboot the spare SC as described in the following section.**
2. **Switch control back to the main SC.**
3. **Enable failover.**

▼ 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 system controller (SC1) and change to the OpenBoot PROM prompt.**

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

4. **Reboot the spare SC.**

```
ok boot -rv
```

Note – Before rebooting, make sure you have either serial or console access to the SC, or have `ssh` available on the SC. Starting with SMS 1.5, the `smsinstall` script disables all remote access services except `ssh` on Solaris 9. Solaris 8 does not have `ssh`, unless you have installed it separately.

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 60 for more information.

After you reboot the spare SC, SMS will start with the spare SC acting as the main SC.

▼ To Switch Control Back to the Main SC

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

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

3. **Log in to the main (acting as spare) SC and change to the OpenBoot PROM prompt.**

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

4. **Reboot the SC.**

```
ok boot -rv
```

▼ To Enable Failover

1. **Log in to the SC as a user with `platadmn` 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.

Switching SMS Versions

SMS allows you to switch between versions of SMS using the `smsversion` command. The two versions must both be a minimum of SMS 1.4, and must both reside on the same version of the Solaris OS. This means that SMS 1.5 cannot switch to SMS versions earlier than 1.4. For more information about the `smsversion` command, refer to the *System Management Services (SMS) 1.5 Administration Guide*.

Switching to other SMS versions from SMS 1.5 has security implications. SMS 1.5 uses a different security profile than previous versions of SMS. This profile automatically hardens the SCs when you run the `smsinstall` command. Since this hardening is not undone by the `smsversion` command, you must manually undo the hardening before switching to a version of SMS other than 1.5.

To switch to another SMS version from SMS 1.5, 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 `smsversion` command).
3. Re-harden 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 will remain 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 4.1 Administrator Guide* or the *Solaris Security Toolkit 4.1 Reference Manual*. Both the `smsinstall` and the `smsupgrade` 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, 2004 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. **Reboot the system.**

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.

1. **Log in to the 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 32.

4. **Deactivate failover by typing the following comand 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 1.5 to SMS 1.4.1.

7. **Follow the prompts shown on the screen.**

   The following example shows sample screen output.

```
sc:# /opt/SUNWSMS/bin/smsversion 1.4.1
smsversion: Active SMS version  1.5 >
You have requested SMS Version 1.4.1

Is this correct? [y,n] y
smsversion: Downgrading SMS from 1.5> to 1.4.1>.
smsversion: SMS version 1.4.1 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.1.4.1.cpio
smsversion: Switching to target version 1.4.1>.
smsversion: New Version 1.4.1> Active
smsversion: Active SMS version  1.4.1 >
To restore the previous SMS configuration setting type:
smsrestore /var/tmp/sms_backup.1.4.1.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 will 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, and then log in to the SC as superuser again.**

If you do not need to make network changes, proceed to the next step.

10. **Type the following command to start SMS.**

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

11. **Reactivate failover using the following command:**

```
sc:# set failover on
```

The version switching procedure is now complete. To restore security on the SC, you must re-harden the SC.

▼ To Re-Harden After Version Switch

To re-harden 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.**
2. **Type the following command to re-harden:**

```
sc:# /opt/SUNWjass/bin/jass-execute -q -d sunfire_15k_sc-
secure.driver
```

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

3. **Type** `yes` **to proceed.**

The system re-hardens the main SC.

4. **Repeat the procedure on the spare SC.**

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

Solaris Security Toolkit

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. **Enter the `pkginfo` command with the `-l` option.**

```
sc% pkginfo -l SUNWjass
```

`pkginfo` can be executed by `sms-svc` user.

The `-l` option provides information about the package. Look for the "`VERSION`" field. For example:

```
# pkginfo -l SUNWjass
   PKGINST:  SUNWjass
      NAME:  Solaris Security Toolkit
  CATEGORY:  Application
      ARCH:  Solaris
   VERSION:  4.1.1
   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 2004 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` will not return any information.

▼ To Remove an Incompatible Version of the Solaris Security Toolkit

The SMS 1.5 version of the `smsinstall` script installs Solaris Security Toolkit 4.1.1 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 the `pkgrm` command to remove the Solaris Security Toolkit packages.**

```
sc% pkgrm SUNWjass SUNBEfixm SUNBEmd5
```

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

```
The following package is currently installed:
  SUNWjass        Solaris Security Toolkit
                  (Solaris) 4.1.0

Do you want to remove this package?
```

3. **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/sunfire_mf_msp-secure.driver.7

[...]
```

CHAPTER 4

Additional SMS 1.5 Software Procedures

This chapter contains additional procedures that you might want to perform while using or updating the SMS 1.5 software. The topics covered in this chapter include:

- Adding Users to SMS
- Installing SMS Patches
- Installing Additional Software Packages
- Network Time Protocol (NTP) Information
- Stopping and Starting SMS
- Changing the `ssh` Escape Character
- Working With Sun Fire Link Cluster

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) 1.5 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. The following table 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
platadmn	Platform Administrator Group
platsvc	Platform Service Group
platoper	Platform Operator Group
dmnaadmn	Domain A Administrator Group
dmnbadmn	Domain B Administrator Group
dmncadmn	Domain C Administrator Group
dmndadmn	Domain D Administrator Group
dmneadmn	Domain E Administrator Group
dmnfadmn	Domain F Administrator Group
dmngadmn	Domain G Administrator Group
dmnhadmn	Domain H Administrator Group
dmniadmn	Domain I Administrator Group
dmnjadmn	Domain J Administrator Group
dmnkadmn	Domain K Administrator Group
dmnladmn	Domain L Administrator Group
dmnmadmn	Domain M Administrator Group
dmnnadmn	Domain N Administrator Group
dmnoadmn	Domain O Administrator Group
dmnpadmn	Domain P Administrator Group
dmnqadmn	Domain Q Administrator Group
dmnradmn	Domain R Administrator Group
dmnarcfg	Domain A Configuration Group
dmnbrcfg	Domain B Configuration Group
dmncrcfg	Domain C Configuration Group
dmndrcfg	Domain D Configuration Group
dmnercfg	Domain E Configuration Group
dmnfrcfg	Domain F Configuration Group
dmngrcfg	Domain G Configuration Group
dmnhrcfg	Domain H Configuration Group
dmnircfg	Domain I Configuration Group

User Group ID	User Group Description *(Continued)*
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: `admn`, `rcfg`, `oper` or `svc`.

domain_id is the ID for a domain. Valid *domain_id* s 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:

```
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 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:

```
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: `admn`, `rcfg`, `oper` or `svc`.

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

For example, to remove `fdjones` from the `dmnbadmn` group, type:

```
sc0: # /opt/SUNWSMS/bin/smsconfig -r -u fdjones -G admn B
fdjones has been removed from the dmnbadmn 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:

- The system should be stable.
- No DR operations should be in progress.
- No domain bringup or shutdown should be in progress.
- No user-initiated `datasync` or `cmdsync` 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:**

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

3. **Stop the SMS processes on both SCs simultaneously.**

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

4. **Install the patch on both SCs.**
5. **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.

6. **Start the SMS processes on the spare SC (`sc1`).**

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

7. **Enable failover on the main SC (`sc0`).**

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

The main SC will reboot and become the spare SC.

▼ To Restore SC Roles

At this point, the original spare SC (`sc1` in the previous example) is running as main and the original main SC (`sc0` in the previous example) is running as spare. You can return them to their original roles as follows:

1. **Log in to the new main SC (`sc1`) with platform administrator privileges.**
2. **Fail over to the spare SC (`sc0`).**

```
sc1:sms-user:> /opt/SUNWSMS/bin/setfailover force
```

The new main SC (`sc1`) reboots and becomes the spare SC. The original main SC (`sc0`), which was running as the new spare SC, becomes the main SC again.

3. **Log in to the main SC (`sc0`) with platform administrator privileges.**
4. **Reactivate failover on the main SC and verify that it is active.**

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

sc0:sms-user:> /opt/SUNWSMS/bin/showfailover
SC Failover Status: Activating
...
sc0:sms-user:> /opt/SUNWSMS/bin/showfailover
SC Failover Status: Active
```

It can take a minute or two for failover to activate.

Installing Additional Software Packages

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 One Studio 9 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

1. **Log in to the SC as superuser.**
2. **Insert the installation CD for the software you want to install into the CD-ROM drive on the SC.**
3. **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 CDROM 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
```

4. **Log in to the domain as superuser.**

5. **Create and mount the** `/cdrom` **directory for the domain.**

```
domain_id: # mkdir /cdrom
domain_id: # mount SC-I1: /cdrom/cdrom0 /cdrom
```

where:

SC-I1: is the hostname you specified for the SC I1 network.

6. **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.

7. **Unmount the CD.**

```
domain_id: # cd /
domain_id: # umount /cdrom
```

8. **Log out of the domain and log in to the SC as superuser.**

9. **Eject the installation CD from the CD-ROM drive on the SC.**

```
sc0: # cd /
sc0: # eject cdrom
```

Network Time Protocol (NTP) Information

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 NTP clients of the same NTP servers.

▼ To Configure an SC as an NTP Client

Before proceding, 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.

If the system controllers are running the Solaris 8 OS, make sure that the Kernel Update Patch level is at KU-24 or later. For the latest revision of the KU patches, check the SunSolve^{SM} web site (`http://sunsolve.sun.com`).

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 will be the primary NTP server.

2. **Add the name of the driftfile.**

   The driftfile 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 will 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 will be 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.

Default Stop Sequence

Since SMS 1.3, the default sequence to stop the system (`STOP-A`) has been changed to the following alternate:

```
[Return][tilde][CTRL-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 is true 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 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
```

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

```
sc0: # /etc/init.d/sms start
sms: smsconfig(1M) has not been run. Unable to start sms services.
```

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 may 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. **Use your favorite text editor to open a new file.**

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 allows 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 may 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 will be 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.

Working With Sun Fire Link Cluster

If you are using Sun Fire Link Cluster with your Sun Fire system, you must make sure that each of the SCs in the system has its own unique IP address, and that each IP address has a corresponding host name. Otherwise, you will not be able to configure Sun Fire Link Cluster, and the NOTICE message in `/var/opt/SUNWSMS/SMS/adm/platform/messages` file reads:

sc-hostname `cannot resolve its hostname`

The host name-IP address correspondence is set up using the smsconfig command. smsconfig creates the entries in the `/etc/inet/hosts` file on the system. If you see the NOTICE message or you are unable to configure Sun Fire Link Cluster, do the following:

1. **Check the `/etc/inet/hosts` file to make sure the SC hostname-IP address entries are correct.**

   If necessary, edit the file to correct the entries, and then save the file.

2. **Restart SMS.**

CHAPTER 5

SMS 1.5 Software and Domains

This chapter contains additional instructions for installing System Management Services (SMS) 1.5 software on Sun Fire high-end system domains:

- Setting Up and Installing the Solaris Operating System on the Domain
- Creating a Domain
- Making Changes to a Domain

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
- To Install the Solaris Operating System on the Domain
- To Set Up OpenBoot PROM Environment Variables on the Domain
- Unconfigured Domains

Note – If you had the Solaris OS preinstalled on your system or you have run the `sys-unconfig(1M)` command on the domain, see "Unconfigured Domains" on page 77 before proceeding.

We strongly recommend creating 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.

- For information on configuring network install servers, refer to the *Installation Guide* for your version of the Solaris OS.

- Refer to the *Installation Guide* for your version of the Solaris OS for information on setting up the spare SC as an install client.
- For partition and Solaris OS distribution information, see Chapter 1.

▼ 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 network Ethernet address at the OpenBoot PROM prompt by typing:**

```
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 will appear 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 hostname 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 FastEthernet 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 will keep 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.**

```
ok boot man-net
```

3. **Install the Solaris OS for the domain.**

   Refer to the *Installation Guide* for your version of Solaris 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 locale you want for the operating system on the domain. The SCs must have the English locale installed, but the domains do not.

---

4. **Change the domain nodename.**

   When using the SC as an install server for a domain, change the domain's nodename after the installation is complete. This reduces the amount of network traffic generated between the domain and SC over the MAN network. Change the nodename of the domain to the hostname of one of its external network interfaces (for example, `qfe0`).

   To change the domain's nodename, do the following:

   a. **Log in to the domain as superuser.**

   b. **Type the following commands at the prompts, substituting the nodename you chose for** *new_nodename.*

```
domain_id:# uname -S new_nodename
domain_id:# echo new_nodename > /etc/nodename
```

   c. **Log out.**

5. **Remove the domain from the network install server list.**

   After installing the domain software, to remove the domain from the install server list, perform these steps:

Caution – If you do not remove the domain from the install server list, the domain will 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,qlc@4/fp@0,0/ssd@w21000020
370dac0c,0:a
```

d. Log out.

▼ To Set Up 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 FastEthernet 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 will keep 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,qlc@4/fp@0,0/disk@w21000020370dac0c,0:a
```

Note – Enter the `nvalias` command on a single line. In the above 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* will be 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 a bootable disk on which you are installing the Solaris OS. This variable will be used in case of a panic and auto-boot. It is very important to set this variable correctly.

7. **Now that you have set up an alias for your boot device, boot the disk by typing:**

```
ok boot
```

Unconfigured Domains

If you had the Solaris OS preinstalled on a domain or if you have have run the `sys-unconfig`(1M) command on a domain, you must manually configure the MAN network 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 72.

▼ 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.dman0` **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.

Creating a Domain

This section describes the following procedures for creating a new domain.

- To Build a New Domain on the System Controller
- To Activate the Domain
- To Bring Up a Console for the Domain

Note – You must have a valid `idprom.image` file for the domain in the `/var/opt/SUNWSMS/data/`*domain_id* directory in order 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 following definitions for the various system prompts:

TABLE 5-1 SMS-Specific System Prompts

Prompt	Definition
`sc0:#`	Superuser on the main SC
domain_id: #	Superuser on the domain
sc_name:*sms-user*:>	User prompt on the SC. *sms-user* is the `user-name` of an administrator, operator, configurator or service personnel logged in to the SC.
domain_id:*sms-user*:>	User prompts on the domain *sms-user* is the `user-name` of the administrator, operator, configurator or service personnel 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 `platadmn` 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/E25K
SB(0...17)	SB(0...8)
IO(0...17)	IO(0...8)

For example, the following command removes the CPU board in slot 2 of slot 0 from domain A.

```
sc0:sms-user:> deleteboard -c unassign SB2
```

The next example removes an I/O board in slot 3 of slot 1 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 new system controller, 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) 1.5 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 (`dmnaadmn`) 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 Bring Up a Console for the Domain

The conditions required for network console are:

- The 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`.
- A 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 `kmd`(1M) man page and the *System Management Services (SMS) 1.5 Administrator Guide*.

- **Bring up an active console window 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 bring up a console.

For example, the following command brings up a console for domain A.

```
sc0:sms-user:> console -d A
```

In the domain `console` window, `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 window.

For example:

```
domain_id:sms-user:> setenv TERM xterm
```

For more information on domain console, refer to the *System Management Services (SMS) 1.5 Administrator Guide* and the `console` man page.

Making Changes to a Domain

This section describes how to change the IP address or hostname 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 Hostname of a Domain or SC

1. **Update your name service maps with the new hostname.**
2. **Change the hostname 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 hostname in the following files, if applicable:**

   `/etc/defaultdomain` (only if your NIS domain name has changed)

   `/etc/hostname.*` (only if you hostname is specified in the file)

   `/etc/hostname6.*` (only if you hostname is specified in the file)
5. **If the hostname was changed in the SC, run** `smsconfig -m`**.**

▼ To Activate the Domain

Note – To install the Solaris OS and SMS on a new SC, 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) 1.5 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 (dmnaadmn) 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 Bring Up a Console for the Domain

The conditions required for network console are as follows:

- The 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 the smsconfig command.
- A 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 `kmd`(1M) man page and the *System Management Services (SMS) 1.5 Administrator Guide*.

1. **Bring up an active console window 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 bring up a console.

For example, the following command brings up a console for domain `A`.

```
sc0:sms-user:> console -d A
```

In the domain `console` window, `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 window.

For example:

```
domain_id:sms-user:> setenv TERM xterm
```

For more information on domain console, refer to the *System Management Services (SMS) 1.5 Administrator Guide* and the `console` man page.

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