Sun StorEdge™ Enterprise Storage Manager 1.2 Installation Guide

Adobe PostScript

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Preface

This document describes the installation considerations, requirements, and procedures for the Sun StorEdge™ Enterprise Storage Manager 1.2 software. The intended audience for this document includes Sun support engineers and storage system administrators.

How This Book Is Organized

Chapter 1 describes the installation requirements and preparation procedures for the software.

Chapter 2 describes how to install the software.

Chapter 3 describes how to configure the software after you have installed it.

Chapter 4 describes how to upgrade to version 1.2 from previous versions. It also describes how to remove the version 1.2 software

Chapter 5 describes general tips to troubleshoot any problems that might occur when installing the software.

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.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris™ operating environment
- Other software documentation that you received with your system

Typographic Conventions

Typeface	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. You *must* be superuser to do this. To delete a file, type `rm` *filename*.
[ ]	In syntax, brackets indicate that an argument is optional.	scmadm [–d *sec*] [–r *n*[:*n*][,*n*]...] [–z]
{ *arg* | *arg*}	In syntax, braces and pipes indicate that one of the arguments must be specified.	sndradm -R b {p | s}
\	At the end of a command line, the backslash (\) indicates that the command continues on the next line.	atm90 /dev/md/rdsk/d5 \ /dev/md/rdsk/d1 atm89 \ /dev/md/rdsk/d5 /bit- maps/map2 \ ip sync

Shell Prompts

Shell	Prompt
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#
C shell	*machine-name*%
C shell superuser	*machine-name*#

Related Documentation

Application	Title	Part Number

Man pages	`sstr`
	`ssde`
	`sscs`
		Not applicable

Release and product information	*Sun StorEdge Enterprise Storage Manager 1.2 Topology Reporter Release Notes*	817-1112
	Sun StorEdge Configuration Service 1.2 Release Notes	817-0998
	Sun StorEdge Diagnostic Expert 1.2 Release Notes	817-0197
	Sun StorEdge Enterprise Storage Manager 1.2 Roadmap	817-1039
	Sun StorEdge SAN Foundation Release Notes	817-0071
	Sun StorEdge Traffic Manager Software Release Notes	817-0385
Installation	*Sun StorEdge Network FC Switch8 and Switch-16 Installation and Configuration Guide, Sun StorEdge SAN 3.0 Release*	816-0830
	Sun StorEdge SAN Foundation Kit Installation Guide	817-1244
	Sun StorEdge SAN Foundation Kit Configuration Guide	817-1245
	Sun StorEdge Traffic Manager Software Installation and Configuration Guide	816-1420
System administration	*Sun StorEdge Enterprise Storage Manager 1.2 Topology Reporter Administration and Operations Guide*	817-1111
	Sun StorEdge Configuration Service 1.2 Administrator's Guide	817-0997
	Service Location Protocol Administration Guide	806-1412
User and diagnostic	*Sun StorEdge Enterprise Storage Manager 1.2 Diagnostic Expert User's Guide*	817-0195
	Sun Management Center 3.0 Software User's Guide	806-5942

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`docfeedback@sun.com`

Please include the part number (817-1037-10) of your document in the subject line of your email.

Installation Requirements and Preparation

This chapter describes installation requirements and preparation procedures for the Sun StorEdge Enterprise Storage Manager 1.2 software. TABLE 1-1 briefly describes the software that is installed.

The topics described in this chapter include the following:

- "Summary of All Installation and Post-Installation Steps" on page 3
- "Required Software, Patches, and Hardware" on page 4
- "Supported and Required Hardware" on page 6
- "Preparing for Installation" on page 8

Note – The release notes listed in "Related Documentation" on page xiv might contain additional installation and release information for each software component.

TABLE 1-1   Software Overview

Sun StorEdge Enterprise Storage Manager 1.2 Software	Description
Topology reporter	This software enables you to view devices in a storage area network (SAN) or direct-attached storage (DAS) environment. You can perform a variety of functions by using a CLI and Web-browser UI. The topology reporter software also enables you to launch other device management applications in a separate browser or application window, including but not limited to the following (also known as "link-and-launch"): • Sun StorEdge Configuration Service • Sun StorEdge Diagnostic Expert 1.2 • Sun StorEdge Configuration Service software for the Sun StorEdge 6100 Series arrays and Sun StorEdge 6300 Series systems • SANSurfer Switch Manager software for Sun switches • Other switch-based management applications
Configuration service	This software enables you to manage Sun StorEdge T3, T3+, and 6000 Family storage arrays and devices in a SAN or DAS environment. You can perform a variety of functions by using a CLI and Web-browser UI. The configuration service software also enables you to link-and-launch other device management applications in a separate browser or application window.
Diagnostic Expert	This software provides fault management and health reporting for Sun storage devices. You can perform a variety of functions by using a CLI and Web-browser UI, including but not limited to the following: • SAN device health monitoring • Diagnostic tests • SAN topology for all SAN devices • Email or pager notification of system events and alarms

Summary of All Installation and Post-Installation Steps

TABLE 1-2   All Installation and Post-installation Steps

Pre-Installation Step	See This Section or Chapter
1. Choose the machines in your SAN or DAS environment where you will install the software.	"Required Software, Patches, and Hardware" on page 4 "Supported and Required Hardware" on page 6 "Preparing for Installation" on page 8
2. Prepare the management and agent stations.	"Preparing the Management Station" on page 9 "Preparing the Agent Station" on page 11

Installation Steps	See This Section or Chapter
3. Install the software: • On a single machine acting as a management and agent station • On individual machines acting as a management or agent station	"Before You Install the Software" on page 15 "Installing the Software" on page 17
4. (Optional) Configure the Sun Management Center topology reporter agent software.	"Sun Management Center Integration" on page 34

Post-Installation Step	See This Section or Chapter
5. Configure the software.	"Before You Configure the Software" on page 42 "Configuring the Software" on page 47
6. Test the installation.	"Starting and Stopping The Software" on page 61 "Logging In Through a Web Browser" on page 63
7. Check the log files for messages related to the installation.	"Log Files to Check After Installation" on page 72

Required Software, Patches, and Hardware

Note – See also "Using JNI Host Bus Adapters" on page 5.

The software packages require that you have the latest network, switch, and host bus adapter software packages and updates. These packages and updates are available from:

```
http://www.sun.com/storage/san.
```

Patches are available at
```
http://sunsolve.sun.com/
```

TABLE 1-3 shows the required software operating environment and SAN software for the topology reporter, configuration services, and diagnostic expert software.

TABLE 1-3   Required Operating Environment and SAN Software

Required SAN Software	The Sun StorEdge Enterprise Storage Manager 1.2 software requires that you have installed the Sun SAN Foundation Kit software, version 4.2.
	The SUNWsan software, related software, and updates are available from:
	`http://www.sun.com/storage/san`
	Patches are available from:
	`http://sunsolve.sun.com/`
Required Operating Environment and Java Environment	Solaris™ 8 10/01 (also known as Update 6) with the latest patch cluster, including patches for the Java™ 2 SDK v1.4.0, available at: http://java.sun.com/j2se/1.4/install-solaris-patches.html
	Solaris 9
Required Web Browser (minimum version)	Netscape Navigator version 4.79
	Microsoft Internet Explorer version 5.0

Using JNI Host Bus Adapters

If your storage network configuration includes a JNI host bus adapter card, ensure that you have the latest version of your card's `JNIsnia` package for the Solaris operating environment. This package is available at the following URL:

```
http://www.jni.com
```

Also ensure that your JNI HBA card drivers are current. The latest package and drivers are required if you are using the topology reporter software.

Supported and Required Hardware

TABLE 1-4 shows the supported and required hardware.

TABLE 1-4   Supported and Required Hardware

CD-ROM Requirement	A CD-ROM drive connected to the host machine where the software is to be installed.
Host Machines, Supported	The software is supported on host machines using the Solaris operating environment. Hosts include but are not limited to: • Sun Enterprise™ server models 220R, 250, 420R, 450 • Sun Enterprise server models 3500, 4500, 5500, 6500 • Sun Fire™ server models 280R, 3800, 4800, 4810, and 6800 Management stations include the above list and the following workstations: • Sun Ultra workstation models 5, 10, 60, and 80
Supported and Discoverable Attached Storage	Sun StorEdge T3 arrays, minimum firmware release 1.17[1] Sun StorEdge T3+ arrays, minimum firmware release 2.0[1] Sun StorEdge 3900 and 6900 Series storage subsystems Sun StorEdge 6120 Series arrays, minimum firmware release 3.0 Sun StorEdge 6320 Series systems, minimum firmware release 3.0 Sun StorEdge 9900 Series systems (includes the Sun StorEdge 9910 and Sun StorEdge 9960 system arrays)

1. The configuration service software supports these storage arrays or subsystems

Switches, Supported	Sun StorEdge Network FC Switch8 and Switch-16 Brocade Communications Systems SAN switches McDATA Corp. 2 Gbyte per second 16, 32, and 64 port SAN switches
Disk and Memory Space Requirements, Total	
	1 Gbyte total disk space in the `/opt` directory for all packages 256 Mbytes system memory (512 Mbytes preferred)

TABLE 1-4 Supported and Required Hardware *(Continued)*

Disk and Memory Space Requirements, Topology Reporter	

Management station installation and operation:
- 640 Mbytes of disk space
- 256 Mbytes system memory (512 Mbytes preferred)

Agent station installation and operation:
- 71 Mbytes of disk space
- 256 Mbytes system memory (512 Mbytes preferred)

If the management and agent station is a single machine:
- 711 Mbytes of disk space
- 256 Mbytes system memory (512 Mbytes preferred)

Disk and Memory Space Requirements, Configuration Service	

200 Mbytes of disk space

Disk and Memory Space Requirements, Diagnostic Expert	

20 Mbytes of disk space in the `/opt` directory (default installation directory)
10 Mbytes of disk space in the `/var/opt` directory (default installation directory)
100 Mbytes system memory

Preparing for Installation

Note – The software is not relocatable (that is, it cannot be installed in a directory other than the default) and requires 1 Gbyte of disk space for a full installation. See TABLE 1-4.

You can install this software on any machine in your storage area network (SAN) or direct-attached storage (DAS) environment. Each machine is considered a *station* and can have a different role:

■ Management station; see "Preparing the Management Station" on page 9

■ Agent station; see "Preparing the Agent Station" on page 11.

The default installation choice installs all software packages on a single machine; this machine would then act as a management and agent station at the same time. See "The Installation Script Main Menu" on page 18 for more information about the installation choices.

After reading this section and performing the described steps, continue the installation as described in Chapter 2.

Preparing the Management Station

Note – Only one machine per service location protocol (SLP) scope can be a topology reporter management station. See "Topology Reporter SLP Scope Setting Configuration Rules" on page 45 for more information.

The software components use a management station to run the server portion of their packages.

The management station is the machine where you install the packages that enable you to use the Web-browser user interface (UI) and command-line interface to view information about and to administer your SAN fabric or DAS devices. You can also install the agent software on this machine and use it as a management station *and* agent station; this configuration is the default installation choice.

See the disk and memory space requirements in TABLE 1-4.

To prepare the management station, if necessary, edit the /etc/system file and add the shared memory values specified in "To Prepare the Management Station" on page 10.

Converting Hexadecimal and Decimal Numbers

If an existing value in the /etc/system file is a decimal number, you can use the bc(1) command to convert hexadecimal and decimal values. For example, to display the decimal value of hexadecimal value 0x2000000 (which is decimal 33554432), type the following bold text at a terminal command prompt:

```
# bc
ibase=16
2000000
33554432
quit
#
```

To convert decimal to hexadecimal, use the obase=16 option instead. See the bc(1) man page for more information.

▼ To Prepare the Management Station

> **Note –** If you or an application have previously edited this file and specified memory values, keep the higher of the memory values. For example, if the values shown in this section are higher, use these values. These shared memory entries are required for the Postgres database semaphores.

1. **Log in as superuser.**

2. **Modify the** `/etc/system` **file using a text editor, if necessary.**

   Add the following text to the end of the file.

   ```
   set shmsys:shminfo_shmmax=0x2000000
   set shmsys:shminfo_shmmin=1
   set shmsys:shminfo_shmmni=256
   set shmsys:shminfo_shmseg=256
   set semsys:seminfo_semmap=256
   set semsys:seminfo_semmni=512
   set semsys:seminfo_semmsl=32
   set semsys:seminfo_semmns=512
   ```

3. **Save and exit the file.**

4. **Perform a reconfiguration reboot:**

   > **Note –** If you are using this machine as an agent station also, perform the procedures in "To Prepare an Agent Station" on page 11 before performing this step. **Except for this reconfiguration reboot, the software installation process does not require you to shut down and restart your system.**

   ```
   # reboot -- -r
   # touch /reconfigure
   # init 6
   ```

5. **When the system returns, log in as root to install the software.**

Preparing the Agent Station

The agent station is one or more machines in your SAN where the software collects information about your SAN devices, such as host machines, host bus adapters, switches, and storage devices. This information is sent to the management station, where you then use the Web-browser UI or CLI to view it. The information collection process is known as *discovery*.

Note – You must install the agent station portion of the software on each host connected to a SAN or fabric. If you install the software on some hosts but not all, you will only partially discover information.

See the disk and memory space requirements in TABLE 1-4.

▼ To Prepare an Agent Station

1. **Log in as superuser.**

2. **Ensure that the correct software packages are installed on your machine for your host bus adapter cards, switches, and environment.**

   See "Required Software, Patches, and Hardware" on page 4.

   The most current operating environment and Sun SAN Foundation kit patches and patch clusters are available from http://sunsolve.sun.com/.

3. **After installing patches, perform a reconfiguration reboot** *only if the patch installation requires it* **(see the patch README file):**

Note – Except for this possible patch reconfiguration reboot, *the software installation process does not require you to shut down and restart your system*.

```
# reboot -- -r
```

4. **When the system returns, log in as root to install the software.**

Installing the Software

> **Note –** The release notes listed in "Related Documentation" on page xiv might contain additional installation and release information for each software component.

This chapter describes the following topics:

- "Installation Steps Summary" on page 14
- "Before You Install the Software" on page 15
- "Installing the Software" on page 17
- "The esminstall and esmuninstall Script Options" on page 30
- "Sun Management Center Integration" on page 34

Installation Steps Summary

TABLE 2-1 shows the installation steps for this chapter.

TABLE 2-1   Installation Steps

Installation Step	See This Section or Chapter
1. Choose the machines in your environment where you will install the software.	"Preparing for Installation" on page 8
2. Install the software as root:	"Installing the Software" on page 17
• On a single machine acting as a management *and* agent station	"To Install the Software on a Single Machine That Acts as a Management Station and Agent Station" on page 20
• On individual machines acting as a management *or* agent stations	"To Install the Software on a Management Station" on page 22
	"To Install the Topology Reporter and Diagnostic Expert Agent Software on an Agent Station" on page 24
	"To Install Only the Topology Reporter Agent Software on an Agent Station" on page 26
	"To Install Only the Diagnostic Agent Software on an Agent Station" on page 28
3. (Optional) Configure the Sun Management Center topology reporter agent software.	"Sun Management Center Integration" on page 34
4. Configure the software.	Chapter 3

Before You Install the Software

Before you install the software, read the following sections:

Sun StorEdge Diagnostic Expert and the Sun Automated Diagnostic Environment 2.2

Caution – The Sun StorEdge Diagnostic Expert SUNWstadh Data Host package and Storage Automated Diagnostic Environment 2.2 cannot co-exist, so you must decide which of these two products to use to monitor the host's host bus adapters (HBAs).

If you require the Sun StorEdge Diagnostic Expert to monitor the host's HBAs, you must remove the Storage Automated Diagnostic Environment package (SUNWstade). Be aware that the Storage Automated Diagnostic Environment might also be monitoring devices other then HBAs. If that is this case, then removing the SUNWstade package will cause the loss of that functionality.

If you choose not to install the Data Host package included as part of the Sun StorEdge Enterprise Storage Manager 1.2 product (see "To Install Only the Diagnostic Agent Software on an Agent Station" on page 28) and keep the Storage Automated Diagnostic Environment 2.2 software installed on the agent station, see the *Storage Automated Diagnostic Environment 2.2 User's Guide* (part number 817-0195-10).

This document includes information about how to configure the Storage Automated Diagnostic Environment 2.2 software to send events to the diagnostic expert software.

Install the Software as the Superuser (root)

Install the version 1.2 software packages as the superuser root.

Remove Superuser Environment or Profile Aliases

If aliases exist in the superuser environment or profile, the software installation and configuration might have unexpected results. Remove any aliases created for the environment (for example, cp="cp -i") before you install or configure the software.

Log in as superuser and type one of the following in a terminal window.

- For the Korn shell:

```
# unalias -a
```

- For the C shell:

```
> unalias *
```

Software Installation Order

If you choose to install the software packages on a single machine, the script installs the packages in this order:

1. Topology reporter

2. Configuration service

3. Diagnostic expert

If you are also installing the Sun StorEdge Traffic Manager (STMS) software and the topology reporter software, ensure that you install and configure the STMS software first. You can then install and configure the topology reporter software. See the *Sun StorEdge Traffic Manager Software Installation and Configuration Guide* for STMS installation and configuration information.

Installing the Software

You can install the software packages interactively or by using the `esminstall` script options described in .

-
-
-
-
-
-

The Installation Script Main Menu

When you use the `esminstall` installation script with no arguments, a main installation menu is displayed, as shown in CODE EXAMPLE 2-1.

For example, to install the software on a management station and three agent stations, install the software as follows:

1. Management station: to install the software on the management station, choose menu choice 2) `Server packages`

2. Agent station: to install the software on each agent station, choose menu choice 3) `Agent packages`.

TABLE 2-2 describes the menu options.

CODE EXAMPLE 2-1   Installation Script Main Menu

```
======================================================
Sun StorEdge(tm) ESM 1.2.0 MAIN INSTALL MENU
TR: Topology Reporter 1.2.0
CS: Configuration Service 1.2.0
DE: Diagnostic Expert 1.2.0
======================================================
1) Default: All packages
        (TR server, TR agent, CS, DE server, DE Agent)
2) Server packages (TR server, CS, DE server)
3) Agent packages (TR agent, DE agent)
4) TR agent
5) DE agent
q) Quit.
======================================================
Type a number to install the selected package(s)
[press Enter for default (All), Type q to Quit]:
```

TABLE 2-2   Installation Menu Choices

If You Wish to Install	Select This Menu Option	Which Installs These Components
All packages on a single machine that acts as a management station and agent station	1) Default: All packages	• Topology reporter server (management and agent station packages) • Configuration service • Diagnostic expert server (management and data-host agent station packages)
The server software packages on a management station	2) Server packages	• Topology reporter management station • Configuration service • Diagnostic expert management station
The agent software on each agent station in your SAN	3) Agent packages	• Topology reporter agent station • Diagnostic expert agent station (data-host agent)
The topology reporter agent software packages	4) TR agent	• Topology reporter agent station only
The diagnostic expert agent station software	5) DE agent	• Diagnostic expert data-host agent only

▼ To Install the Software on a Single Machine That Acts as a Management Station and Agent Station

1. **Log into your machine as superuser**

2. **Remove any defined aliases for this user as described in** "Remove Superuser Environment or Profile Aliases" on page 16**.**

3. **Insert the CD into the CD-ROM drive and start the Volume Manager daemon** `vold`**(1) (if needed):**

```
# /etc/init.d/volmgt start
```

Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

4. **Run the** `esminstall` **script:**

```
# cd /cdrom/cdrom0
# ./esminstall
```

The installation main menu is displayed.

5. **Press Enter to accept the default installation option.**

   The default installation option is 1 and installs all software packages. See also "Software Installation Order" on page 16.

   The following messages are displayed:

```
===================================
Sun StorEdge(TM) ESM
Start of Install
Mon Nov 25 16:51:36 MST 2002
===================================

Starting to install the Sun StorEdge(tm) ESM 1.2.0 components:
INFO: Checking for Available Diskspace: Required: numberKB.

Begin: SUNWstm install.
End: SUNWstm install.

Begin: TR Server and Agent install.
End: TR Server and Agent install.

Begin: CS install.
End: CS install.

Begin: DE Server and Agent install.
End: DE Server and Agent install.

Version 1.2.0 Install Completed.
End of Install

INFO: Sun StorEdge(tm) ESM 1.2.0 Installer Log:
/var/sadm/install/logs/SUNWesm.log

INFO: See the component install logs for more detail:
INFO: TR log: /var/sadm/install/logs/SUNWnsm.log
INFO: CS log: /var/sadm/install/logs/SUNWdm.log
INFO: DE log: /var/sadm/install/logs/SUNWde.log
```

6. **Go to Chapter 3 to configure the software and complete the installation.**

▼ To Install the Software on a Management Station

1. **Log into your machine as superuser.**

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Insert the CD into the CD-ROM drive and start the Volume Manager daemon** `vold`**(1) (if needed):**

```
# /etc/init.d/volmgt start
```

Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

4. **Run the** `esminstall` **script:**

```
# cd /cdrom/cdrom0
# ./esminstall
```

The installation main menu is displayed.

5. Type 2 to install the management station packages.

The following messages are displayed:

```
===================================
Sun StorEdge(TM) ESM
Start of Install
Mon Nov 25 16:51:36 MST 2002
===================================

Starting to install the Sun StorEdge(tm) ESM 1.2.0 components:
INFO: Checking for Available Diskspace: Required: numberKB.

Begin: SUNWstm install.
End: SUNWstm install.

Begin: TR Server install.
End: TR Server install.

Begin: CS install.
End: CS install.

Begin: DE Server install.
End: DE Server install.

Version 1.2.0 Install Completed.
End of Install

INFO: Sun StorEdge(tm) ESM 1.2.0 Installer Log:
/var/sadm/install/logs/SUNWesm.log

INFO: See the component install logs for more detail:
INFO: TR log: /var/sadm/install/logs/SUNWnsm.log
INFO: CS log: /var/sadm/install/logs/SUNWdm.log
INFO: DE log: /var/sadm/install/logs/SUNWde.log
```

6. Go to Chapter 3 to configure the software and complete the installation.

▼ To Install the Topology Reporter and Diagnostic Expert Agent Software on an Agent Station

Note – You must install the agent station portion of the software on each agent host in a fabric. If you install the software on some agent hosts but not all, you will only partially discover information in your environment.

1. **Log into your machine as superuser.**

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Insert the CD into the CD-ROM drive and start the Volume Manager daemon** `vold`**(1) (if needed):**

```
# /etc/init.d/volmgt start
```

Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

4. **Run the** `esminstall` **script:**

```
# cd /cdrom/cdrom0
# ./esminstall
```

The installation main menu is displayed.

5. **Type 3 to install the agent station topology reporter and diagnostic agent packages.**

The following messages are displayed:

```
===================================
Sun StorEdge(TM) ESM
Start of Install
Mon Nov 25 16:51:36 MST 2002
===================================

Starting to install the Sun StorEdge(tm) ESM 1.2.0 components:
INFO: Checking for Available Diskspace: Required: numberKB.

Begin: SUNWstm install.
End: SUNWstm install.

Begin: TR Agent install.
End: TR Agent install.

Begin: DE Agent install.
End: DE Agent install.

Version 1.2.0 Install Completed.
End of Install

INFO: Sun StorEdge(tm) ESM 1.2.0 Installer Log:
/var/sadm/install/logs/SUNWesm.log

INFO: See the component install logs for more detail:
INFO: TR log: /var/sadm/install/logs/SUNWnsm.log
INFO: CS log: /var/sadm/install/logs/SUNWdm.log
INFO: DE log: /var/sadm/install/logs/SUNWde.log
```

6. **Go to Chapter 3 to configure the software and complete the installation.**

▼ To Install Only the Topology Reporter Agent Software on an Agent Station

Note – You must install the agent station portion of the software on each agent host in a fabric. If you install the software on some agent hosts but not all, you will only partially discover information in your environment.

1. **Log into your machine as superuser.**

2. **Remove any defined aliases for this user as described in** "Remove Superuser Environment or Profile Aliases" on page 16**.**

3. **Insert the CD into the CD-ROM drive and start the Volume Manager daemon** vold**(1) (if needed):**

```
# /etc/init.d/volmgt start
```

Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

4. **Run the** esminstall **script:**

```
# cd /cdrom/cdrom0
# ./esminstall
```

The installation main menu is displayed.

5. **Type 4 to install the topology reporter agent station software.**

   The following messages are displayed:

```
===================================
Sun StorEdge(TM) ESM
Start of Install
Mon Nov 25 16:51:36 MST 2002
===================================

Starting to install the Sun StorEdge(tm) ESM 1.2.0 components:
INFO: Checking for Available Diskspace: Required: 9500KB.

Begin: SUNWstm install.
End: SUNWstm install.

Begin: TR Agent install.
End: TR Agent install.
Version 1.2.0 Install Completed.
End of Install

INFO: Sun StorEdge(tm) ESM 1.2.0 Installer Log:
/var/sadm/install/logs/SUNWesm.log

INFO: See the component install logs for more detail:
INFO: TR log: /var/sadm/install/logs/SUNWnsm.log
INFO: CS log: /var/sadm/install/logs/SUNWdm.log
INFO: DE log: /var/sadm/install/logs/SUNWde.log
```

6. **Go to Chapter 3 to configure the software and complete the installation.**

▼ To Install Only the Diagnostic Agent Software on an Agent Station

Note – You must install the agent station portion of the software on each agent host in a fabric. If you install the software on some agent hosts but not all, you will only partially discover information in your environment.

1. **Log into your machine as superuser.**

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Insert the CD into the CD-ROM drive and start the Volume Manager daemon** `vold`**(1) (if needed):**

```
# /etc/init.d/volmgt start
```

Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

4. **Run the** `esminstall` **script:**

```
# cd /cdrom/cdrom0
# ./esminstall
```

The installation main menu is displayed.

5. Type 5 to install the diagnostic expert agent station software.

The following messages are displayed:

```
====================================
Sun StorEdge(TM) ESM
Start of Install
Mon Nov 25 16:51:36 MST 2002
====================================

Starting to install the Sun StorEdge(tm) ESM 1.2.0 components:
INFO: Checking for Available Diskspace: Required: 9500KB.

Begin: SUNWstm install.
End: SUNWstm install.

Begin: DE Agent install.
End: DE Agent install.

Version 1.2.0 Install Completed.
End of Install

INFO: Sun StorEdge(tm) ESM 1.2.0 Installer Log:
/var/sadm/install/logs/SUNWesm.log

INFO: See the component install logs for more detail:
INFO: TR log: /var/sadm/install/logs/SUNWnsm.log
INFO: CS log: /var/sadm/install/logs/SUNWdm.log
INFO: DE log: /var/sadm/install/logs/SUNWde.log
```

6. Go to Chapter 3 to configure the software and complete the installation.

The esminstall and esmuninstall Script Options

The `esminstall` and `esmuninstall` scripts include options that are useful when you want to install or remove the software noninteractively. When you use the scripts with the `-S` (silent) option, you do not need to respond to prompts or messages. Software is installed or removed in silent mode.

■ The `esminstall` script file located on the product CD has the options shown in TABLE 2-3.

■ The `esmuninstall` script file located on the product CD and in the `/var/opt/SUNWstm/` directory has the options shown in TABLE 2-4.

The scripts can accept short or long names for each option. A short name option requires a single hyphen (-). A long name option requires a double hyphen (--). For example, to install all packages, you can type one of the following:

```
# esminstall --all
or
# esminstall -A
```

This document shows the short name option followed by the long name option, separated by a comma character. The syntax for `esminstall` and `esmuninstall` follows.

Note – When you use a long name option, do not type a space between hyphens.

```
esminstall [-A,--all) | -s,--server) | -a,--agent) | -t,--tragent) |
          -d,--deagent)] [-S,--silent)] [? | -h,--help)]
```

TABLE 2-3 esminstall Options

Option	Description
-A,--all	Install all packages on a single machine acting as a management and agent station.
-s,--server	Install the management station packages on a single machine.
-a,--agent	Install the agent station packages on a single machine.
-t,--tragent	Install the topology reporter agent station packages.
-d,--deagent	Install the diagnostic expert data-host agent packages.
-S,--silent	Install the selected packages in silent mode. The software installs without displaying messages or prompts. If you do not specify this option, the script prompts you with messages as in "Installing the Software" on page 17.
? -h,--help)	Displays script option information.

Example Installation

Install the agent software on a single machine (agent station) in silent mode:

1. **Log into your machine as superuser.**

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Insert the CD into the CD-ROM drive and start the Volume Manager daemon** vold**(1) (if needed):**

```
# /etc/init.d/volmgt start
```

Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

4. **Run the** `esminstall` **script:**

```
# cd /cdrom/cdrom0
# ./esminstall -a -S
```

5. **Go to Chapter 3 to configure the software and complete the installation.**

6. **When you finish the steps in Chapter 3, eject the CD:**

```
# cd /
# eject cdrom
```

```
esmuninstall[-f,--force][-S,--silent][? | -h,--help]
```

TABLE 2-4 esmuninstall Options

Option	Description
-S,--silent	Uninstall the selected packages in silent mode. The software uninstalls without displaying messages or prompts. If you do not specify this option, the script prompts you with messages as in "Installing the Software" on page 17.
-f,--force	Fully uninstall the software, including the persistence files. See "Removing the Version 1.2 Software" on page 67.
? -h,--help	Displays script option information.

Example Removal

Note – See also "Removing the Version 1.2 Software" on page 67.

Uninstall the software in silent mode and delete any persistence files:

1. **Log into your machine as superuser.**

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Stop all processes and daemons related to the software:**

```
# /etc/init.d/slpd stop
# /etc/init.d/sstrd stop
# /etc/init.d/sscs stop
# /etc/init.d/sscs.wbem stop
# /etc/init.d/sshd stop
# /etc/init.d/prngd stop # only on Solaris 8
# /etc/init.d/init.ssde stop
```

4. **Run the** `esmuninstall` **script:**

```
# cd /cdrom/cdrom0
# /var/opt/SUNWstm/esmuninstall -f -S
```

Sun Management Center Integration

The topology reporter software includes components that enable it to work with the Sun™ Management Center software. When you complete the procedures in this section, you can use the Sun Management Center software to view management and agent station status and to launch the topology reporter web-browser user interface.

The ESM agent module is automatically installed when you install the topology reporter software. The tasks you must perform to enable this feature are:

1. Install the Sun Management Center configuration script `sunmc.configure` on the Sun StorEdge Enterprise Storage Manager management station to enable the topology reporter link-and-launch ESM agent module. (This script is installed by default on each station as part of the installation process described in this guide.)

2. Run the script again on the management station and each agent station to enable status reporting to the Sun Management Center software.

3. Install the `SUNWestra` package available on the CD on a Sun Management Center host machine.

   Also ensure that the Sun Management Center `SUNWesagt` package is installed and started on each agent station. See the *Sun Management Center 3.0 Software Installation Guide*, part number 806-5943-10 for more information.

4. Run the configuration script on the Sun Management Center host machine.

5. See the *Sun Management Center 3.0 Software User's Guide*, part number 806-5942-10, for information describing how to manage modules.

See these paragraphs for details:

- "Before You Can Launch the Topology Reporter Software" on page 35
- "To Configure the Management and Agent Stations" on page 35
- "To Install the SUNWestra Software" on page 36
- "To Configure the Sun Management Center Host" on page 36
- "To Launch the Topology Reporter Software from the Sun Management Center Main Console" on page 37

Before You Can Launch the Topology Reporter Software

Before you can launch the topology reporter software in a web browser from the Sun Management Center, you must:

1. Configure the topology reporter and other software as described in Chapter 3.

2. Ensure that the Sun Management Center `SUNWesagt` package is installed and started on each agent station. See the *Sun Management Center 3.0 Software Installation Guide*, part number 806-5943-10 for more information.

3. Load the module that is installed as part of the procedures described in the section. See the *Sun Management Center 3.0 Software User's Guide*, part number 806-5942-10, for information describing how to manage modules.

▼ To Configure the Management and Agent Stations

1. **Log on to management station as superuser.**

2. **Type the following:**

   ```
   # /opt/SUNWnsm/sbin/sunmc.configure -H hostname -P port
   ```

   where *hostname* is the management station host name and *port* is the Tomcat server software port.

3. **Enable the status reporting agent software:**

   ```
   # /opt/SUNWnsm/sbin/sunmc.configure -A
   ```

4. **Ensure that the Sun Management Center `SUNWesagt` package is installed and started on each agent station.**

   Use the `pkginfo`(1M) command to view installed packages. See the *Sun Management Center 3.0 Software Installation Guide*, part number 806-5943-10 for more information about installing and starting the software.

5. **Repeat Step 3 on each agent station.**

▼ To Install the SUNWestra Software

1. **Log on to the Sun Management Center host machine as superuser.**

2. **Insert the Sun StorEdge ESM 1.2 CD into the CD-ROM drive and start the Volume Manager daemon** `vold`**(1) (if needed):**

   ```
   # /etc/init.d/volmgt start
   ```

   Note – You only need to start the Volume Manager daemon once. Do not start the daemon again.

---

3. **Install the** `SUNWestra` **package:**

   ```
   # cd /cdrom/cdrom0/SSTR_1_2/Product/SUNWnsm_1.2/Packages
   # pkgadd -d . SUNWestra
   ```

▼ To Configure the Sun Management Center Host

1. **Log on to the Sun Management Center host machine as superuser.**

2. **Type the following to be able to launch the topology reporter software from the Sun Management Center software:**

   ```
   # /opt/SUNWnsm/sbin/sunmc.configure -S
   ```

   The script prompts you to enter the management station host name and port. The following message is displayed:

   ```
   /var/opt/SUNWsymon/cfg/tools-extension-j.x updated.
   ```

▼ To Launch the Topology Reporter Software from the Sun Management Center Main Console

Note – Before you can launch the topology reporter software in a web browser from the Sun Management Center, you must configure the software as described in Chapter 3 and then load the module installed as part of the procedures described in this chapter. See the *Sun Management Center 3.0 Software User's Guide*, part number 806-5942-10, for information describing how to manage modules.

1. **Select the machine configured as the topology reporter management station from the Sun Management Center main console window.**

2. **Make sure that the management and agent station software is running on the selected machine.**

   ■ Click Tools and select Details.

   The Details window is displayed. See FIGURE 2-1.

   ■ Click the Browser tab and expand Remote Systems until the Topology Reporter folder is shown.

   ■ Select the Topology Reporter folder.

   Make sure that the management and agent station Value is `installed` and the Status is `running`.

   ■ Close the Details window and return to the Sun Management Center main console window.

3. **Click Tools and select Enterprise Storage Manager from the pull-down menu.**

   See FIGURE 2-2.

4. **A web browser window is displayed.**

5. **Log in to the software as described in "Logging In Through a Web Browser" on page 63.**
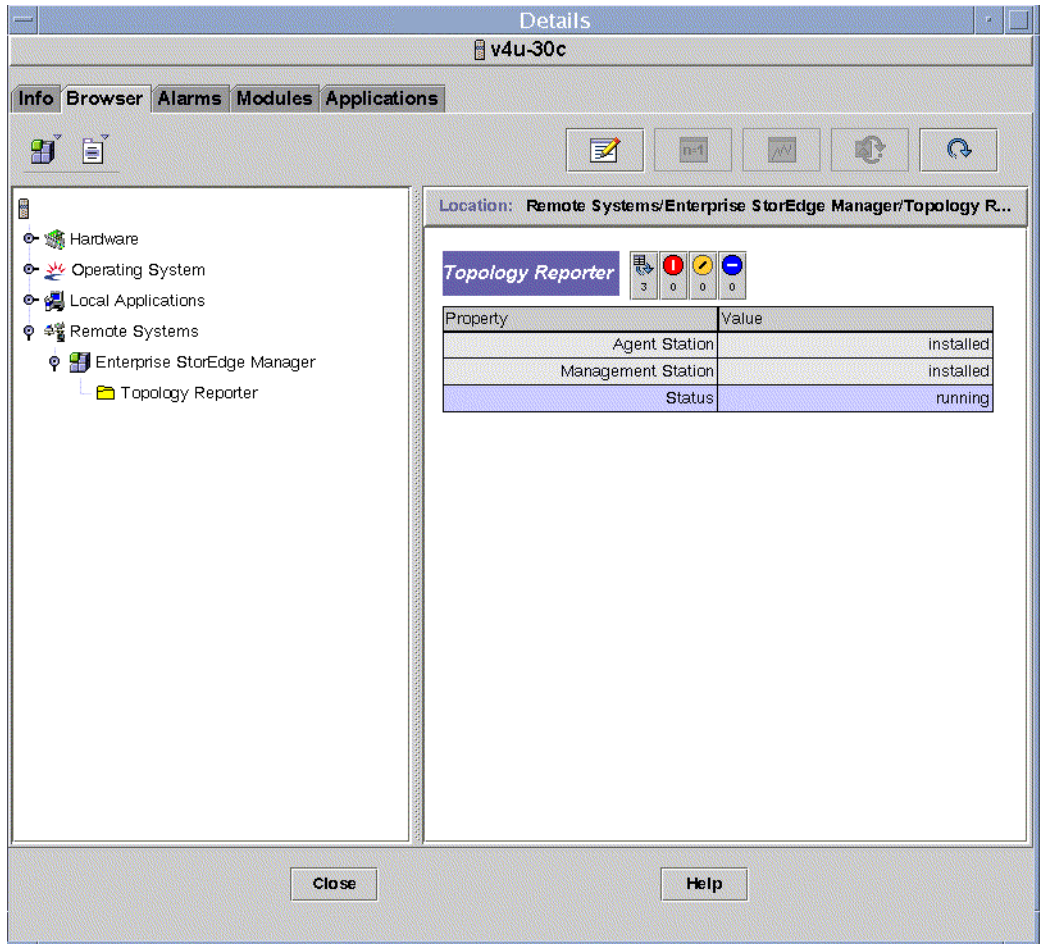
FIGURE 2-1   Sun Management Center Details Window
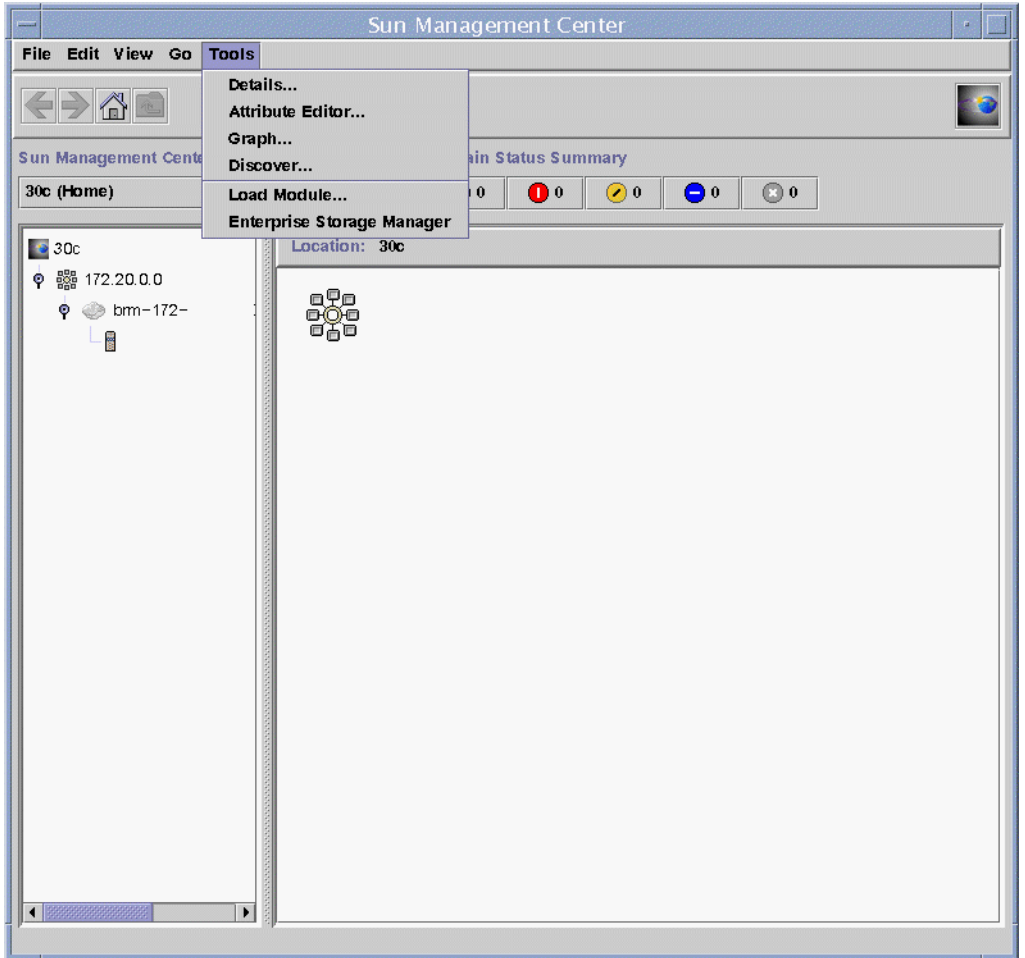
FIGURE 2-2   Sun Management Center Tools Menu

Configuring the Software and Other Post-Installation Procedures

Note – Perform these procedures as the superuser (root). Also, tThe release notes listed in "Related Documentation" on page xiv might contain additional installation and release information for each software component.

After you successfully install the software, you must configure each component to help ensure that the software operates correctly.

This chapter describes the following topics:

- "Before You Configure the Software" on page 42
- "Configuring the Software" on page 47
- "Starting and Stopping The Software" on page 61
- "Logging In Through a Web Browser" on page 63

Note – See also "Sun Management Center Integration" on page 34 to install and configure the Sun Management Center software. You can also launch the software from the Sun Management Center Main window.

Before You Configure the Software

This section describes the following topics:

- "Default Ports for Configuration" on page 42
- "If Sun StorEdge Component Manager Software is Installed on Your Host" on page 43
- "Upgrading Array Firmware" on page 44
- "If You Configure the Software More Than Once" on page 44
- "Topology Reporter SLP Scope Setting Configuration Rules" on page 45

Default Ports for Configuration

Note – Ensure that you note your responses to port and host prompts shown in the configuration script for each software component you are configuring. Keeping these responses in a text file helps you to troubleshoot any port conflicts or related configuration problems.

TABLE 3-1 lists the default ports for the software. For example, the Non-Secure Socket Layer (SSL) port for the topology reporter software Web-browser user interface would be:

```
http://hostname.domain:8180/
```

TABLE 3-1 Default Ports

Software	Non-Secure Socket Layer Port	SSL Port	Apache HTTP Server Port	Postgres SQL Port	Additional Ports
Topology reporter	8180	8543	1024	5437	Not applicable
Configuration service	8080	9443	1024	Not applicable	CLI port - 8023 ssh proxy - 8514 See the code examples in "To Configure the Configuration Service Software" on page 53
Diagnostic Expert	8088	8443	Not applicable	Not applicable	Not applicable

If Sun StorEdge Component Manager Software is Installed on Your Host

If the Sun StorEdge Component Manager 2.2 software is already installed on the host you have chosen as the management station (including configurations where the management station and agent station are the same host), you might have to select a different web server port number for the topology reporter software.

The default Component Manager non-secure web server port is 8180. The 8180 port is also the default for the topology reporter non-secure (non-SSL) server. *Make sure that the topology reporter software non-secure Tomcat web server port is different from the Component Manager web server port.*

If the already-installed Component Manager non-secure web server port is 8180, respond to the configuration script prompts shown in CODE EXAMPLE 3-2 and CODE EXAMPLE 3-4 as follows.

User responses are in **bold text** in this example showing the port choice as 8280:

```
Run Tomcat non-SSL server on port 8180 [y,n,?] n

Please enter the Tomcat non-SSL server port: 8280

Run Tomcat SSL server on port 8543 [y,n,?] y

Do you want to use the SLP scope nsmscope [y,n,?] y

Configuration successful.
End: TR configuration.
```

Upgrading Array Firmware

When upgrading storage array firmware, you must update array HTML files. In addition, the Sun StorEdge Configuration Service requires that each Sun StorEdge array have the required HTML files. Running the update_html_files script easily updates any arrays needing HTML files.

▼ To Update Sun StorEdge Array HTML Files

Note – To use the update_html_files script, you must have the IP addresses of all Sun StorEdge arrays you intend to update.

● **Type the following:**

```
# /opt/SUNWdm/gre/bin
# ./update_html_files
```

See the sample responses in CODE EXAMPLE 3-8 and CODE EXAMPLE 3-9.

If You Configure the Software More Than Once

If you install and configure any software and then want to reconfigure it later, you must stop the software. If you do not stop the software and it is running while you attempt to configure it, the software detects that ports are in use.

When you run the esmconfig script, the software allows you to choose the next available port number. For example, it might allow you to choose port 8280 but not port 8180.

● **Stop all processes and daemons related to the software:**

```
# /etc/init.d/slpd stop
# /etc/init.d/sstrd stop
# /etc/init.d/sscs stop
# /etc/init.d/sscs.wbem stop
# /etc/init.d/sshd stop
# /etc/init.d/prngd stop # only on Solaris 8
# /etc/init.d/init.ssde stop
```

Topology Reporter SLP Scope Setting Configuration Rules

Note – See the *Service Location Protocol Administration Guide* (part number 806-1412-10, available at `http://docs.sun.com`) for more information about SLP and scope settings.

The topology reporter software uses the service location protocol (SLP) framework as part of the communications between its management and agent stations. When you first configure the software on the management and agent stations, the `esmconfig` script prompts you to use the SLP scope setting of `nsmscope`. `nsmscope` is the default SLP scope setting for the topology reporter software.

In the topology reporter software, an SLP scope is defined as a grouping of machines using the same applications and network services. This setting is specified in the `net.slp.useScopes=` field in the `/etc/inet/slp.conf` file when you configure the software.

- **Ensure that you configure the same scope setting for all agent stations connected to the same fabric**. (Fabric is defined here as interconnected switches providing physical connections between all fabric members [hosts, host bus adapters, other switches, and storage devices]. A SAN is defined here as consisting of multiple fabrics.)

- **Ensure the management station in this fabric has the same scope setting as each agent station**. The same setting ensures that the agent stations report information to the management station in the fabric.

- **Ensure that the management station and each agent station are configured with matching locales.** The software can only discover devices if each station type is configured in the same locale.

The management station and agent stations are considered to be in the same SLP scope when each machine has the same scope setting. Only one machine per scope can be a management station.

You can install multiple instances of the topology reporter software on the same local area network (LAN) using a unique management station with related agent stations. (That is, you can have multiple scopes on the same LAN.) Each instance must use unique scope settings. For example:

- Use a scope setting of `nsmscope` for one management station and its related agent stations connected to LAN1

- Use a scope setting of `nsmscope2` for a different management station and its related agent stations connected to LAN1
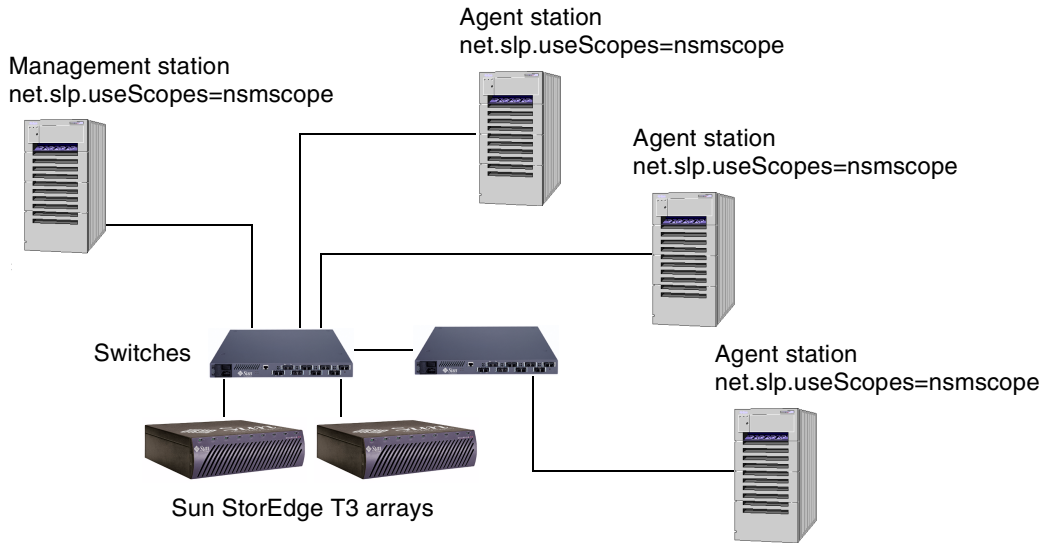
FIGURE 3-1   Scope Settings in a Fabric

Configuring the Software

This section describes the following topics:

The Configuration Script Main Menu

Note – Ensure that you note your responses to port and host prompts shown in the configuration script for each software component you are configuring. Keeping these responses in text file helps you to troubleshoot any port conflicts or related configuration problems.

When you use `esmconfig` configuration script with no arguments, a main configuration menu is displayed. The menu shown in CODE EXAMPLE 3-1 is the configuration menu for a system where all packages have been installed.

The configuration menu is dynamic; that is, the menu presents configuration choices only for those currently-installed software packages. For example, if you type the configuration script on a machine with the management station packages installed, the menu displays choices for the management station packages and does not display choices for the agent station packages.

CODE EXAMPLE 3-1   Configuration Script Main Menu

```
==================================================
Sun StorEdge(tm) ESM 1.2.0 MAIN CONFIGURATION MENU

    TR: Topology Reporter 1.2.0
    CS: Configuration Service 1.2.0
    DE: Diagnostic Expert 1.2.0
==================================================
1) TR (Server and Agent)
2) CS
3) DE (Server and Agent)
d) Default: All components listed above
q) Quit
========================================================
Type the numbers(s) to configure the selected package(s).
Separate numbers with commas to configure more than one package.
[press Enter for default (all), Type q to Quit]:
```

Configuring One or More Packages at a Time

You can configure all packages, one package, or multiple packages at a time. When you want to configure more than one package at a time, type each menu choice number, separated by a comma or space.

For example, to configure the configuration service and diagnostic expert software, type:

```
Your Choice: 2,3
```

When the configuration is finished, a message similar to the following is displayed:

```
ESM 1.2.0 Configuration Completed.

INFO: ESM 1.2.0 Installer Log: /var/sadm/install/logs/SUNWesm.log
INFO: Please also see component install logs for more detail:

INFO: TR log: /var/sadm/install/logs/SUNWnsm.log
INFO: CS log: /var/sadm/install/logs/SUNWdm.log
INFO: DE log: /var/sadm/install/logs/SUNWde.log
```

▼ To Configure the Topology Reporter Software

1. Log into your machine type as superuser.

The machine types are management station or agent station. Depending on how you installed the software, one machine might act as a management station and agent station.

2. Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.

3. Run the esmconfig **script:**

```
# /opt/SUNWstm/bin/esmconfig
```

The script is also located on the product CD in the CD root directory.

4. Type 1.

Depending on the machine type, respond to the prompts shown in CODE EXAMPLE 3-2, CODE EXAMPLE 3-3, or CODE EXAMPLE 3-4 with your system information.

Note – Typically, use the default values for the port and scope prompts. Ensure that the default port numbers do not conflict with any other software you might have installed. See "If Sun StorEdge Component Manager Software is Installed on Your Host" on page 43.

When prompted, respond to the Apache host name prompt with the host name of the machine where you have installed the software (that is, the agent station).

---

5. See the following sections:

- "Topology Reporter SLP Scope Setting Configuration Rules" on page 45
- "Starting and Stopping The Software" on page 61
- "Logging In Through a Web Browser" on page 63.

CODE EXAMPLE 3-2   Configuration Script Example Responses, Topology Reporter Management Station

```
Run PostgreSQL server on port 5437 [y,n,?] y

Run Tomcat non-SSL server on port 8180 [y,n,?] y

Run Tomcat SSL server on port 8543 [y,n,?] y

Do you want to use the SLP scope nsmscope [y,n,?] y

Configuration successful.
End: TR configuration.
```

CODE EXAMPLE 3-3   Configuration Script Example Responses, Topology Reporter Agent Station

```
Run Apache server on port 1024 [y,n,?] y

Please enter the fully qualified Apache hostname: enter the hostname of this station

Do you want to use the Apache email address drew@hostname.domain y,n,?] n

Please enter the Apache server email address for notification: root@hostname.domain

Do you want to use the SLP scope nsmscope [y,n,?] y

Configuration successful.
End: TR configuration.
```

CODE EXAMPLE 3-4   Configuration Script Example Responses, Topology Reporter Management and Agent
Station on One Machine

```
Run PostgreSQL server on port 5437 [y,n,?] y

Run Tomcat non-SSL server on port 8180 [y,n,?] y

Run Tomcat SSL server on port 8543 [y,n,?] y

Run Apache server on port 1024 [y,n,?] y

Please enter the fully qualified Apache hostname: enter the hostname of this station

Do you want to use the Apache email address drew@hostname.domain y,n,?] y

Please enter the Apache server email address for notification: root@hostname.domain

Do you want to use the SLP scope nsmscope [y,n,?] y

Configuration successful.
End: TR configuration.
```

▼ To Configure the Configuration Service Software

Note – See also "Upgrading Array Firmware" on page 44.

1. **Log into your machine type as superuser.**

   The machine types are management station or agent station. Depending on how you installed the software, one machine might act as a management station and agent station.

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Run the** esmconfig **script:**

   ```
   # /opt/SUNWstm/bin/esmconfig
   ```

   The script is also located on the product CD in the CD root directory.

4. **Type 2.**

   Respond to the prompts shown in:

   - CODE EXAMPLE 3-5
   - CODE EXAMPLE 3-6
   - CODE EXAMPLE 3-7
   - CODE EXAMPLE 3-8
   - CODE EXAMPLE 3-9

   Note – Typically, use the default values for the port prompts. Ensure that the default port numbers do not conflict with any other software you might have installed.

5. **See the following sections:**

   - "Starting and Stopping The Software" on page 61
   - "Logging In Through a Web Browser" on page 63.

CODE EXAMPLE 3-5   Configuration Script Example Responses, Configuration Service (Part 1)

```
Would you like to configure the Sun StorEdge(tm) Configuration
Service Console access to Solaris WBEM Services at this time ?
(Default: y) [y,n,?,q]

Enter the hostname where the CIMOM is located (Current: <not set>,
Default: hostname.domain) [?,q]

Do you want to change your selection - hostname.domain ?
(Default: n) [y,n,?,q]

Enter the CIM Username for accessing the CIMOM (Current: <not set>,
Default: root) [?,q]

Do you want to change your selection - root ? (Default: n) [y,n,?,q]
Please enter password for root:
Please confirm password for root:

Would you like to configure the Sun StorEdge(tm) Configuration
Service Console access to the Sun StorEdge(tm) Automated Diagnostic
Environment (SADE) at this time ? (Default: y) [y,n,?,q]

Enter the URL for the location of the Sun StorEdge(tm) Automated
Diagnostic Environment (Current: <not set>, Default:
http://hostname.domain:8088) [?,q]

Do you want to change your selection -
hostname.domain:8088 ? (Default: n) [y,n,?,q]

Would you like to configure the Sun StorEdge(tm) Configuration
Service Console access to the Sun StorEdge(tm) 9900 Series Software
at this time ? (Default: y) [y,n,?,q]

Enter the URL for the location of the Sun StorEdge(tm) 9900 Series
Software (Current: <not set>, Default:
http://hostname.domain:2001) [?,q]

Do you want to change your selection -
http://hostname.domain:2001 ? (Default: n) [y,n,?,q]
```

CODE EXAMPLE 3-6   Configuration Script Example Responses, Configuration Service (Part 2)

```
Would you like to configure the login names of storage administration
users for the Sun StorEdge(tm) Configuration Service at this time ?
(Default: y) [y,n,?,q]
The current list of designated storage administration users is: root.

Would you like to (a)dd users to the list; (r)eset the list and start
over; (s)ave the existing list and continue (a|r|s) ? (Default:
s) [?,q]

Would you like to configure the Sun StorEdge(tm) Configuration
Service Console Web Server at this time ? (Default: y) [y,n,?,q]

Enter the fully qualified DNS domain name for the host that will be
associated with the webserver (Current: <not set>, Default:
hostname.domain) [?,q]

Do you want to change your selection - hostname.domain ?
(Default: n) [y,n,?,q]

Enter the http port number for the server to listen on (Current: <not
set>, Default: 8080) [2-65535,?,q]

Do you want to change your http port number selection - 8080 ?
(Default: n) [y,n,?,q]

Enter the https port number for the server to listen on (Current:
<not set>, Default: 9443) [2-65535,?,q]

Do you want to change your https port number selection - 9443 ?
(Default: n) [y,n,?,q]
Please enter the path that contains the secure webserver SSL keystore
(Current: <not set>, Default:
/opt/SUNWdm/gre/etc/services/web/.keystore) [?,q]

Do you want to change your selection -
/opt/SUNWdm/gre/etc/services/web/.keystore ? (Default: n) [y,n,?,q]
Please enter SSL (https) keystore password:
Please confirm SSL (https) keystore password:
```

CODE EXAMPLE 3-7 Configuration Script Example Responses, Configuration Service (Part 3)

```
What is the website host fully qualified DNS domain name ? (Current: Unknown,
Default: hostname.domain) [?,q]

What is the name of your organizational unit ? (Current: Unknown) [?,q]

What is the name of your organization ? (Current: Unknown) [?,q]

What is the name of your City or Locality ? (Current: Unknown) [?,q]

What is the name of your State or Province ? (Current: Unknown) [?,q]

What is the two-letter country code for this unit ? (Current: Unknown) [?,q]

Is <CN=hostname.domain, OU=Unknown, O=Unknown, L=Unknown,
ST=Unknown, C=Unknown> correct (Default: n) [y,n,?,q] y

Would you like to configure the Sun StorEdge(tm) Configuration
Service Console CLI Server at this time ? (Default: y) [y,n,?,q]

Enter the telnet port number for the server to listen on (Current:
<not set>, Default: 8023) [2-65535,?,q]

Do you want to change your telnet port number selection - 8023 ?
(Default: n) [y,n,?,q]

Enter the ssh proxy port number for the server to listen on (Current:
<not set>, Default: 8514) [2-65535,?,q]

Do you want to change your ssh proxy port number selection - 8514 ?
(Default: n) [y,n,?,q]
```

CODE EXAMPLE 3-8   Configuration Script Example Responses, Configuration Service (Part 4)

```
Update T3 HTML files

Warning:

Please only use this update script if you are updating
a Sun StorEdge T3 with firmware version of 2.1 or less.

For StorEdge T3s with firmware versions newer than 2.1,
please use the Sun patch associated with that firmware.

Would you like to continue? (default: y) [y,n,?,q] y
Please enter Hostname or IP Address of T3 to upgraded T3 files on:  t3-40
t3-40 is alive
Extracting html files in $TMPDIR
Looking For HTML Contents in /tmp/upload.17219
...

At the prompt please enter the username/password necessary to log into $TARGET
Creating Auto ftp File In [$HOMEDIR/.netrc]...Connected to t3-40.
220 172.20.195.40 FTP server ready.
Name (t3-40:jg10816): root
331 Password required for root.
Password:
230 User root logged in.
bin
200 Type set to I.
prompt
Interactive mode off.
mkdir /web
550 /web: file exists.
cd /web
250 CWD command successful.
lcd /tmp/upload.17219
Local directory now /tmp/upload.17219
mput *.htm
200 PORT command successful.
150 Opening BINARY mode data connection for frudata.htm
226 Transfer complete.
local: frudata.htm remote: frudata.htm
2087 bytes sent in 0.00028 seconds (7278.88 Kbytes/s)
200 PORT command successful.
150 Opening BINARY mode data connection for fruprop.htm
226 Transfer complete.
local: fruprop.htm remote: fruprop.htm
```

CODE EXAMPLE 3-9   Configuration Script Example Responses, Configuration Service (Part 5)

```
1534 bytes sent in 0.00023 seconds (6570.38 Kbytes/s)
200 PORT command successful.

File transfer messages deleted here for convenience
.
.
.
quit
221 Goodbye.

Cleaning Up Temporary Files...

 Sun StorEdge Configuration Service (SSCS) Configuration:

          (1) Configure all
          (2) CIMOM (Common Information Model Object Manager)
          (3) Web Link to Sun StorEdge(tm) Diagnostic Expert
          (4) Web Link to 9900 Series Device Management Utility
          (5) Add, Edit, Delete SSCS Administrators
          (6) Web Server
          (7) CLI Servers
          (8) Update files on Sun StorEdge T3 and T3+ storage arrays
          (p) Print the Current Configuration
          (q) Quit

Your Choice:


Configuration of the various components of the Sun StorEdge(tm)
Configuration Service has been done. Would you like to start the
Configuration Service at this time ? (Default: y) [y,n,?,q]

config: INFO: service is already running: Secure Shell
config: INFO: service has been started: Solaris WBEM Services
/etc/init.d/sscs: INFO: Sun StorEdge(tm) Configuration Service - starting
config: INFO: service has been started: Configuration Service
End: CS configuration.
```

▼ To Configure the Diagnostic Expert Software

Note – The user you create as part of this configuration cannot be an existing user. The configuration process creates a new user for the diagnostic expert software.

1. **Log into your machine type as superuser.**

   The machine types are management station or agent station. Depending on how you installed the software, one machine might act as a management station and agent station.

2. **Remove any defined aliases for this user as described in "Remove Superuser Environment or Profile Aliases" on page 16.**

3. **Run the** esmconfig **script:**

   ```
   # /opt/SUNWstm/bin/esmconfig
   ```

   The script is also located on the product CD in the CD root directory.

4. **Type 3.**

   Respond to the prompts shown in CODE EXAMPLE 3-10.

   Note – Typically, use the default values for the port prompts. Ensure that the default port numbers do not conflict with any other software you might have installed.

5. **See the following sections:**

   - "Starting and Stopping The Software" on page 61
   - "Logging In Through a Web Browser" on page 63.

CODE EXAMPLE 3-10 Configuration Script Example Responses, Diagnostic Expert

```
Configure Diagnostic Expert Server

 Sun StorEdge Diagnostic Expert (SSDE) requires that
 one role, SA_Admin be assigned to a user id. The SSDE install
 adds the SA_Admin role to the system. Use the following to
 manage the user id's that belong to the SA_Admin role.

          (a) Add a user to SA_Admin role
          (d) Delete a user from SA_Admin role
          (q) Quit

Your Choice:
Configure Diagnostic Expert Data-Host Agent

 Sun StorEdge Diagnostic Expert (SSDE) Data-Host
 Agent requires that you configure the following information:

 - Hostname:port or IP Address:port of the SSDE Master
 - Probing Frequency (5-120)
 - Message File Location (default=/usr/adm/messages)
 - Start/Stop of the Agent cron job

Are you ready to configure the Data-Host Agent? ([y],n)

**** Installing the Package and Crons ****
To install a Data-Host package, the IP Name/Address of the Master agent must be
known. If you have not installed the Master yet, abort this install and go
install the package on a host to be configured as the Master first.

? Enter the IP Name/Address:port of the Master Agent (default=172.xx.xxx.xx)

-Testing communication with host 'hostname.domain' ..
** Found hostname.domain'

? Enter probing frequency (5/10/20/30/40/50/60) (default=10)
? Enter message file location (default=/var/adm/messages)

** cron installed.
- Testing access to the webserver (this will timeout after 30 seconds)
**** ping 'hostname.domain' succeeded!

End: DE configuration.
```

Starting and Stopping The Software

After installation and configuration, ensure that each software component is started on the management station and each agent station.

● **To start the software, open a terminal window and type one of the following:**

■ Topology reporter:

```
# /etc/init.d/sstrd start
```

Note – sstrd start also starts the SLP service (slpd). However, sstrd stop does not stop the SLP service. To stop the SLP service, type:
/etc/init.d/slpd stop

■ Configuration service:

```
# /etc/init.d/prngd start # only on Solaris 8
# /etc/init.d/sshd start
# /etc/init.d/sscs.wbem start
# /etc/init.d/sscs start
```

■ Diagnostic expert:

```
# /etc/init.d/init.ssde start
```

The software displays messages showing each software process starting.

- **To stop the software, open a terminal window and type:**
  - Diagnostic expert:

```
# /etc/init.d/init.ssde stop
```

  - Configuration service:

```
# /etc/init.d/sscs stop
# /etc/init.d/sscs.wbem stop
# /etc/init.d/sshd stop
# /etc/init.d/prngd stop # only on Solaris 8
```

  - Topology reporter:

```
# /etc/init.d/slpd stop
# /etc/init.d/sstrd stop
```

The software displays messages showing each software process stopping.

Logging In Through a Web Browser

If you have successfully installed and started the software, log in to the software in a web browser.

Note – Ensure that you note your responses to port and host prompts shown in the configuration script for each software component you are configuring. Keeping these responses in text file helps you to troubleshoot any port conflicts or related configuration problems.

Log In To the Topology Reporter Software

The topology reporter software is the starting point for the Sun StorEdge Enterprise Storage Manager, where you can launch the configuration service and diagnostic expert software.

Note – See and

1. **Open Netscape Navigator, version 4.79.**

Note – Make sure that your web browser has cookies enabled.

2. **Type one of the following URLs in the URL text field:**
   - For a non-SSL HTTP server:

   ```
   http://mgmt-station-hostname.domain:8180/
   ```

   where *mgmt-station-hostname.domain* is the management station host name and 8180 is the default port number for the topology reporter software. If you configured the port to be different, use that port number.

Note – If you are concerned about password security, use the SSL HTTP URL.

- For an SSL HTTP server:

```
https://mgmt-station-hostname.domain:8543/
```

where *mgmt-station-hostname.domain* is the management station host name and 8543 is the default port number for the topology reporter software. If you configured the port to be different, use that port number.

The Login page is displayed.

3. **Log in as follows for the topology reporter software:**

```
User Name: admin
Password: none; leave blank
```

Note – When you launch the diagnostic expert software, log in as the user you configured in "To Configure the Diagnostic Expert Software" on page 59.

4. **Click the Log In button.**

Default User Names and Passwords for the Software

The default user names and passwords for the software components are as follows:

TABLE 3-2 Default User Names and Passwords

Software Component	User Name and Password
Topology reporter	admin No password; leave blank
Configuration service	root system root password or password as set during configuration. See CODE EXAMPLE 3-5.
Diagnostic expert	A role is assigned to a user during configuration. See CODE EXAMPLE 3-10.

Using the Command Line Interface

Each software component (topology reporter, configuration service, and diagnostic expert) includes a command line interface to the software. Refer to the documentation and man pages listed in "Related Documentation" on page xiv for more information about each CLI.

Removing the Version 1.2 Software

This chapter describes how to remove the version 1.2 software should you need to remove it from your system.

Removing the Version 1.2 Software

Note – Perform these procedures on each machine where the software is installed.

The `/var/opt/SUNWstm/esmuninstall` script enables you to partially or completely remove the software components. A complete removal deletes all installed software packages and persistence files. A partial removal deletes all installed packages but leaves the persistence files on your system.

The script removes the software packages in the following order:

- Topology reporter software
- Configuration service software
- Diagnostic expert software

Log Messages and Persistence Files

Note – See also .

The script displays removal messages (except when you choose silent mode (-S)) and also writes the messages to a log file. The log and persistence files are located in the following directories:

- `/var/sadm/install/logs`
- `/var/opt/SUNWnsm/`
- `/var/opt/SUNWdm/`
- `/var/opt/SUNWstadh`

Note – The iPlanet Message Queue for Java (iMQ) packages (`SUNWjqapi`, `SUNWjqent`, `SUNWjqrtr`, `SUNWjqrun`) will persist after a default removal (that is, using the default `esmuninstall` script without options). These packages are only removed after a full removal (that is, using the `esmuninstall` script and `-f` option: `esmuninstall -f`). The iMQ packages are installed into the `/opt/SUNWjmq` and `/var/opt/SUNWjmq` directories on the management station.

Checking for Installed Packages (esmcheck)

The `/var/opt/SUNWstm/esmcheck` script enables you to determine which Sun StorEdge Enterprise Storage Manager packages are installed on your system. The script's syntax is as follows:

`esmcheck [-v]`

where the `-v` options displays messages to your screen. If you do not specify the `-v` option, the script writes the messages to the `/tmp/verify_esm.log` file.

This script can display the following:

- Package name
- Installation status (full or partial install)
- Installation base directory
- Version installed
- Persistence files and installation logs

The esmuninstall Script Options

The `/var/opt/SUNWstm/esmuninstall` script enables you to remove the software packages interactively or automatically. Run this script on each machine where the software packages are installed.

The script can accept a short or long name for each option. A short name requires a single hyphen (-). A long name requires a double hyphen(--). This section shows the short name option followed by the long name option in parentheses.

Note – When you use a long name option, do not type a space between hyphens.

`esmuninstall [-S(--silent)] [-f(--full)] [-h(--help) | ?]`

TABLE 4-1 `esmuninstall` Script Options

Option	Description
No options	Removes all packages but leaves the persistence files on the system, including the iPlanet Message Queue for Java packages.
-S(--silent)	The script operates in silent mode (that is, it automatically removes all packages without prompting you). This option does not display any messages.
-f(--full)	Removes all packages and persistence files.
-h(--help) ?	Displays a list of options and usage for the script.

▼ To Remove the Version 1.2 Software

1. Log into your machine as superuser.

2. Stop all processes and daemons related to the software:

```
# /etc/init.d/slpd stop
# /etc/init.d/sstrd stop
# /etc/init.d/sscs stop
# /etc/init.d/sscs.wbem stop
# /etc/init.d/sshd stop
# /etc/init.d/prngd stop # only on Solaris 8
# /etc/init.d/init.ssde stop
```

3. Remove the software packages.

```
# /var/opt/SUNWstm/esmuninstall
```

After the removal is finished, the following message is displayed:

```
Exiting, successful.
```

CHAPTER **5**

Troubleshooting Tips

This section describes general tips to help avoid and troubleshoot any problems that might occur when installing the topology reporter software. The following topics are described:

- "Log Files to Check After Installation" on page 72
- "Checking for Running Software Components" on page 73
- "Setting Switch Credentials" on page 77

Log Files to Check After Installation

Check the following files, which help you to troubleshoot installation problems:

- `/var/sadm/install/logs/SUNWesm.log`
  `/var/sadm/install/logs/SUNWnsm.log`
  `/var/sadm/install/logs/SUNWdm.log`
  `/var/sadm/install/logs/SUNWde.log`
  `/var/opt/SUNWsade/logs/storage.log`
  `/var/opt/SUNWsade/logs/output.log`

  These logs contains installation, removal, configuration, error, or informational messages.

- `/var/adm/messages`

  This log contains general system error or informational messages.

- `/var/opt/SUNWnsm/pgsql/nsmdb.log`

  This log contains warnings and error messages from the topology reporter database.

- `/var/opt/SUNWnsm/tomcat/eventtranslator.log`

  This log contains messages from software about events that have occurred.

- `/opt/SUNWnsm/utils/tomcat/logs/catalina.out`

  This log contains messages from the software about any Java servlets used in the application and any errors associated with the event translator SLP registration.

- `/var/opt/SUNWnsm/cre/cre_log`

  This log contains messages from the Container Runtime Environment. By default, logging to this file is turned off.

Note – Over time, the `/var/opt/SUNWnsm/cre/cre_log` (if enabled) and `/opt/SUNWnsm/utils/tomcat/logs/catalina.out` files can become very large. Make sure that you check these files occasionally so that they do not consume more disk space than desired.

Checking for Running Software Components

Perform the following steps to ensure that the required software application processes are running.

▼ To Check for Running Components

1. Check for running topology reporter components.

```
# /opt/SUNWnsm/bin/sstr_ctl --status
```

The following messages are displayed (if the machine is both station types, all messages display):

■ **If the machine is a management station:**

```
Status of Sun StorEdge(TM) Topology Reporter Components

Core Components:

PostgreSQL for SSTR...........running.
The CRE for SSTR..............running.
Tomcat for SSTR...............running.

Supporting Applications:

SLP...........................running.
iPlanet iMQ...................running.
```

■ **If the machine is an agent station:**

```
Status of Sun StorEdge(TM) Topology Reporter Components
Core Components:

Apache for SSTR...............running.
SLP...........................running.
```

2. **If the status messages show that any component is** `...not running`, **try the following:**

```
# /etc/init.d/sstrd stop
# /etc/init.d/sstrd start
# /opt/SUNWnsm/bin/sstr_ctl --status
```

3. **Check the log files if a component is not running.**

    See "Log Files to Check After Installation" on page 72.

4. **Fix any errors shown in the log files.**

5. **If you need to manually start software components:**

    Note – Although you can manually start the topology reporter software components, it is best to shut down and restart your system to start them in an orderly fashion.

    ■ On a management station, **type**:

```
# /etc/init.d/slpd start
# /etc/init.d/jmq start
# /opt/SUNWnsm/sbin/sstr.postgresql start
# /opt/SUNWnsm/sbin/sstr.tomcat start
# /opt/SUNWnsm/sbin/sstr.cre start
```

    ■ On an agent station, **type**:

```
# /etc/init.d/slpd start
# /opt/SUNWnsm/sbin/sstr.apache start
```

    ■ On a machine that is a management station and an agent station:, **type**

```
# /etc/init.d/slpd start
# /etc/init.d/jmq start
# /opt/SUNWnsm/sbin/sstr.postgresql start
# /opt/SUNWnsm/sbin/sstr.apache start
# /opt/SUNWnsm/sbin/sstr.tomcat start
# /opt/SUNWnsm/sbin/sstr.cre start
```

6. **Check for any running diagnostic expert components.**

```
# ps -aef | grep java
```

If it is running, the system displays output similar to the following, with
`-Dappname=SADE` being the text indicating that the diagnostic expert software is
running:

```
root 25696     1  0 08:37:03 pts/1     0:31 /opt/SUNWdm/jre/bin/java
-Dappname=SADE -Djava.security.manager -Djava.security
```

7. **Check for the diagnostic expert watchdog timer.**

```
# ps -aef | grep watch
```

If it is running, the system displays output similar to the following

```
root 25697  1  0 08:37:03 pts/1 0:00 /bin/ksh /opt/SUNWsade/etc/ssde_watch start
```

8. **Start the diagnostic expert software.**

```
# /etc/init.d/init.ssde start
```

9. **If these steps fail, shut down and restart your system using** shutdown**(1M).**

Setting Switch Credentials

Note – See the *Sun StorEdge Enterprise Storage Management 1.2 Topology Reporter Software Administration and Operations Guide* for information about its web-browser user interface and command-line interface.

The discovery agent of the topology reporter software contacts the hardware switch for its status and identification. If the switch requires a user name and password to access the devices and you have not entered this information through the browser user interface or command-line interface, you might see error messages related to XML parsing or other exceptions.

To fix this, you need to enter the switch information into the topology reporter software.

Finding Out the Switch IP Address, User Name, and Password

The typical default login information for a switch is:

```
Username: admin
Password: password
```

To find out the IP address, contact your system administrator or click the switch graphic on the Topology page. The user name and password must match the settings you entered for the switch when you used the switch's management tool.

▼ To Add Switch Credentials

> **Note –** These steps make the topology reporter software aware of switch user names and passwords and do not change existing switch settings.

1. **Click the Administration tab in the topology reporter UI.**

2. **Click the Out-of-band Credentials link under the Administration tab.**

   The Out-of-band Credentials page is displayed.

3. **Click the Add button.**

4. **Type the required information in the related text field:**
   - Address - IP address of the switch
   - User Name - The user's login name for the switch. Typically this field is `admin`.
   - Password - The default is a blank password if you choose not to use one.
   - Verify Password - If you use a password, type it again.

5. **Click Save.**

   A confirmation page is displayed.

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