Sun StorEdge™ Configuration Service 1.0 Administrator's Guide

Sun Microsystems, Inc.
4150 Network Circle
Santa Clara, CA 95054 U.S.A.
650-960-1300

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User Action 62

Preface

The *Sun StorEdge Configuration Service 1.0 Administrator's Guide* provides procedures for configuring and managing storage with the Sun StorEdge Configuration Service software.

Before You Read This Book

For the latest Sun StorEdge Configuration Service software information, please see the *Sun StorEdge Configuration Service 1.0 Release Notes*.

How This Book Is Organized

This book contains the following sections:

Chapter 1 explains the software and provides an overview to the web-browser user interface (WUI).

Chapter 2 explains a brief overview of the command-line interface (CLI).

Chapter 3 explains how to configure the software.

Chapter 4 explains how to launch software to configure and manage the Sun StorEdge 9900 Series.

Chapter 5 explains how to configure and manage Sun StorEdge T3 arrays.

Chapter 6 explains how to view and manage alarms and log entries.

Chapter 7 explains how to lauch Storage Automated Diagnostic Environment software.

Chapter 8 explains troubleshooting.

Using UNIX Commands

This document may 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	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type `rm` *filename*.

Shell Prompts

Shell	Prompt
C shell	*machine_name*%
C shell superuser	*machine_name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Related Documentation

Application	Title	Part Number
Installation	*Sun StorEdge Configuration Service Installation Guide*	816-4295-10
Release notes	*Sun StorEdge Configuration Service 1.0 Release Notes*	816-4296-10
User's guide	*Storage Automated Diagnostic Environment User's Guide*	816-3142-10
Administration	*Sun StorEdge T3+ Array Administrator's Manual,Version 2.1 Controller Firmware*	816-4769-10
Installation and configuration	*Sun StorEdge T3+ Array Installation and Configuration Manual: Version 2.1 Controller Firmware*	816-4770-10

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CHAPTER 1

Overview

This chapter provides an overview to the Sun StorEdge Configuration Service Software by explaining some of the software features, how to start the software, and and an introduction to the web-browser user interface (WUI).

This chapter describes the following topics:

- "Introduction to the Configuration Service Software" on page 2
- "Starting and Stopping the Daemons" on page 5
- "Logging Into the Web Browser" on page 6
- "About the Web User Interface" on page 7

Introduction to the Configuration Service Software

The Sun StorEdge Configuration Service software enables you to view and manage your storage devices. Using a web-browser user interface (WUI) or the command-line interface (CLI), you can:

- View hardware assets such as storage devices
- Manage asset reporting (also known as discovery)
- Manage alarms and assets

The Sun StorEdge Configuration Service command-line interface is described in Chapter 2.

Using the WUI only, you can:

- Set Configuration Service software attributes
- Launch other web browser-based applications related to devices in your environment

This section contains the following topics:

- "Notification Services" on page 3
- "Starting Related Applications" on page 3
- "Log Files" on page 3

Command-Line Interface (CLI)

The Sun StorEdge Configuration Service command-line interface is described in Chapter 2.

Notification Services

The Configuration Service software uses the Simple Mail Transfer Protocol (SMTP) to send e-mail to users each time an alarm occurs. You can decide which alarm severity level gets reported to the user and how often it is reported.

The software also enables you to send information to applications that are able to receive Simple Network Management Protocol (SNMP) traps.

See Chapter 3 for additional information.

Starting Related Applications

The Configuration Service software enables you to start applications related to your storage devices. These applications include:

- Sun Storage Automated Diagnostic Environment (SADE) software
- Sun StorEdge 9900 series management software

Note – You must install these launchable applications on all relevant platforms in your environment.

Log Files

This section contains the following topics:

- “Configuration Service Log Files” on page 4
- “CIMOM Log Files” on page 4

Configuration Service Log Files

The Configuration Service software logs information to the log files described in TABLE 1-1.

TABLE 1-1 Configuration Service Log Files

File Name	Function
`/opt/SUNWdm/gre/var/log/access.`*date*`.log`	Tracks access to servers.
`/opt/SUNWdm/gre/var/log/secsd.log`	Captures unviewable serial object data.
`/opt/SUNWdm/gre/var/log/secsd.txt`	Captures viewable serial object data.
`/opt/SUNWdm/gre/var/log/secsd.stdio`	Captures daemon log entries.

CIMOM Log Files

Depending on which version of the Solaris operating environment you are using, the location of the CIMOM files may be different. For the Solaris 8 operating environment, CIMOM files are relocated into a different package directory as follows:

- `/opt/SUNWdm/var/sadm/wbem/`

For further information regarding the Solaris 9 operating environment location of CIMOM files, search `http://docs.sun.com` for the *WBEM SDK Developer's Guide.*

Starting and Stopping the Daemons

Be sure to start the software on the management station and each agent station after you install and configure the software, as described in the *Sun StorEdge Configuration Service 1.0 Installation Guide*.

- **To start the Configuration Service daemons, open a terminal window and type:**

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

- **To stop the Configuration Service daemons, open a terminal window and type:**

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

Note – After stopping and restarting the daemons and logging in to the Sun StorEdge Configuration Service software, you may get a temporary message that it is acquiring storage devices.

Logging Into the Web Browser

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

Note – If you did not use the default value, you will need the port number you defined during the configuration process. (See *Sun StorEdge Configuration Service 1.0 Installation Guide*.)

---

1. **Open a web browser.**
2. **If you are using Netscape Communicator, set the browser cache setting to Always (recommended), or Once Per Session, but not to Never.**
3. **Type one of the following URLs in the URL text field:**
   - For a non-secure web server, type a URL with the following format in a browser:

```
http://nodename.domain:port-number
```

   An example with the default port number is:

```
http://happy.eng:8080
```

   - For a secure web server, type a URL with the following format in a browser:

```
https://nodename.domain:port-number
```

   An example with the default port number is:

```
https://happy.eng:9443
```

4. **At the Login page, enter the User Name and Password provided by your system administrator.**
5. **Click the Log In button to log in.**

   The Asset page is loaded. There may a be a message that the software is momentarily in the process of acquiring devices.

About the Web User Interface

The Configuration Service WUI consists of the tabs and pages listed below. After you login, you can access each page by clicking its labelled tab.

- "Login Page" on page 7
- "Assets Tab" on page 8
- "Alarm Tab" on page 8
- "Logs Tab" on page 8
- "Health Tab" on page 8
- "Logs Tab" on page 8

Login Page

FIGURE 1-1 shows the Login Page which includes the User Name and Password fields required to gain access to the Configuration Service WUI.

FIGURE 1-1 Sun StorEdge Configuration Service login

Assets Tab

The Assets page enables you to manage and display information about your storage devices. The default Assets page shows an Assets Summary table of all assets.

- **Click one of the links under the Assets page tab to show details about the asset:**
  - T3 for Sun StorEdge T3 disk arrays
  - 9900 Family for the Sun StorEdge 9900 series

For additional information on Sun StorEdge T3 array functionality available on the Asset tab, see “Managing and Configuring the Sun StorEdge T3 Arrays” on page 35. For additional information on Sun StorEdge 9900 series functionality available on the Asset tab, see “Managing the Sun StorEdge 9900 Series” on page 33.

Alarm Tab

The Alarms page enables you to filter and display information about any current alarms from your storage devices or the Configuration Service software. For additional information on the Alarm tab, see “Managing Alarms” on page 50.

Logs Tab

The Logs page enables you to filter and display information about any log entries from your storage devices or the Configuration Service software. For additional information on the Log tab, see “Managing Logs” on page 53.

Health Tab

When you click the Health tab, you can access the Sun Storage Automated Diagnostic Environment (SADE) software. This software requires a user name and password. See Chapter 7.

Administration Tab

The Administration page enables you to configure e-mail notification, logging, and other parts of the Configuration Service software. In addition, use this tab for discovering multiple devices. For additional information on the Administration tab, see Chapter 3.

Using the Web-Browser User Interface

The following topics are useful when using the WUI.

- "Navigation Tips" on page 9
- "Discover Pull-Down Menu" on page 10

Navigation Tips

You can display various levels of detail about your storage. Typically, you click links and buttons as you would on any other web page to navigate the software.

The software also displays a logical nesting of functionality to show how you arrived at a page. This path includes underlined links so that you can return to a certain point in your navigation instead of starting at a top-level page or tab.

For example, if you just viewed LUN properties, you can click the device name link to perform other operations on it. See FIGURE 1-2.

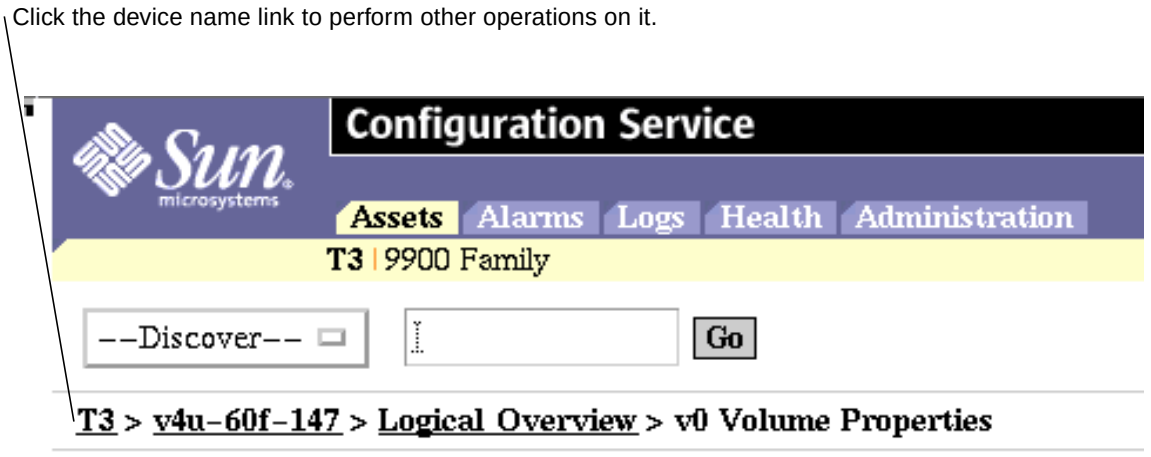


FIGURE 1-2 Navigation Link Example

Discover Pull-Down Menu

The Discover pull-down menu appears on each page in the WUI.

- **To discover a Sun StorEdge T3 array, enter either IP address or Device Name and click Go.**

Note – If you discover devices using the Discover pull-down menu, you may be prompted for the device password when configuring it.

CHAPTER 2

Sun StorEdge Configuration Service Command-Line Interface (CLI)

The Configuration Service software provides a secure command-line interface for all Configuration Service, Sun StorEdge T3 array, alarm, and log management functionality. There are two options for logging in to this interface, the Secure Shell, and `telnet`.

This section contains the following topics:

- "Using `telnet`" on page 12
- "Using the Secure Shell" on page 13
- "Using the Command-Line Interface" on page 13
- "Command-Line Interface (CLI) and StorEdge Shell Man Pages" on page 19

Using `telnet`

In locations where security is not an issue, you can use the `telnet` interface.

1. **Telnet to the host with the specified CLI port.**

   The default port is 8023.

```
$ telnet hostname.domain port-number
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.


TelnetD library (embeddable telnet daemon)
Copyright (c) 2000, Dieter Wimberger
All rights reserved.


login: root
Password:


Welcome to the StorEdge Shell V1.0
```

   The login name can be root or any user name registered with the Sun StorEdge Configuration Service by way of the `config` script. For more information about the `config` script, see the *Sun StorEdge Configuration Service 1.0 Installation Guide*.

2. **To run device specific commands, navigate to** `/devices/array/sun/t3`**.**

```
SeSh [1] cd devices/array/sun/t3
```

Using the Secure Shell

One way to access the command-line interface is by way of the Secure Shell client (ssh) available on Solaris 8 and 9. Depending upon how your SSH environment is configured, you may need to see the ssh.1m man page for additional information on starting a session.

1. **To initiate a Secure Shell client session on a host, enter the following:**

```
# ssh -c 3des hostname
```

This logs you into the Configuration Service command line interface (CLI).

2. **To run device specific commands, navigate to** `/devices/array/sun/t3`**.**

```
SeSh [1] cd devices/array/sun/t3
```

Using the Command-Line Interface

Listed below are some useful CLI procedures.

- "To List Built-In CLI Commands" on page 14
- "To View Sun StorEdge T3 Arrays Being Managed" on page 14
- "To Display Command Sub-command Usage" on page 14
- "To Add Sun StorEdge T3 Arrays and Set the Password" on page 14
- "To Set the Array Credential" on page 15
- "To Set the Array Password" on page 15
- "To View Volume Configuration" on page 16
- "To Create and Bring a Volume Online" on page 16
- "To Display System Information" on page 17
- "To Display Unit Information" on page 17
- "To Display FRU Information" on page 17
- "To Create a LUN with Volume Slicing Enabled" on page 18
- "To View Alarm Entries" on page 19
- "To View Log Entries" on page 19

▼ To List Built-In CLI Commands

```
SeSh [1} help
```

▼ To View Sun StorEdge T3 Arrays Being Managed

- **Navigate to the** `devices/array/sun/t3` **directory and display discovered arrays.**

```
SeSh [2] cd devices/array/sun/t3
SeSh [3] ls
```

▼ To Display Command Sub-command Usage

- **From the** `devices/array/sun/t3` **directory, type one of the following**:
  - `asset`
  - `config`
  - `control`
  - `discovery`
  - `inventory`
  - `/services/alarm`
  - `/services/log`

▼ To Add Sun StorEdge T3 Arrays and Set the Password

1. **Navigate to the devices/array/sun/t3 directory.**

```
SeSh [3] cd devices/array/sun/t3
```

2. **To add Sun StorEdge T3 Arrays, enter the** `discovery add` **command**:

```
SeSh [4] discovery add t3-name t3-name t3-name ...
```

3. **Set passwords with the** `config password` **command.**

```
SeSh [6] config password t3-name1 t3-name2 t3-name3
Please enter T3 password:
Please confirm T3 password:
config: INFO: credential: successfully set credential for t3-name1
config: INFO: credential: successfully set credential for t3-name2
config: INFO: credential: successfully set credential for t3-name3
```

4. **Verify passwords have been set with the** `inventory info` **command.**

```
SeSh [7] inventory info
```

If the Password column has 'admin', you have set the root password. You may need to allow some time for the output of 'inventory info' to be updated since it uses cached values.

▼ To Set the Array Credential

1. **Use the** `config credential` **command to set the password the Sun StorEdge Configuration Service software will use with the device for configuration.**

```
SeSh [8] config credential t3-name1 t3-name2 t3-name3
```

2. **When prompted, enter the password.**
3. **When prompted, enter the confirm password by entering it again.**

▼ To Set the Array Password

1. **Use the** `config password` **command to set the password for the Sun StorEdge T3 arrays.**

```
SeSh [8] config password t3-name1 t3-name2 t3-name3
```

2. **When prompted, enter the SECS (Sun StorEdge Configuration Service) root password.**
3. **When prompted, enter the password.**
4. **When prompted, enter the confirm password by entering it again.**

▼ To View Volume Configuration

- **Run config status command to view the volume information on a device.**

```
SeSh [10] config status t3-name
```

▼ To Create and Bring a Volume Online

1. **Determine available sizes.**

```
SeSh [11] config volcreate -f -p -u unit-id -r raid-level t3-name
```

Using the `-p` option will allocate for a hot spare and the hot spare will not appear as available space.

2. **Create volume.**

When you create a volume, you must specify the volume size with the -i option, which indicates the corresponding size by index, or with the -s option, whereby you specify volume size in Gbytes. Use the `-a` option in 'config volcreate' command to automatically bring the volume online after the initialization.

a. Use the `-i` option to choose the size from the list when creating a volume.

```
SeSh [12] config volcreate -ap -u unit-id -r raid-level -i index -p t3-name
```

b. Use the `-s` option to specify the size on your own.

```
SeSh [12] config volcreate -ap -u unit-id -r raid-level -s size -p t3-name
```

When using the -s option, the volume size, in Gbytes, will get rounded to the next size in Gbytes. The Sun StorEdge T3 arrays only allow 2 volumes per device, so if you don't use the rest of the space for the second volume, you will be wasting some space. You will get the warning, but the operation will continue.

> WARNING: Inefficient Use of Available Space
>
> Creating the second volume with less than the maximum capacity available leaves a segment of space that can not be used.

3. **Check volume initialization for completion.**

SeSh [13] **`config info -v`** *vol-name t3-name*

Once the operation is done, you can mount the volume.

▼ To Display System Information

- **Execute the following command:**

SeSh [13] **`asset info`** *t3-name*

▼ To Display Unit Information

- **Execute the following command:**

SeSh [13] **`asset info -u *`** *t3-name*

Pass '*' to the *unit-id* to get all the unit information.

▼ To Display FRU Information

- **Execute the following command:**

SeSh [13] **`asset info -m *`** *t3-name*

Pass '*' to the *fru-id* to get all the unit information.

▼ To Create a LUN with Volume Slicing Enabled

Note – This is only available on Sun StorEdge T3+ with firmware version 2.1 or greater.

---

1. **View if slicing feature is enabled.**

```
SeSh [24] config status t3-name
```

2. **Enable volume slicing.**

```
SeSh [25] config set -p "volslicing=enable" t3-name
```

3. **Create the LUN.**

```
SeSh [26] config luncreate-n lun-name -v vol-name -s size -p t3-name
```

4. **Verify the LUN information.**

```
SeSh [27] config status -l * t3-name
```

▼ To View Alarm Entries

1. **Navigate to the** `/services` **directory.**

```
SeSh [16] cd /services
```

2. **Display alarms.**

```
SeSh [17] alarm list
```

▼ To View Log Entries

1. **Navigate to the** `/services` **directory.**

```
SeSh [16] cd /services
```

2. **Display log entries.**

```
SeSh [17] log list
```

Command-Line Interface (CLI) and StorEdge Shell Man Pages

See the man pages listed in TABLE 2-1 for additional information on the StorEdge Shell. See the man pages listed in TABLE 2-2 for additional information on Sun StorEdge Configuration Service CLI man pages for the Sun StorEdge T3 array.

StorEdge Shell Man Pages

See the man pages listed in TABLE 2-1 for additional information on the StorEdge Shell.

TABLE 2-1 CLI Command Information

CLI command	Description
intro	Introduction to StorEdge Shell UNIX commands
alarm	Add, list or remove alarms from the log in the StorEdge Shell
attributes	Command characteristics unique to the StorEdge Shell
cd	Change the working directory in the StorEdge Shell
echo	Echoing arguments in the StorEdge Shell
environ	User environment variables for the StorEdge Shell
exit	Display exit status for functions executed in the StorEdge Shell
help	Lists available commands in the StorEdge Shell
log	Add or list alarms from the StorEdge Shell
ls	Lists storage resources in the StorEdge Shell
man	Man page command for the StorEdge Shell
pwd	Print working directory in the StorEdge Shell
sesh	StorEdge shell command interpreter
set	Setting environment variables in the StorEdge Shell
unset	Unsetting environment variables in the StorEdge Shell

Sun StorEdge Configuration Service CLI Man Pages for the Sun StorEdge T3 Array

See the man pages listed in TABLE 2-2 for additional information on the StorEdge Shell.

TABLE 2-2 Sun StorEdge Configuration Service CLI Man Pages for the Sun StorEdge T3 Array

CLI command	Description
asset	Display component information for a Sun StorEdge T3 Disk array
config	Perform configuration actions on Sun StorEdge T3 arrays
control	Enable, disable, and reset operations for Sun StorEdge T3 arrays
discovery	Add, remove T3s to/from the list of discovered disk arrays
intro	Introduction to Sun StorEdge T3 array commands
inventory	Display inventory overview for Sun StorEdge T3 arrays

CHAPTER 3

Setting Up the Configuration Service

The Sun StorEdge Configuration software enables you to discover Sun StorEdge T3 arrays by criteria that you set. You can also configure different means of notification. This section contains topics and procedures related to the Administration page.

- "Configuring Discovery Criteria" on page 24
- "Configuring Notification, Logging, and E-mail" on page 26

Configuring Discovery Criteria

The Configuration Service software enables you to create discovery criteria (for example, a range of device IP addresses) that you can save and apply to your storage devices. This section contains the following procedures:

- "To Add a Discovery Task" on page 24
- "To Remove a Discovery Task" on page 25
- "To Start Discovery" on page 25
- "To Stop Discovery" on page 26

▼ To Add a Discovery Task

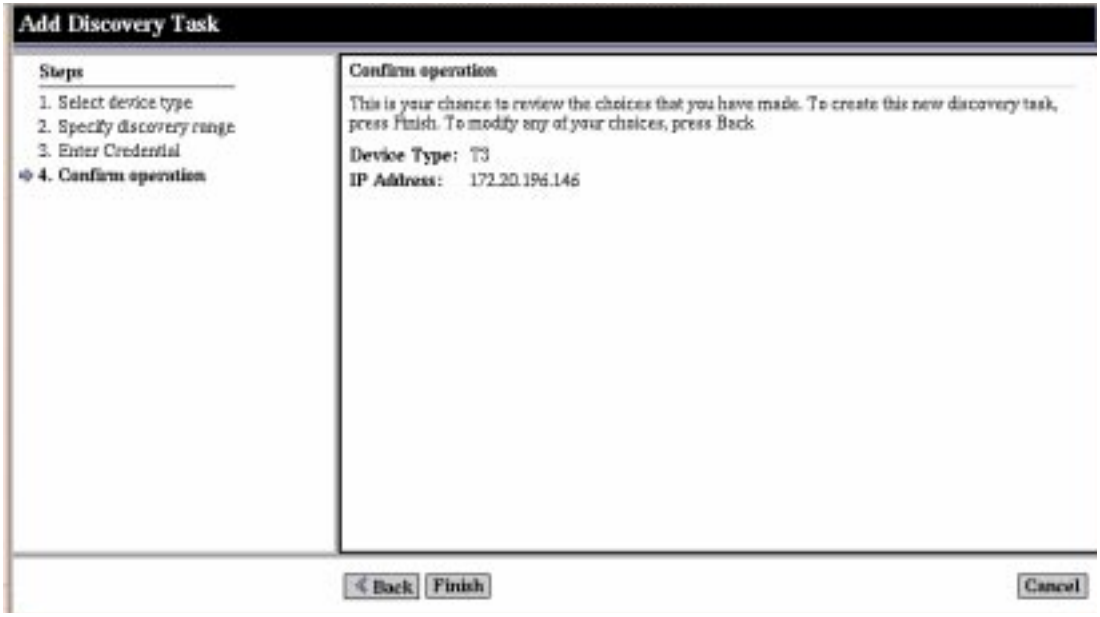
1. **Click the Administration tab.**
2. **Click Discovery Criteria.**
3. **Click Add.**

Note – Resizing the Add Discovery Task wizard will restart it. You will loose any entries you have made.

---

4. **Select the Device Type from the pull-down menu, and click Next.**
5. **Select the IP address type, enter a range of IP addresses or a CIDR address, and click Next.**
6. **Type the Sun StorEdge T3 User ID, password, and click Next.**

7. **Review the discovery criteria and click Finish.**



▼ To Remove a Discovery Task

1. **Click the Administration tab.**
2. **Click Discovery Criteria.**
3. **Click the check box of the desired Discovery Criteria.**
4. **Click Remove.**

▼ To Start Discovery

1. **Click the Administration tab.**
2. **Click Discovery Criteria.**
3. **Click the check box of the desired Discovery Criteria.**
4. **Click Start.**

   You may be prompted for a password when executing discovery criteria if the password was entered incorrectly when the discovery criteria was created.

▼ To Stop Discovery

1. **Click the Administration tab.**
2. **Click Discovery Criteria.**
3. **Click the check box of the desired Discovery Criteria.**
4. **Click Stop.**

Configuring Notification, Logging, and E-mail

The Configuration Service software can be configured to notify, by e-mail, anyone interested in a storage device's alarms or log entries. In addition, you can configure notification for all or limited log classifications. This section contains the following procedures:

- "Configuring E-Mail Notification" on page 26
- "Configuring SNMP Notification" on page 30
- "Configuring Logging and Miscellaneous Contact E-mail" on page 31

Configuring E-Mail Notification

This section contains the following topics:

- "To Configure E-Mail Notification" on page 27
- "To Modify or Delete Notification E-Mail Addresses" on page 29

▼ To Configure E-Mail Notification

1. **Click the Administration tab.**

   The Administration page is displayed.

FIGURE 3-1 General Administration Page

2. **Select the radio buttons of the type of notification you desire.**

3. **For additional e-mail configuration, click More E-mail Features**

FIGURE 3-2 Configuration Service More E-mail Feature Administration

4. **Type SMTP Server IP address or Host name and click Update.**
5. **Click Add to enter an e-mail address for notification.**
6. **Select Alarm Level from the pull-down menu.**
7. **Select Medium from the pull-down menu.**

   If selecting e-mail as your notification medium, *all* alarms will be sent to an e-mail account. The messages will be sent at the intervals specified by the Minimum Time Between Messages field.

   For pagers, *only* the first alarm during the time interval specified by the Minimum Time Between Messages will be sent.

8. **Enter number of minutes, days or hours in the field and select from the pull-down menu.**
9. **Select the locale to which the message is being sent from the pull-down menu.**
10. **Click Save.**

    After receiving a message that the new e-mail address was saved, you may need to click Cancel to return to the More E-Mail Features page.

▼ To Modify or Delete Notification E-Mail Addresses

1. **Click the Administration tab.**
2. **Click More E-Mail Features.**
3. **Click the check box of the e-mail address.**
4. **Click Modify or Delete.**

Configuring SNMP Notification

This section contains the following procedures:

- "To Configure SNMP Notification" on page 30
- "To Modify SNMP Alarms" on page 31
- "To Delete SNMP Alarms" on page 31

▼ To Configure SNMP Notification

1. **Click the Administration tab.**
2. **Click the SNMP On radio button.**
3. **Click More SNMP Features.**

   The More SNMP Features pages is displayed.

FIGURE 3-3 Configuration Service More SNTP Feature Administration

4. **Click add.**
5. **Select alarm level from the pull-down menu, enter hostname, modify Port Number (if desired), modify Locale from the pull-down menu (if desired) and click Save.**

   After receiving a message that the new SNMP contract was added, you may need to click Cancel to return to the More SNMP Features page.

▼ To Modify SNMP Alarms

1. **Click the Administration tab.**
2. **Click More SNMP Features.**
3. **Click the button of the SNMP notification.**
4. **Click Modify.**
5. **Enter desired modifications to Hostname or Port Number, modify Locale from the pull-down menu (if desired) and click Save.**

▼ To Delete SNMP Alarms

1. **Click the Administration tab.**
2. **Click More SNMP Features.**
3. **Click the button of the SNMP Notification.**
4. **Click Delete.**
5. **Click Delete again to confirm and complete the operation.**

Configuring Logging and Miscellaneous Contact E-mail

In addition to e-mail and SNMP notification, you can also configure logging and miscellaneous contact e-mail from the Administration page.

▼ To Configure Logging and Miscellaneous Contact E-mail

1. **Click the Administration tab.**
2. **Select Logging Threshold from the pull-down menu.**
3. **Type the maximum log file size.**

   You must stop and restart the daemons for any log file size changes to take effect (see “Starting and Stopping the Daemons” on page 5).

4. **Type the Contact E-mail address.**
5. **Click Save.**

CHAPTER 4

Managing the Sun StorEdge 9900 Series

This section contains the following topics:

- "Using the Sun StorEdge 9900 Series Software" on page 33
  - "To Start the Sun StorEdge 9900 Series Software" on page 33
  - "To Configure the Configuration Service Software to Access the Sun StorEdge 9900 Series Software" on page 34

Using the Sun StorEdge 9900 Series Software

For additional information on how to use the Sun StorEdge 9900 Series Software, see the documentation shipped with it.

▼ To Start the Sun StorEdge 9900 Series Software

1. **Click the Assets tab.**
2. **Click the 9900 Family sub-tab.**
3. **Click Launch Sun StorEdge 9900 Series Software.**

▼ To Configure the Configuration Service Software to Access the Sun StorEdge 9900 Series Software

1. **Run the `config` script.**

   See "To Run the Configuration Script" in the *Sun StorEdge Configuration Service 1.0 Installation Guide*.

2. **When prompted, enter the Sun StorEdge 9900 Series Software URL.**

3. **Restart the Configuration Service software.**

```
# /etc/init.d/secs stop
# /etc/init.d/secs start
```

CHAPTER 5

Managing and Configuring the Sun StorEdge T3 Arrays

This section provides procedures to manage and configure Sun StorEdge T3 arrays. You can create volumes and LUNs and display information about different array components. You must perform some operations on each individual array. You can perform other operations on more than one array, or multiple arrays, at one time.

This section contains the following topics:

- "Operations for Individual Sun StorEdge T3 Arrays" on page 35
- "Operations for Multiple Sun StorEdge T3 Arrays" on page 46

Operations for Individual Sun StorEdge T3 Arrays

This section contains procedures which you can perform on one array at a time. The functionality available is organized into three different views:

- "Physical Overview View" on page 36
- "System Settings View" on page 37
- "Logical Overview View" on page 40

Physical Overview View

The Physical Overview contains functions which enable you to manage physical attributes of an array. This section contains the following procedures:

- "To View System Properties" on page 36
- "To View Component Properties" on page 36
  - "To Enable or Disable a Sun StorEdge T3 Partner Pair Controller" on page 36
- "To Shutdown a Sun StorEdge T3 Array From the Physical Overview" on page 37
- "To Reset a Sun StorEdge T3 Array From the Physical Overview" on page 37

▼ To View System Properties

- **From the Assets tab T3 page, click a device name.**

▼ To View Component Properties

1. **From the Assets tab T3 page, click a device name.**
2. **Click a unit number.**
3. **Click a component.**
   - Disk
   - Controller
   - Power/Cooling Unit
   - Interconnect card
   - Port 1

▼ To Enable or Disable a Sun StorEdge T3 Partner Pair Controller

1. **From the Assets tab T3 page, click a device name.**
2. **Click Controller.**
3. **Click Enable or Disable.**

▼ To Shutdown a Sun StorEdge T3 Array From the Physical Overview

1. **From the Assets tab T3 page, click the device name of the array you want to shut down.**
2. **Select Shutdown from the T3 Actions pull-down menu.**

▼ To Reset a Sun StorEdge T3 Array From the Physical Overview

1. **From the Assets tab T3 page, click the device name of the array you want to restart.**
2. **Select Restart from the T3 Actions pull-down menu.**
3. **Click OK.**

System Settings View

This section contains the following procedures:

- "To Configure Cache Information" on page 37
- "To Configure MultiPath Support" on page 38
- "To Configure Network Properties" on page 38
- "To Configure Fibre Channel Topology" on page 39

▼ To Configure Cache Information

1. **From the Assets tab T3 page, click the device name of the array you want to configure.**
2. **Select System Settings from the View pull-down menu.**
3. **Select Auto or Off for Cache Mirroring.**
4. **Select Strip Size, if available**
5. **Select Cache Mode from the pull-down menu.**
6. **Select On or Off for Read Ahead Mode.**

7. **Select Disk Reconstruction Rate from the pull-down menu and click Save.**
8. **Reset the array.**

   For more information, see “To Reset a Sun StorEdge T3 Array From the Physical Overview” on page 37.

▼ To Configure MultiPath Support

1. **From the Assets tab T3 page, click the device name of the array you want to configure.**
2. **Select System Settings from the View pull-down menu.**
3. **Select MultiPath Support from the pull-down menu.**
4. **Click Save.**
5. **Reset the array.**

   For more information, see “To Reset a Sun StorEdge T3 Array From the Physical Overview” on page 37.

▼ To Configure Network Properties

1. **From the Assets tab T3 page, click the device name of the array you want to configure.**
2. **Select System Settings from the View pull-down menu.**
3. **Type the IP Address, Subnet Mask, and Gateway IP Address.**
4. **Select Rarp Enabled, if desired.**
5. **Click Save.**
6. **Reset the array.**

   For more information, see “To Reset a Sun StorEdge T3 Array From the Physical Overview” on page 37.

▼ To Configure Fibre Channel Topology

Note – This is only available with Sun StorEdge T3+ arrays with firmware version 2.1.

---

1. **From the Assets tab T3 page, click the array name that you want to configure.**
2. **Select System Settings from the View pull-down menu.**
3. **Select Fibre Channel Topology from the pull-down menu.**
4. **Click Save.**
5. **Reset the array.**

   For more information, see “To Reset a Sun StorEdge T3 Array From the Physical Overview” on page 37.

Logical Overview View

The Logical Overview view contains all Configuration Service functions pertaining to volumes and LUNs.

This section contains the following procedures:

- "To Add a Volume" on page 40
- "To Delete a Volume" on page 41
- "To Bring a Volume Offline" on page 42
- "To Show Online LUNs" on page 42
- "To View Volume Properties" on page 42
- "To Create a LUN" on page 42
- "To Delete a LUN" on page 43
- "To Modify a LUN" on page 43
- "To Add an Initiator" on page 44
- "To View Initiator Permissions" on page 45

▼ To Add a Volume

1. **From the Assets tab T3 page, click the array name where you want to add a volume.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click Add.**

Note – Resizing the Add Volume wizard will restart it. You will loose any entries you have made.

---

4. **Review Add Volume wizard Global Properties and click Next.**
5. **Select unit and click Next.**
6. **Type volume Name, select RAID Level from the pull-down menu, select an automount (Auto Online) option, and click Next.**
7. **Choose a Volume Size from the pull-down menu and click Next.**
8. **Confirm choices and click Finish or click Back to change your selections.**

9. **When creating a second volume, verify hot spare.**

   When adding a second volume, the Sun StorEdge Configuration Service software may not indicate the presence of a hot spare. To verify the presence of a hot spare, perform the following:

   a. Use `telnet` to create a session with the Sun StorEdge T3 array.

```
% telnet t3-name
```

   b. Use `vol list` to display hot spare information.

```
t3-name:/:<1>vol list
```

▼ To Delete a Volume

1. **From the Assets tab T3 page, click the array name where you want to delete a volume.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the volume you want to delete.**
4. **Click Delete.**

   A volume must be unmounted before deleting it. See “To Bring a Volume Offline” on page 42 for further information.

5. **Click OK.**

▼ To Bring a Volume Online

1. **From the Assets tab T3 page, click the name of the array containing the volume you want to bring online**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the volume you want to bring online.**
4. **Click Online.**

▼ To Bring a Volume Offline

1. **From the Assets tab T3 page, click the name of the array containing the volume you want to bring offline.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the volume you want to bring offline.**
4. **Click Offline.**
5. **Click OK.**

▼ To Show Online LUNs

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Select Show Online LUNs from the More T3 Actions pull-down menu.**

▼ To View Volume Properties

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the Volume Name link.**

▼ To Create a LUN

Note – When creating a LUN after deleting it, you will only be able to recreate the LUN the same size it was before.

---

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the volume you want to view.**
4. **Select Show Online LUNs from the More T3 Actions pull-down menu.**
5. **Click Create LUN.**

Note – Resizing the Create LUN wizard will restart it. You will loose any entries you have made.

6. **Select volume from the Volume pull-down menu.**
7. **Select LUN number, click Available Free Space or type the Desired Size, select mode from the Default Permission pull-down menu, and click Next.**
8. **Confirm your choices and click Finish, or click Back to change your selections.**

▼ To Delete a LUN

Note – When creating a LUN after deleting it, you will only be able to recreate the LUN the same size it was before.

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the LUN you want to view.**
4. **Select Show Online LUNs from the More T3 Actions pull-down menu.**
5. **Select a LUN by clicking the check box.**
6. **Click Delete LUN.**
7. **Click OK.**

▼ To Modify a LUN

Note – This is only available with Sun StorEdge T3+ arrays with firmware version 2.1.

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the LUN you want to view.**
4. **Select Show Online LUNs from the More T3 Actions pull-down menu.**

5. **Click the check box to select a LUN.**
6. **Click Modify LUN.**

Note – Resizing the Modify LUN wizard will restart it. You will loose any entries you have made.

---

7. **Select All, WWN, or Initiator Group from the Show All pull-down menu.**
8. **Select an initiator from the table and click Next.**
9. **Select none, read-only, or read-write from the Permission pull-down menu, and click Next.**
10. **Click Finish.**

▼ To Add an Initiator

Note – This is only available with Sun StorEdge T3+ arrays with firmware version 2.1.

---

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the LUN you want to view.**
4. **Select Add Initiators from the Initiator Actions pull-down menu.**

Note – Resizing the wizard will restart it. You will loose any entries you have made.

---

5. **Select All, WWN, or Initiator Group from the Show pull-down menu and click Next.**
6. **Select none, read-only, or read-write from the Default Permission pull-down menu and click Next.**
7. **Confirm choices and click Finish or click Back to change your selections.**

▼ To View Initiator Permissions

Note – This is only available with Sun StorEdge T3+ arrays with firmware version 2.1.

---

1. **From the Assets tab T3 page, click the device name.**
2. **Select Logical Overview from the View pull-down menu.**
3. **Click the check box of the LUN you want to view.**
4. **Select Show Online LUNs from the More T3 Actions pull-down menu.**
5. **Click View Complete List.**

▼ To Enable Volume Slicing

Note – This is only available with Sun StorEdge T3+ arrays with firmware version 2.1.

---

1. **From the Assets tab T3 page, click a device name.**
2. **Select Logical Overview from the pull-down menu.**
3. **Click Enabled button.**

Operations for Multiple Sun StorEdge T3 Arrays

Although operations which perform on multiple arrays are limited, they are useful for saving time. This section contains the following procedures:

- "To Shut Down Multiple Storage Devices" on page 46
- "To Reset Multiple Storage Devices" on page 46
- "To Store Passwords on Multiple Devices" on page 47
- "To Change Passwords on Multiple Devices" on page 47
- "To Remove Multiple Devices" on page 47

▼ To Shut Down Multiple Storage Devices

1. **From the Assets tab T3 page, click the check boxes of the arrays you want to shut down.**
2. **Click Shutdown.**
3. **Click OK.**
4. **If prompted, type the current root password and click Save & Retry.**

▼ To Reset Multiple Storage Devices

1. **From the Assets tab T3 page, click the check boxes of the arrays you want to shut down.**
2. **Click Reset.**
3. **Click OK.**
4. **If prompted, type the password, confirm the password, and click Save and Retry.**

▼ To Store Passwords on Multiple Devices

1. **From the Assets tab T3 page, click the check boxes of the arrays for which you want to set the password for the first time.**
2. **Select Store Password from the More Storage Actions pull-down menu.**
3. **Type the Device Password, Confirm Password, and click Save.**

▼ To Change Passwords on Multiple Devices

1. **From the Assets tab T3 page, click the check boxes of the arrays for which you want to change the password.**
2. **Select Change Password from the More Storage Actions pull-down menu.**
3. **Type the Root Password (for the Sun StorEdge Configuration Service software host), New Password, Confirm Password, and click Save.**

▼ To Remove Multiple Devices

1. **From the Assets tab T3 page, click the check boxes of the arrays you want to shut down.**
2. **Select Remove Device from the More Storage Actions pull-down menu.**

CHAPTER 6

Managing Logs and Alarms

This section contains the following topics regarding the Log and Alarm tabs and how to manage log entries and alarms.

- “Managing Alarms” on page 50
- “Managing Logs” on page 53

Managing Alarms

This section describes the procedures for viewing and managing alarms. This section contains the following topics:.

- "Alarm Severity Levels" on page 50
- "To Display Alarm Information" on page 51
- "To Delete Alarms" on page 52

Alarm Severity Levels

The Sun StorEdge Configuration Service software reports alarms occurring at four alarm levels.

TABLE 6-1 Alarm Severity Levels

Alarm Severity Level	Description
Down	A fatal, nonrecoverable error has occurred. For example, this error level occurs when a storage array is offline or unreachable.
Critical	A serious error has occurred. For example, this alarm type might occur if one or more subsystems fail. This alarm type requires your attention now.
Major	A serious error has occurred. For example, this alarm type might occur if one subsystem has failed. This alarm type requires your attention now.
Minor	An error or user action has occurred that requires your attention. For example, a user might have removed an asset. However, the error does not require your immediate attention.

▼ To Display Alarm Information

1. **Click the Alarms tab.**

   The Alarms page is displayed. The default view in the Alarms table is to show all alarms.

2. **Perform one of the following:**

   a. **Click one of the following sub-tabs below the Alarms tab to view alarms of that severity level.**

   - All
   - Down
   - Critical
   - Major
   - Minor

   b. **Click the link in the Description column to view details about that alarm.**

   FIGURE 6-1 shows alarm details. See TABLE 6-1 for a description of log severity levels.

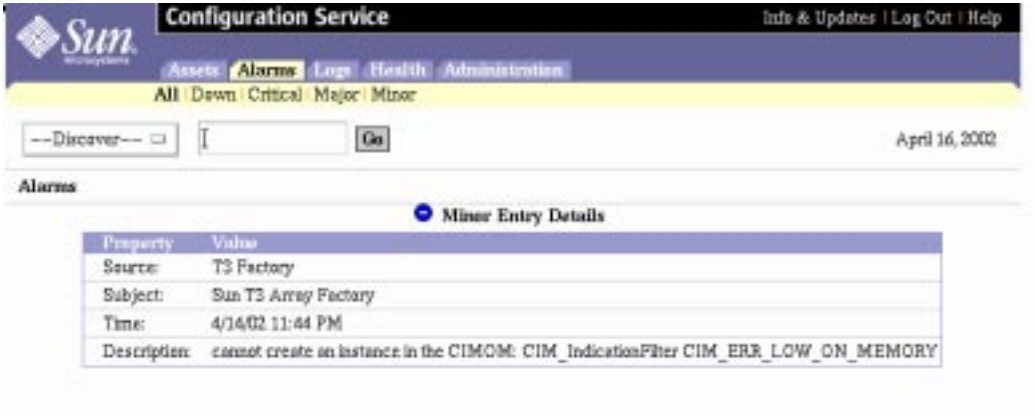


FIGURE 6-1 Configuration Service Alarm Information Details

If a large number of alarms exist, it might take a few minutes to display them all.

3. **Click the All link to return to the alarm summary table.**

▼ To Delete Alarms

1. **Click the Alarms tab.**

   The Alarms page is displayed. The default view in the Alarms table is to show all alarms.

2. **If desired, choose one of the following links below the Alarms tab to view alarms of that severity level.**

   - Down
   - Critical
   - Major
   - Minor

   See TABLE 6-1 for a description of alarm severity levels.

3. **Click the check boxes of one or more alarms.**

4. **Click the Remove Alarms button.**

   A confirmation page is displayed.

5. **Click the OK.**

Managing Logs

This section describes the procedures for viewing and managing log entries. This section contains the following topics:

- "Log Severity Levels" on page 53
- "To Display Log Information" on page 54

Log Severity Levels

The software reports logs occurring at four log levels.

TABLE 6-2 Log Severity Levels

Log Severity Level	Description
Critical	A serious error has occurred. For example, this log type might occur if one or more subsystems fail. This log type requires your attention now.
Info	An event has occurred.
Major	A serious error has occurred. For example, this log type might occur if one subsystem has failed. This log type requires your attention now.
Minor	An error or user action has occurred that requires your attention. For example, the user might have removed an asset. However, the error does not require your immediate attention.

▼ To Display Log Information

1. **Click the Logs tab.**

   The Logs page is displayed. The default view in the Log table is to show all logs.

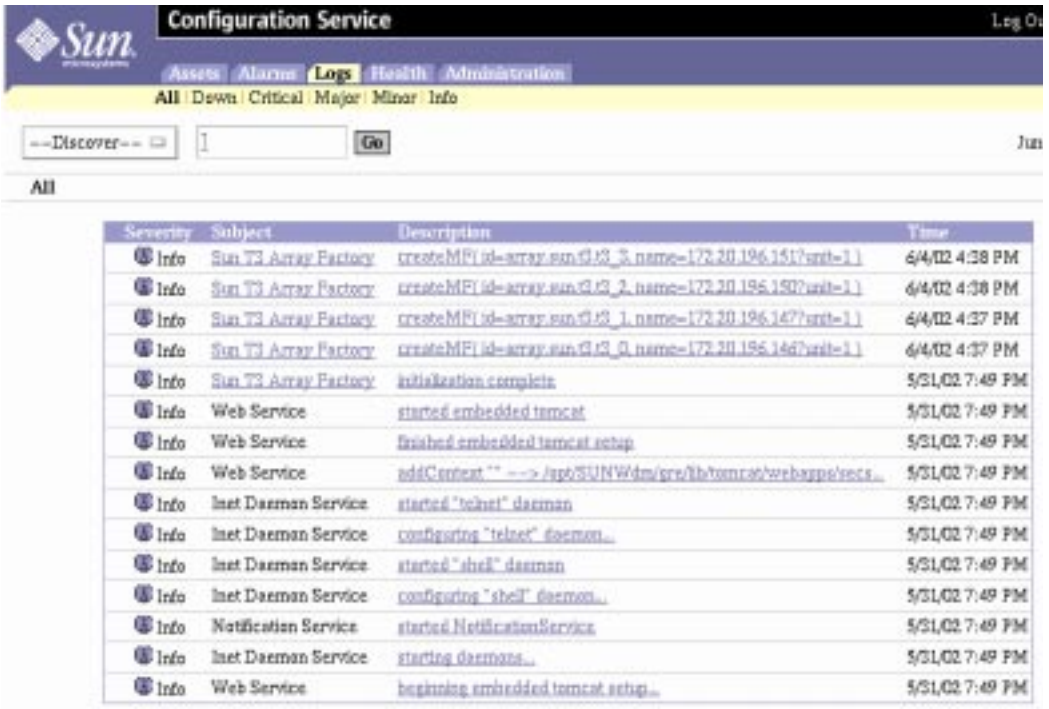


FIGURE 6-2 Configuration Service Log Page

2. **Perform one of the following:**

   a. **Click one of the following sub-tabs below the Logs tab to view logs of that severity level.**

   - All
   - Down
   - Critical
   - Major
   - Minor

b. Click the link in the Description column to view details about that log.

FIGURE 6-3 shows the details of a log entry. See TABLE 6-2 for a description of log severity levels.

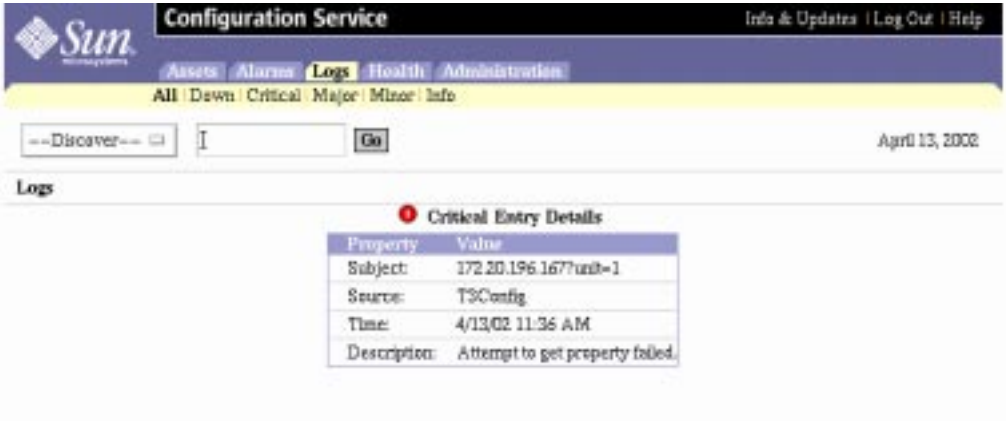


FIGURE 6-3 Configuration Service Log Information Details

3. To return to the log summary table, click Back button.

CHAPTER 7

Monitoring Device Health

This section contains the following topics:

- "Using the Sun StorEdge Automated Diagnostic Environment (SADE) Software" on page 57
  - "To Launch the SADE Software" on page 57
  - "To Configure the Configuration Service Software to Access the SADE Software" on page 58

Using the Sun StorEdge Automated Diagnostic Environment (SADE) Software

For additional information on how to use the SADE software, see the *Storage Automated Diagnostic Environment User's Guide.*

▼ To Launch the SADE Software

1. **Click the Health tab.**
2. **Click Launch Sun StorEdge Automated Diagnostic Environment (SADE).**

▼ To Configure the Configuration Service Software to Access the SADE Software

1. **Run the `config` script.**

   See "To Run the Configuration Script" in the *Sun StorEdge Configuration Service 1.0 Installation Guide*.

2. **When prompted, enter the Sun StorEdge SADE URL.**

   You can accept the default URL or reconfigure that value.

3. **Restart the Configuration Service software.**

```
# /etc/init.d/secs stop
# /etc/init.d/secs start
```

CHAPTER 8

Troubleshooting

This section contains the following topics:

- “Authorization failed. Please set credential first, then try this command later.” on page 59
- “WARN: connection to T3 device is down” on page 60
- ““Could not locate the CIMOM.“, “WARN: logic entity is not ready for operations yet”, or “WARN: connection to CIMOM is down”” on page 61
- “sesh: ERROR: Invalid storage user: user-login” on page 62

Authorization failed. Please set credential first, then try this command later.

This message indicates the Sun StorEdge T3 root password is not set.

Some `config` command-line interface (CLI) operations (`addhwwn`, `addinitator`, `delete`, `luncreate`, `offline`, `online`, `password`, `rmh`, `wwn`, `set` and `volcreate`) and `control` operations (`disable`, `enable`, `reset`, and `shutdown`) require Sun StorEdge T3 root password to be set.

User Action

1. **Configure the password.**

```
SeSh [4] config password t3_array
```

2. **If desired, verify that the password was set.**

```
SeSh [5] inventory info

T3 Storage Systems

Name   State  IP Address     Units  Firmware  Password  Capacity    Free Space
-------------------------------------------------------------------------------
t3-2   OK     172.20.195.2   2      1.17      guest     300.114 GB  300.122 GB
t3-7   OK     172.20.195.7   2      2.1       guest     300.114 GB  300.122 GB
p2-2   OK     172.20.195.81  1      2.1       admin     150.057 GB  100.041 GB
t3-34  OK     172.20.195.34  1      1.17      guest     150.057 GB  50.02 GB
t3-73  OK     172.20.195.73  2      2.1       guest     606.996 GB  33.722 GB
```

If the Password column has “admin”, you have the root password.

3. **Re-execute the original command which displayed the “Authorization Failed” error message.**

WARN: connection to T3 device is down

This message indicates you executed a command-line interface (CLI) command when an array was down. In the WUI, the Asset page device name link will become inactive and the State will be DOWN.

User Action

- **Make sure the array is on and connected to the network.**

“Could not locate the CIMOM.“, “WARN: logic entity is not ready for operations yet”, or “WARN: connection to CIMOM is down”

These messages indicate that CIMOM is down.

You will see a message on the WUI Asset tab indicating CIMOM is down.

If you attempt to start a CLI session when CIMOM is down, you will get the following message:

```
TelnetD library (embeddable telnet daemon)
Copyright (c) 2000, Dieter Wimberger
All rights reserved.


login: root
Password:
Could not locate the CIMOM.
```

If you are already logged in when CIMOM went down, you will get one of the following messages:

t3_name:**WARN: logic entity is not ready for operations yet**

t3_name:**WARN: connection to CIMOM is down**

User Action

- **Restart CIMOM using the following command**:

```
# /etc/init.d/secs.wbem start
```

sesh: ERROR: Invalid storage user: *user-login*

This message indicates the login is not a registered user.

User Action

1. **Add the user by way of the** `config` **script.**

   For more information on using the configuration script, see the *Sun StorEdge Configuration Service 1.0 Installation Guide*.

2. **Stop the Sun StorEdge Configuration Service daemons.**

   See the “Starting and Stopping the Daemons” on page 5.

3. **Start the Sun StorEdge Configuration Service daemons.**

   See the “Starting and Stopping the Daemons” on page 5.

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