Sun StorEdge™ Component Manager 2.2 User's Guide

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Contents

Preface

The *Sun StorEdge Component Manager 2.2 User's Guide* provides instructions for operating the Sun StorEdge™ Component Manager software.

Before You Read This Book

For the latest Component Manager information, see the *Sun StorEdge Component Manager 2.2 Release Notes*.

How This Book Is Organized

Chapter 1 provides an overview of the software.

Chapters 2 and 3 describes the features of the Component Manager graphical user interface.

Chapters 4, 5, 6 and **7** provide information on how to operate the key components of the software.

Chapter 8 describes scenarios in which troubleshooting may be required.

Appendix A lists the types of diagnostic messages.

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:

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

Typographic Conventions

TABLE P-1

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

TABLE P-2

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

Related Documentation

Table P-3

Application	Title	Part Number
Installation	*Sun StorEdge Component Manager 2.2 Installation Guide For the Solaris Operating Environment*	806-6645
Installation	*Sun StorEdge Component Manager 2.2 Installation Guide For the Microsoft Windows NT Operating Environment*	806-6646
Release	*Sun StorEdge Component Manager 2.2 Release Notes*	806-6648
Help	Sun StorEdge Component Manager Online Help	
Installation / User	*Switch Management Installer's/User's Manual*	875-1890
Installation / User	*SANbox-8 Fibre Channel Switch Installer's/User's Manual*	875-1881

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CHAPTER 1

Software Overview

This chapter discusses the features of the Sun StorEdge Component Manager software and includes the following topics:

Component Manager Features

Component Manager provides the monitoring and management of one or more Sun StorEdge A5*x*00 subsystem and Sun StorEdge T3 array components that are managed by a host. It provides a web browser or a graphical user interface (GUI) to display the status and associated properties of field-replaceable units (FRUs).

Note – Sun StorEdge A5000, Sun StorEdge A5100, and Sun StorEdge A5200 subsystems are referred to collectively as Sun StorEdge "A5*x*00" enclosures within this document.

The software also enables you to perform control directives on some of the FRUs (for example, powering down a disk on a Sun StorEdge A5*x*00 subsystem). In addition, Component Manager constantly monitors the Sun StorEdge A5*x*00 and Sun StorEdge T3 component FRUs and provides alarm notification and remote reporting (by means of email, files, and system logging) upon detection of abnormal activities or conditions within a designated storage component. Component Manager facilitates the health monitoring of your Sun StorEdge A5*x*00 and Sun StorEdge T3 storage components while notifying you of potential hardware abnormalities.

The following are key features provided by Component Manager:

- Alarm notification
- Remote reporting
- Viewing of FRU status and properties
- Configuration of storage components
- Physical view images of Sun StorEdge T3 subsystem
- Sun StorEdge T3 disk array LUN configuration
- Sun StorEdge T3 disk array offline diagnostics
- Ability to launch switch management software
- Ability to launch RAID HBA management software

Alarms

Alarms are a means of notification that a problem may need to be resolved, depending on its degree of severity. An alarm corresponds to informational or exceptional management conditions (such as a monitored value exceeding a specified threshold) and may require your interaction. For details on alarms and viewing alarms, see "Alarm Viewer" on page 14 for the browser version and"Alarm Viewer" on page 25 for the GUI version.

Remote Reporting

Remote reporting is a Component Manager feature that enables you to designate recipients for various levels of alarms according to severity. Remote reporting also allows you to specify files and file path names to accept alarm messages. For details on how to use remote reporting, see “Configuring the Remote Reporting Tab” on page 33.

FRU Status and Properties

Component Manager monitors your FRUs through the Health tab, which enables you to view the properties and status of selected hardware components. A typical example of health monitoring may include checking the size and current status of a disk. For details on monitoring FRUs and viewing status and properties, see “Monitoring With Component Manager” on page 61.

Subsystem Support

This version of Component Manager supports the Sun StorEdge A5000, Sun StorEdge A5100, and Sun StorEdge A5200 subsystems, in addition to the Sun StorEdge T3 arrays. It operates under the Solaris™ 2.6, Solaris 7, and Solaris 8 environments and version 4.0 of Microsoft NT.

CHAPTER 2

Features of the Browser Version of the Sun StorEdge Management Console

This chapter describes the components and features of the browser-based Sun StorEdge Component Manager graphical user interface, known as the *Sun StorEdge Management Console*.

Management Console

You can navigate to Sun StorEdge applications by using the Management Console. The Console provides a browser interface that enables you to navigate through the Component Manager features and functions. The browser version can be used with Netscape Communicator (version 4.*x* or newer) or Internet Explorer (version 5.5 or newer).

▼ To Start the Sun StorEdge Management Console Browser Version

1. **Determine port ID.**

   You can determine the port ID with the following:

```
# cd /usr/opt/SUNWesm/sbin
# ./esm_configweb -s
esm_configweb: Status for the esm_detached or esm_embedded web server.
esm_detached is completely configured in the /etc directory.
esm_detached is completely configured in the package contents database.
esm_embedded is not configured in the /etc directory.
esm_embedded is not configured in the package contents database.
/etc/opt/SUNWesm/www/conf/server.xml is configured with non-secure port ID:8180
/etc/opt/SUNWesm/www/conf/server.xml is configured with secure port ID: 8443
```

2. **After the Component Manager daemons have been started (see the** *Sun StorEdge Component Manager 2.2 Installation Guide* **for your environment), browse Component Manager by one of the two methods below.**

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

  ```
  https://nodename.domain:port_number/login
  ```

  An example with the default port number would be:

  ```
  https://happy.japan:8443/login
  ```

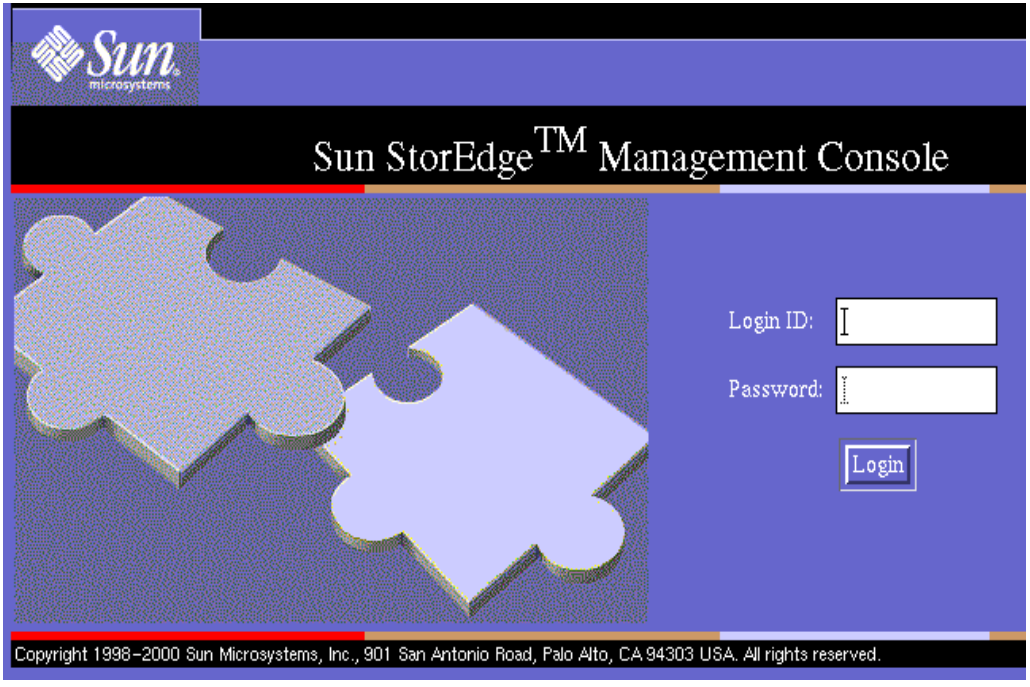
- **For a non-secure web server, enter a URL with the following format in a browser:**

  ```
  http://nodename.domain:port_number/login
  ```

  An example with the default port number would be:

  ```
  http://happy.japan:8180/login
  ```

3. **Enter login and password provided by your system administrator.**



4. **Click Login.**

▼ To Change Web-Server Configuration

- **After you've successfully installed the browser (web-server) version of Component Manager, you can change the web-server, port, or administrator password with the** `esm_configweb` **utility.**

```
# cd /usr/opt/SUNWesm/sbin
# ./esm_configweb -h
esm_configweb: INFO: Usage: esm_configweb [options]

    Where options can be:
    -c or -configure     the WEBSERVER esm_detached or esm_embedded
    -p or -port          the PORTVALUE for the non-secure web server to use
    -P or -PORT          the PORTVALUE for the secure web server to use
    -A or -adminpasswd   initial PASSWD for the web server administrator
    -u or -unconfigure   the esm_detached and esm_embedded web server
    -s or -status        about the sm_detached and esm_embedded web server
    -h or -help          usage
```

Note – When configuring administrator password for the browser (web-server) version, do not use a **$** or a **#** in the password.

Port IDs

When reconfiguring port IDs, consider the following:

- Using a port ID of 0 will disable listening on the non-secure or secure port ID.
- Valid port IDs are between 2 to 65535.
- Recommended port IDs are between 1024 to 65535.

Note – Do not use a reserved system port. Check the `/etc/services` file for reserved ports.

Message

Browser Management Console Window Elements

FIGURE 2-1 shows an example of the Console main window in a browser, and TABLE 2-1 provides descriptions of the main window elements.

FIGURE 2-1 Browser Version of the Management Console Main Window

TABLE 2-1 Management Console and Component Manager Window Elements

Window Element	Description
Navigation Pane	Shows the component for which the Console is running, and also displays the individual components. The browser version contains a Find link for locating components by name.
Menu Bar	Browser version only. See “User Management Window” on page 11.
Location	Selected object in Navigation Pane.
Management application tabs	Four tabs including: Health, Control, Configuration and Diagnose (see Chapters 4, 5, 6 and 7).
Alarm status buttons	Show the number of alarms active at a particular alarm level. Click a button to display the Alarm Viewer popup window for more information about the alarms.
Application Pane	Displays application tabs and subpanes.
Alarm Tab	Displays recent alarm entries. See “Alarm Viewer” on page 14 for more information about Alarm Tab columns.
Log Tab	Displays recent log entries. See “Log Viewer” on page 17 for more information about Log Tab columns.

Management Console Menu Bar

The browser version Menu Bar (FIGURE 2-2) has eight items as described in TABLE 2-2.

FIGURE 2-2 Management Console Browser Menu Bar

TABLE 2-2 Management Console Browser Menu Bar Items

Name	Clicking This Icon:
Users	Displays User Management window. See “User Management Window” on page 11.
Alarm Viewer	Displays the Alarm Viewer window. See “Alarm Viewer” on page 14.
Log Viewer	Displays the Log Viewer window. See “Log Viewer” on page 17”.
About	Displays software versions.
Online Help	Displays online help for Component Manager. See “Online Help” on page 19”.
Logout	Exits the Management Console.
Print	Prints window data.
Close	Closes the pop-up window.

User Management Window

This browser-only pop-up window enables an administrator to manage user access. Regular users will not have this option.

- **To display the User Management window, click Users in the Menu Bar**

▼ Adding a User

1. **Click Add.**

2. **Enter user information**

   a. **Enter User Name**

   b. **Enter Password.**

   c. **Verify Password.**

      Make the same entry as the Password field.

   d. **Select role**

      An administrator can administrate users. Users cannot administrate users or administrators.

   e. **Select Enabled status.**

      “Yes” allows the user access. “No” does not allow access but saves the user information.

3. **Click Add.**

▼ Editing a User Profile

1. **Select the user from the User Name column.**

2. **Click Edit.**
3. **Modify the user profile entries**
4. **Click Save.**

▼ Deleting a User Profile

1. **Select the user from the User Name column.**
2. **Click Delete.**

Alarm Viewer

The Alarm Bar displays the alarm summary for the Management Console. Alarms are sorted into six categories, as shown in TABLE 2-3.

Note – When the system is rebooted all, Alarms that have not been addressed (that is, deleted with the alarm viewer prior to reboot) are retained. The email notification of these alarm events is also regenerated.

TABLE 2-3 Alarm Viewer Icons

Icon	Name	Description
	DOWN	The monitored object itself is not responding (that is, it is “down”).
	UNKNOWN	Immediate corrective action might be required.
	CRITICAL	The monitored object has entered a CRITICAL state, and immediate corrective action might be required.
	ALERT	The monitored object has entered an ALERT state, and immediate corrective action might be required.
	CAUTION	The monitored object has entered a CAUTION state. Some of these alarms might be of an informational nature.
	OFF / DISABLED	The monitored object has entered an OFF / DISABLED state, and immediate corrective action might be required. (The counter for this category is only incremented by the Sun Management Center and not by Component Manager.)

▼ To View Alarm Viewer Entries

1. **Click one of the Alarm Status buttons in the Alarm Bar or Alarms in the browser Menu bar.**

   The Alarm Viewer window is displayed, showing the Component Manager alarm messages that reflect the level of severity of the button you have chosen. The number of outstanding alarms for each level is designated on each button.

   You can view the alarms in the language in which the alarms were generated, regardless of the locale where your Management Console is running, by selecting the “View alarms in the originating language” checkbox in the upper right corner of the window.

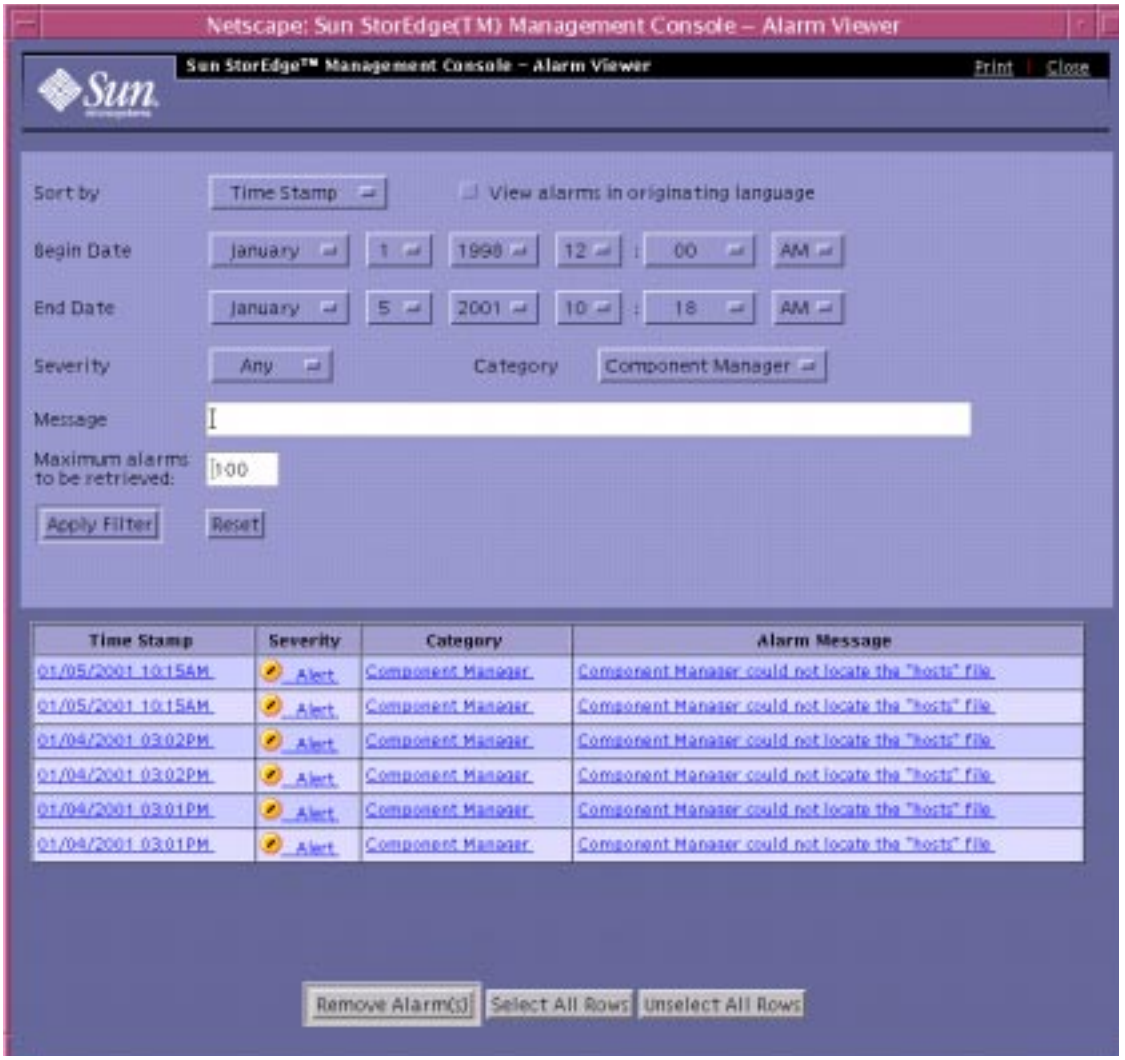


FIGURE 2-3 Alarm Viewer Window

2. **Select sort criteria.**

   Select the Sort By category via the pull-down menu and click Apply Filter.

3. **View specific messages or a range of messages.**

   a. **Enter the applicable values in each field.**

   b. **Click Apply Filter.**

4. **Remove alarms that you have already addressed.**
   - To remove all alarms, click Select All Rows and then click Remove Alarms
   - To remove an individual alarm, click on the message and then click Remove Alarms.

Log Viewer

Component Manager logs an entry for each monitoring or control operation performed, including failed operations. You can view these log messages in the Log Viewer window (see FIGURE 2-4).

▼ To Display Log Viewer Entries

1. **Click Log Viewer on the Menu bar.**
2. **Select filter criteria.**

   a. **Select entry via the pull-down Category menu.**

   b. **Click Apply Filter.**

3. **View specific messages or a range of messages.**

   a. **To search for and view a specific message or range of messages categorized by date, severity, category, or message string, enter the applicable values in each field. (For the GUI version, be sure the box next to each field you are editing has been checked).**

   b. **Click Apply Filter.**

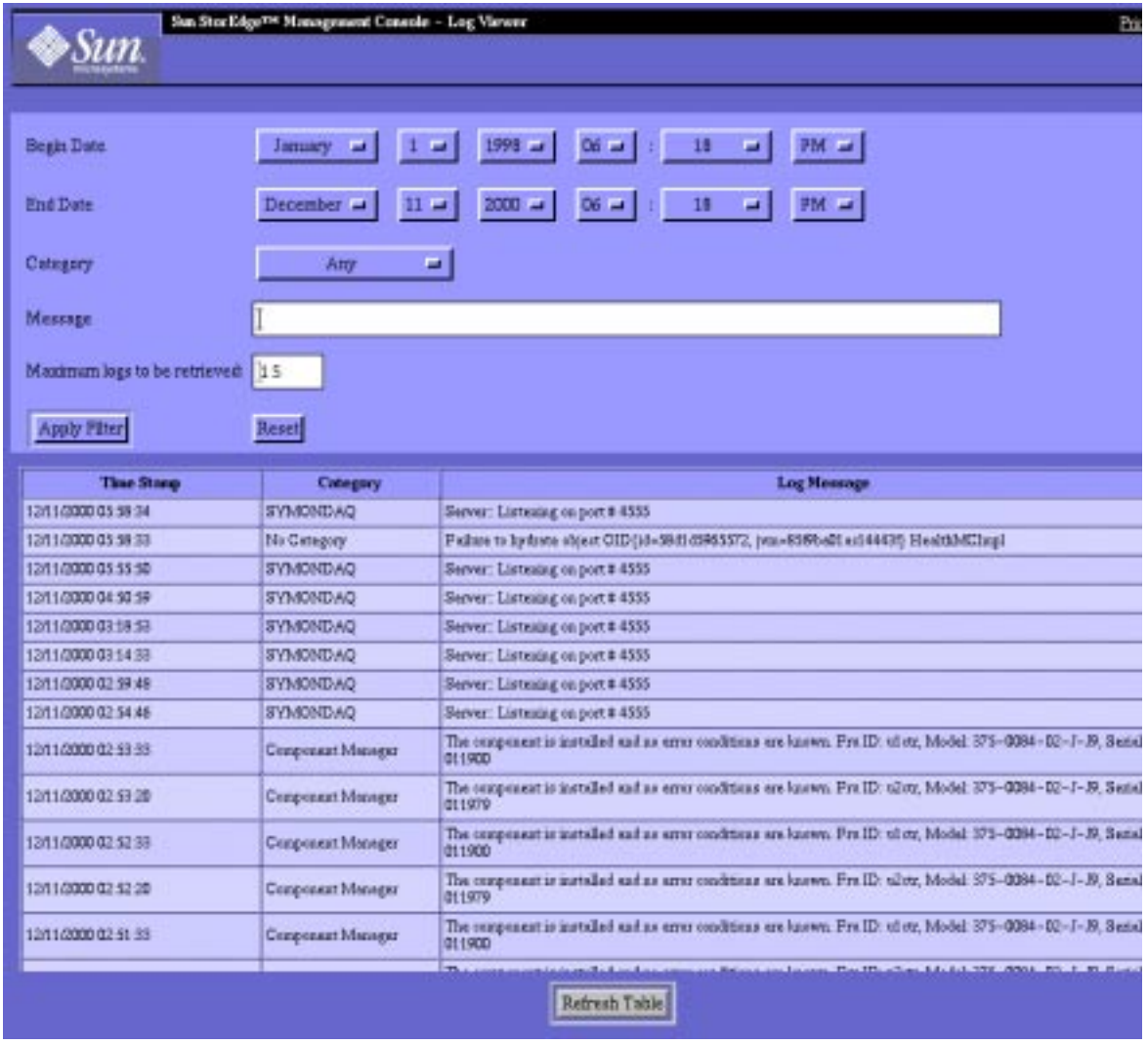


FIGURE 2-4 Log Viewer Window

Online Help

Online Help provides details to assist your operation of the Management Console and Component Manager functions.

▼ To Use Online Help

1. **Click Help in the Menu bar.**

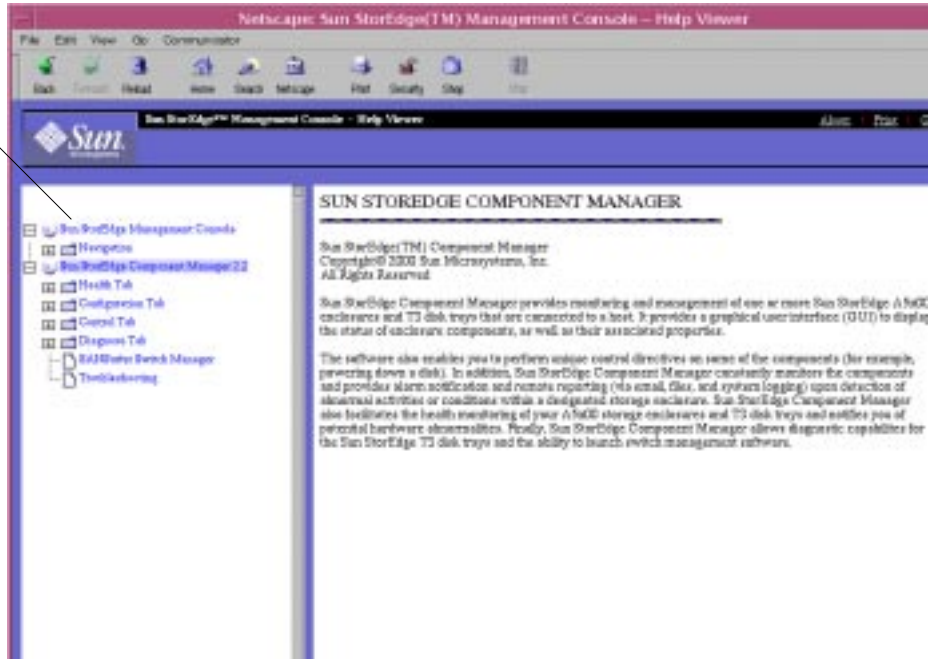


FIGURE 2-5 Online Help Window

2. **Click any designated topic icon within the Table of Contents pane to view details about that topic.**

CHAPTER 3

Features of the GUI Version of the Sun StorEdge Management Console

This chapter describes the components and features of the Sun StorEdge Component Manager graphical user interface, known as the *Sun StorEdge Management Console*.

Management Console

You can navigate to Sun StorEdge applications by using the Management Console. The Console provides a graphical user interface (GUI) that enables you to navigate through the Component Manager features and functions.

▼ To Start the Component Manager GUI

See the *Sun StorEdge Component Manager Installation Guide* to ensure that the Component Manager daemons are running before you start Component Manager.

1. **Become root.**
2. **Start the Component Manager GUI**:

```
# /usr/opt/SUNWesm/bin/esm_gui &
```

FIGURE 3-1 shows an example of the Console main window as it appears in the GUI. TABLE 3-1 provides descriptions of the main window elements.

TABLE 3-1 Management Console and Component Manager Window Elements

Window Element	Description
Navigation Pane	Shows the component for which the Console is running, and also displays the individual components. The browser version contains a Find link for locating components by name.
Toolbar	GUI version only. See “Management Console” on page 22.
Expanders	Enables let you expand or collapse the size of the pane with one mouse click (GUI version only).
Location	Selected object in the Navigation Pane.
Management application tabs	Four tabs including: Health, Control, Configuration and Diagnose (see Chapters 4, 5, 6 and 7).
Alarm status buttons	Show the number of alarms active at a particular alarm level. Click a button to display the Alarm Viewer pop-up window for more information about the alarms.
Pane divider	Enables you to adjust the size of the pane.
Application Pane	Displays application tabs and subpanes.

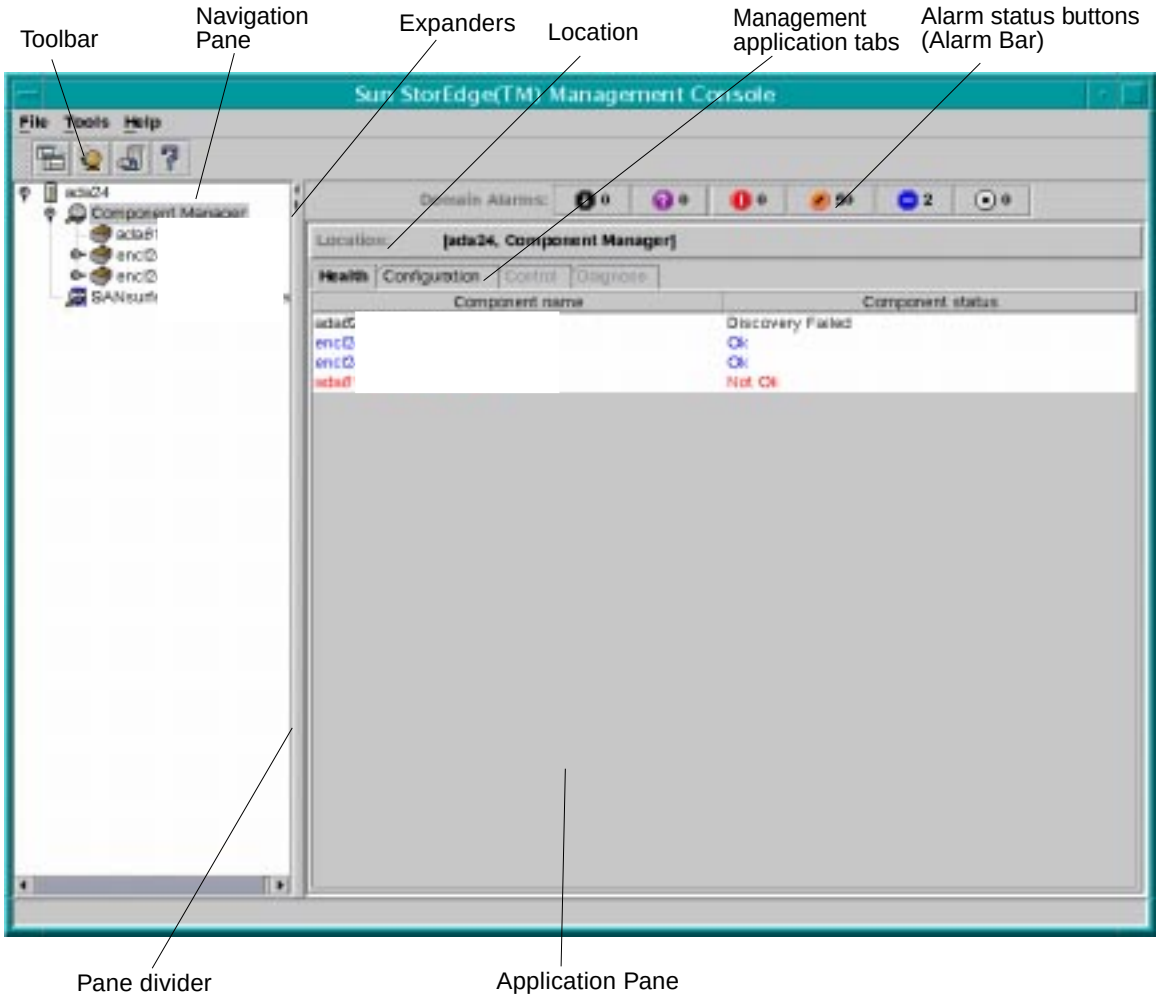


FIGURE 3-1 GUI version Management Console Main Window

▼ To Resize a Component Manager GUI Pane

1. **Drag a pane divider with the left mouse button.**
2. **Move the pane divider to the right or left to resize a pane.**

   Alternately, click the expanders at the top of the dividers.

Management Console Toolbar

The GUI version Toolbar has four icons, as described in TABLE 3-2.

TABLE 3-2 Management Console Toolbar Icons

Icon	Name	Clicking This Icon:
	New Window	Launches another Management Console window (GUI version only).
	Alarm Viewer	Displays the Alarm Viewer window. See “Alarm Viewer” on page 25”.
	Log Viewer	Displays the Log Viewer window. See “Log Viewer” on page 28”.
	Online Help	Displays online help for Component Manager. See “Online Help” on page 30”.

Alarm Viewer

The Alarm Bar displays the alarm summary for the Management Console. Alarms are sorted into six categories, as shown in TABLE 3-3.

Note – When the system is rebooted all, Alarms that have not been addressed (that is, deleted with the alarm viewer prior to reboot) are retained. The email notification of these alarm events is also regenerated.

TABLE 3-3 Alarm Viewer Icons

Icon	Name	Description
	DOWN	The monitored object itself is not responding (that is, it is “down”).
	UNKNOWN	Immediate corrective action might be required.
	CRITICAL	The monitored object has entered a CRITICAL state, and immediate corrective action might be required.
	ALERT	The monitored object has entered an ALERT state, and immediate corrective action might be required.
	CAUTION	The monitored object has entered a CAUTION state. Some of these alarms might be of an informational nature.
	OFF / DISABLED	The monitored object has entered an OFF / DISABLED state, and immediate corrective action might be required.

▼ To View Alarm Viewer Entries

1. **Click one of the Alarm Status buttons in the Alarm Bar, or click the Alarm Viewer icon in the Toolbar.**

   The Alarm Viewer window is displayed, showing the Component Manager alarm messages that reflect the level of severity of the button you have clicked. The number of outstanding alarms for each level is designated on each button.

   You can view the alarms in the language in which the alarms were generated, regardless of the locale where your Management Console is running, by selecting the "View alarms in the originating language" checkbox in the upper right corner of the window.

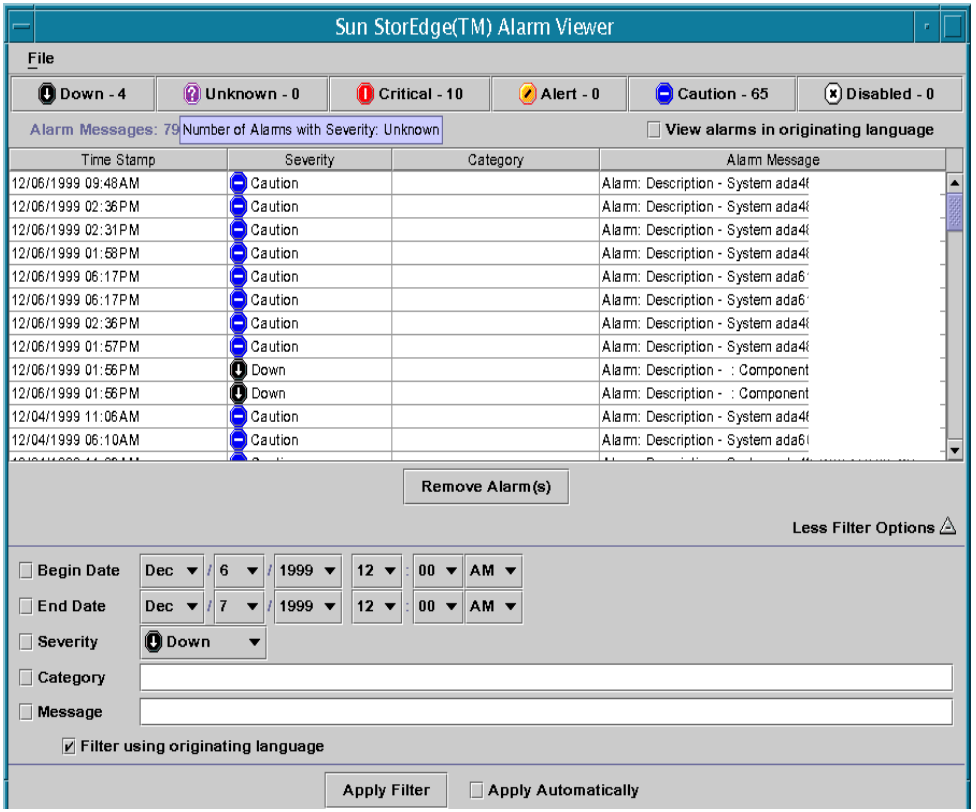


FIGURE 3-2 Alarm Viewer Window

2. **Click the heading title to sort by heading.**

3. **Click More Filter Options to view specific messages or a range of messages.**

To search for and view a specific message or range of messages categorized by date, severity, category, or message string, enter the applicable values in each field. Click Apply Filter. Be sure that the box next to each field you are editing has been checked (enabled).

To search for and display your specified message or range of messages automatically, select the Apply Automatically checkbox. If you choose this option, you do not need to click Apply Filter for each search.

The Filter using originating language checkbox allows you to specify search filters for the language in which the alarms were generated, regardless of the locale where your Management Console is running.

4. **Double-click the message to view it in greater detail.**

5. **Remove alarms that you have already addressed.**

   Once you have viewed and addressed an outstanding alarm message, you can remove the highlighted message by clicking the Remove Alarm(s) button.

Log Viewer

Component Manager logs an entry for each monitoring or control operation performed, including failed operations. You can view these log messages in the Log Viewer window (see FIGURE 3-3).

▼ To Display Log Viewer Entries

1. **Click the Log Viewer icon on the GUI Toolbar.**

   The Log Viewer is displayed, showing up to 100 Component Manager log message Click Next to view up to 100 more messages. The Previous and Next buttons enable you to toggle between log messages in increments of 100

2. **Click the heading title to sort by heading.**

3. **Click More Filter Options to view specific messages or a range of messages.**

   To search for and view a specific message or range of messages categorized by date, severity, category, or message string, enter the applicable values in each field and click Apply Filter. Be sure that the box next to each field you are editing has been checked enabled.

   To search for and display your specified message or range of messages automatically, select the Apply Automatically checkbox. If you choose this option, you do not need to click Apply Filter for each search.

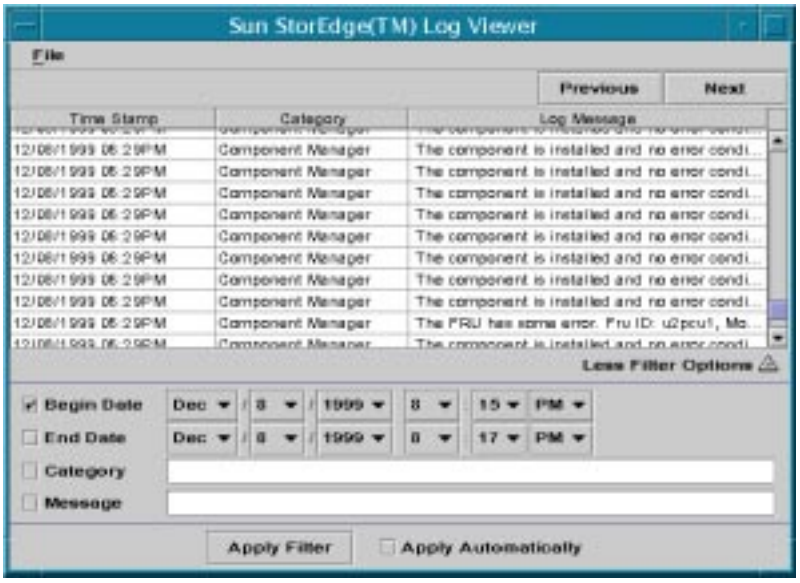


FIGURE 3-3 Log Viewer Window

Online Help

Online Help provides details to assist your operation of the Management Console and Component Manager functions.

▼ To Use Online Help

1. **Click the Online Help icon in the Toolbar.**

   The Management Console Online Help window appears (FIGURE 3-4). For a description of the Online Help window elements, see TABLE 3-4.

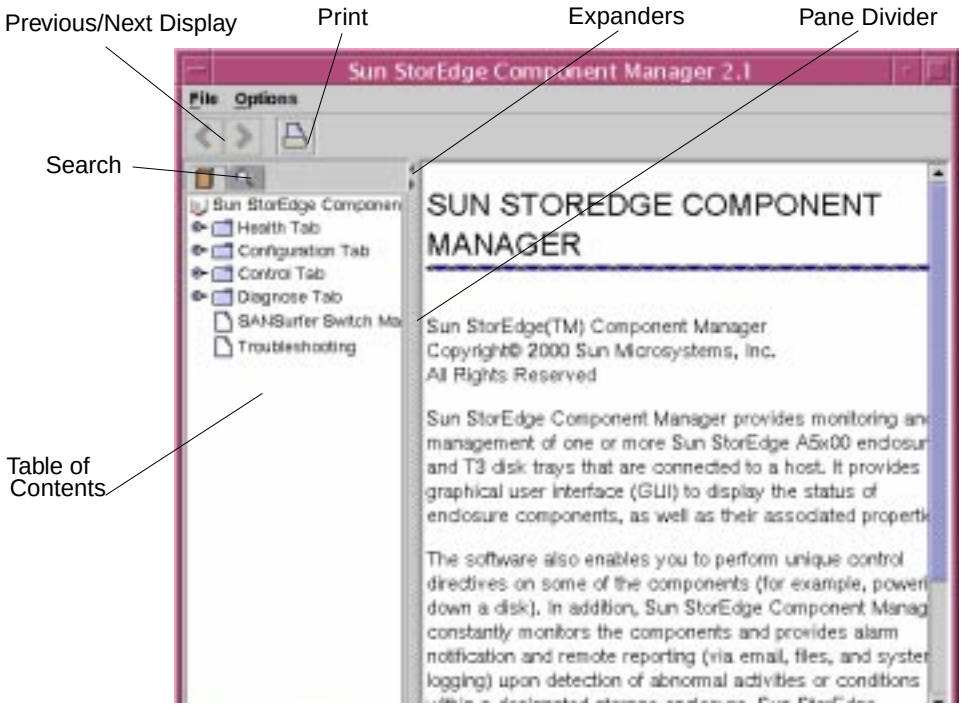


FIGURE 3-4 Online Help Window

2. **Click any designated topic icon within the Table of Contents pane to view details about that topic.**

3. **Use the Search utility to find information about a particular topic.**

a. Click the Search icon.

The Online Help Search pane is displayed.

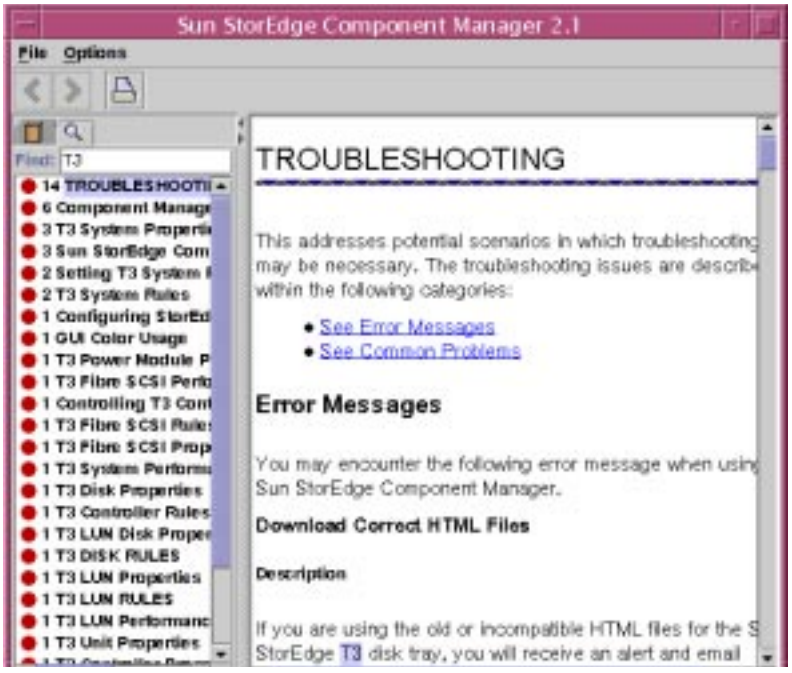


FIGURE 3-5 Online Help Search

b. Type the topic to be searched, and then press Return.

The Search pane displays every location of the topic and also indicates the number of times the topic appears for each location. The topic is highlighted in every occurrence.

TABLE 3-4 Online Help Window Elements

Window Element	Description
Table of Contents	Individual topics within Online Help.
Search	Click the search icon to find particular topics or words.
Previous / Next Display	Click to toggle between display views.
Pane divider	Use to adjust the size of the pane.
Expanders	Click to expand or collapse the size of the pane.

CHAPTER 4

Configuring With Component Manager

This chapter includes the following topics for configuring Sun StorEdge Component Manager features for use with the Sun StorEdge A5*x*00 and T3 components:

Configuring Component Manager

You can use the Configuration tab to perform the following:

Configuring the Remote Reporting Tab

The Remote Reporting tab enables you to notify selected email recipients of designated alarms and to log the alarms in selected ASCII files. Because these options are each independent of another, you can choose to send only designated alarm messages to email recipients, or to send only designated alarm messages to log files (if you should decide not to do both). Component Manager Remote Reporting and Maintenance Mode Window TABLE 4-1 shows the severity levels available for remote reporting.

TABLE 4-1 Remote Reporting Severity Levels

Severity Level	Description
DOWN	The monitored object itself is not responding (that is, it is “down”).
UNKNOWN	Immediate corrective action be required.
CRITICAL	The monitored object has entered a CRITICAL state, and immediate corrective action be required.
ALERT	The monitored object has entered a ALERT state, and immediate corrective action be required.
CAUTION	The monitored object has entered a CAUTION state. Some of these alarms be of an informational nature.
OFF/DISABLED	The monitored object has entered a OFF/DISABLED state and immediate corrective action may be required.

▼ To Enable Remote Reporting

When the Enable Remote Reporting option is disabled, no alarm notifications are forwarded, regardless of which individual email addresses or log file names are currently selected.

1. **Select Component Manager in the Navigation Pane.**
2. **Click the Configuration tab.**

3. **Click the Remote Reporting tab (see** FIGURE 4-2**).**

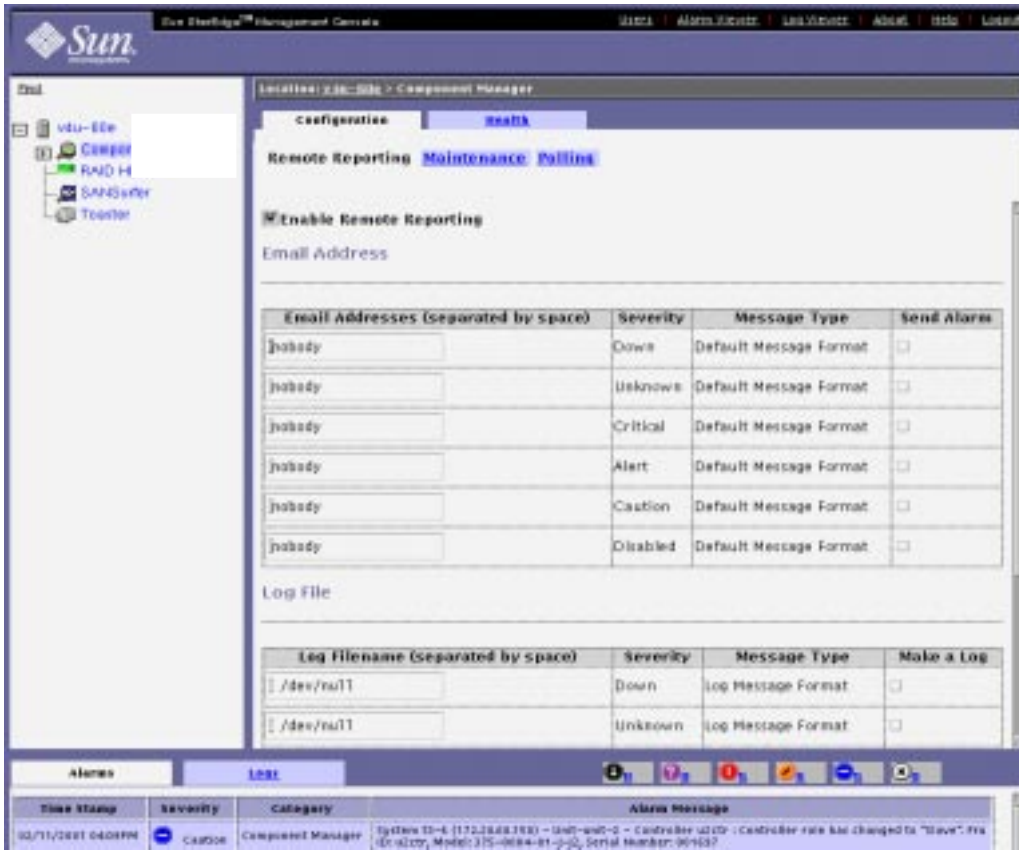


FIGURE 4-1 Component Manager Remote Reporting Window

4. **Customize your remote reporting options.**

   a. **If you want to either disable or enable remote reporting altogether, select the Enable Remote Reporting checkbox.**

      The check mark indicates reporting is enabled.

   b. **If you want to edit email addresses, log files, or log file locations:**

      i. **Highlight the designated email address or log file entry and enter your new email address, log file, or log file location.**

      ii. **Press Return.**

      iii. **With the left mouse button, select the checkbox for that entry so that the check mark appears.**

For email addresses, the check mark appears under Send Alarm. For log files, the check mark appears under Make a Log.

FIGURE 4-2 Component Manager Remote Reporting Window

c. If you want to add an email address to a current recipient for a designated alarm:

i. Select the email address, insert a blank space, and then add the new email address.

Note – Make sure that blank spaces are inserted between all email addresses to enable all addresses to receive the designated alarm.

---

ii. Press Return.

iii. With the left mouse button, select the checkbox for that entry so the check mark appears under Send Alarm.

5. Click Apply after completing your update.

```
To: bob_johnson@supercoder.com
Subject: ada45:Enclosure java - Front Temperature Element, Slot Number 1:P4: A
critical condition is detected

DATE: 4/14/1999 12:22 PM

CUSTOMER: Sun StorEdge Customer

SYSTEM: ada45

PRIORITY: 4

COMPONENT: Enclosure java - Front Temperature Element, Slot Number 1

DESCRIPTION: A critical condition is detected

RESOLUTION HINT: Check the component
```

CODE EXAMPLE 4-1 Example Remote Reporting Email Notification

```
StoreX (4/16/1999 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot
Number 4 failed because: The component is not installed in the enclosure
StoreX (4/16/1999 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot
Number 5 failed because: The component is not installed in the enclosure
StoreX (4/16/1999 11:22 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot
Number 3 failed because: The component is not installed in the enclosure
StoreX (4/16/1999 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot
Number 4 failed because: The component is not installed in the enclosure
StoreX (4/16/1999 11:22 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot
Number 3 failed because: The component is not installed in the enclosure
```

CODE EXAMPLE 4-2 Example Remote Reporting Log File

Configuring the Component Manager Polling Tab

Hardware polling is the time interval that Component Manager uses to poll and monitor the subsystem hardware components. You can customize hardware polling by either changing the time interval or by disabling or enabling the function to suit your own needs. This section contains instructions for the following tasks:

- "To Disable All Polling" on page 39
- "To Enable All Polling" on page 39
- "To Customize Polling" on page 40

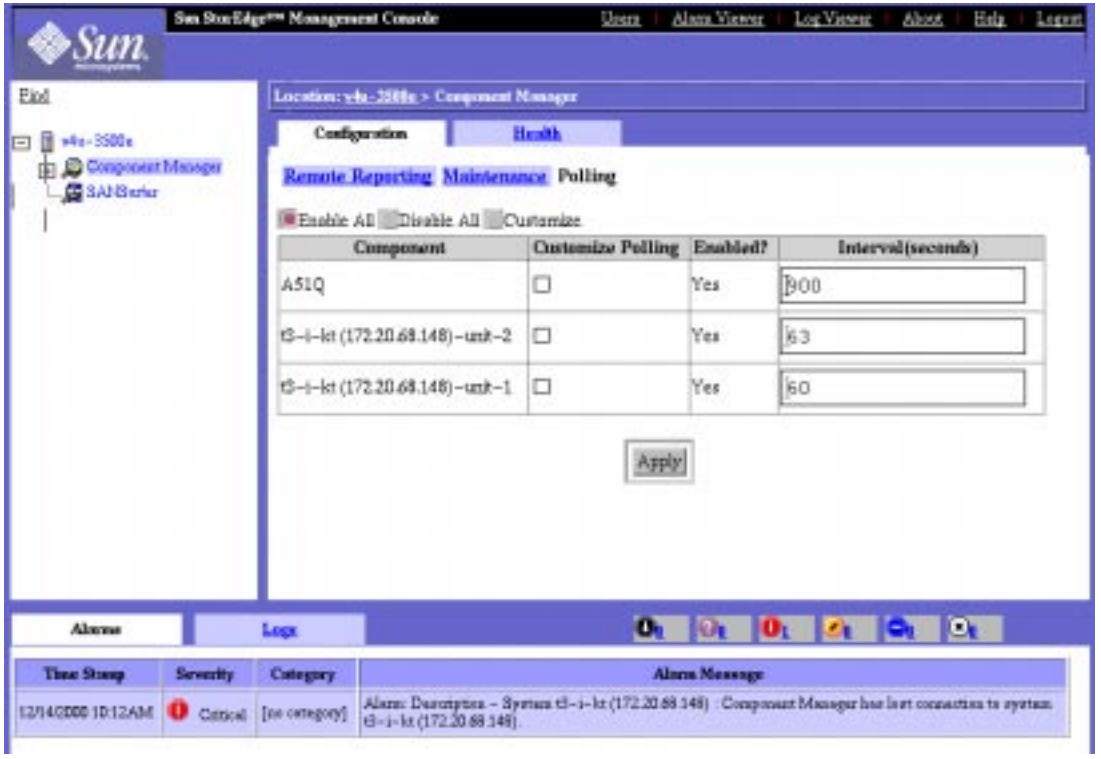


FIGURE 4-3 Component Manager Polling Tab

The Polling columns are defined in TABLE 4-2.

TABLE 4-2 Configuration Tab Polling Pane

Column	Description
Component	The system being monitored.
Customize Polling	When you select the Customize radio button, a check mark in this check box will enables polling for this system after the Apply button is clicked. Conversely, if this check box is empty, an enabled system will become disabled after the Apply button is clicked.
Enabled	Specifies whether the system in enabled.
Interval (seconds)	The polling interval configured for this system.

▼ To Disable All Polling

Disabling all polling will sever polling to all subsystems displayed.

Before performing a reconfiguration (dynamic or otherwise), you should disable all polling.

1. **Select Component Manager in the Navigation Pane.**
2. **Select the Configuration tab.**
3. **Select the Polling tab.**
4. **Select the Disable All radio button.**
5. **Click Apply.**

Caution – Failure to disable polling during any subsystem reconfiguration could cause excessive alarms.

▼ To Enable All Polling

Enabling all polling will initiate polling to all subsystems displayed.

1. **Select Component Manager in the Navigation Pane.**
2. **Select the Configuration tab.**
3. **Select the Polling tab.**

4. **Select the Enable All radio button.**
5. **Click Apply.**

▼ To Customize Polling

Customizing polling enables you to specify whether to poll or not poll individual subsystems.

1. **Select Component Manager in the Navigation Pane.**
2. **Select the Configuration tab.**
3. **Select the Polling tab.**
4. **Customize polling options.**
   a. **Select the Customize radio button.**
   b. **Select the Customize Polling check box for each component for which you want polling enabled.**

Caution – Failure to select the Customize Polling box for a component will cause polling to be disabled.

---

5. **Click Apply.**

Configuring the Component Manager Maintenance Tab

The maintenance options can be used when you need to rediscover a subsystem (for example, if you are adding or replacing a subsystem that Component Manager will monitor).

▼ To Display the Component Manager Maintenance Tab

1. **Select Component Manager in the Navigation Pane.**
2. **Select the Configuration tab.**
3. **Select the Maintenance tab.**

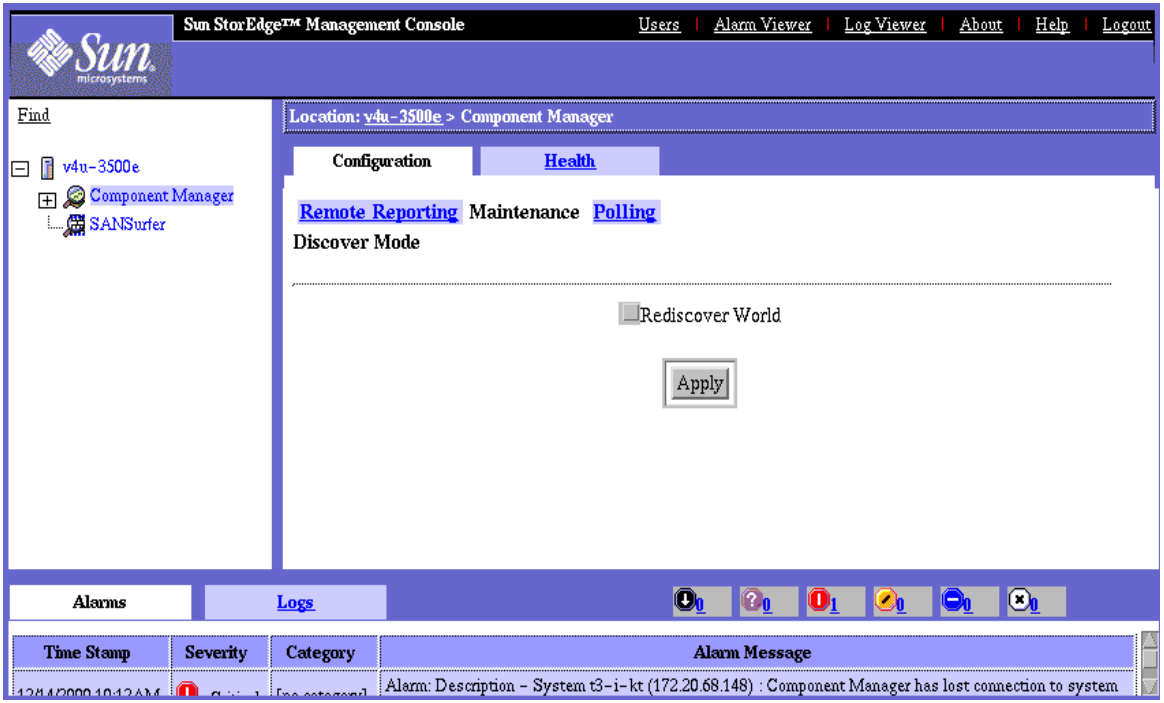


FIGURE 4-4 Component Manager Maintenance Tab

Caution – Before performing a reconfiguration (dynamic or otherwise), you should disable all polling. Failure to disable polling could cause device reconfiguration to fail and potentially cause excessive alarms. See “Configuring the Component Manager Polling Tab” on page 38 for more information about polling.

▼ To Select a Discovery Mode

1. **Select the Rediscover World check box.**

   Selecting this checkbox will set Component Manager to discover all subsystems in `/dev/es` and `/etc/opt/SUNWesm/mo/hosts`. This operation may take a considerable amount of time depending how your installation is configured.

2. **Click Apply.**

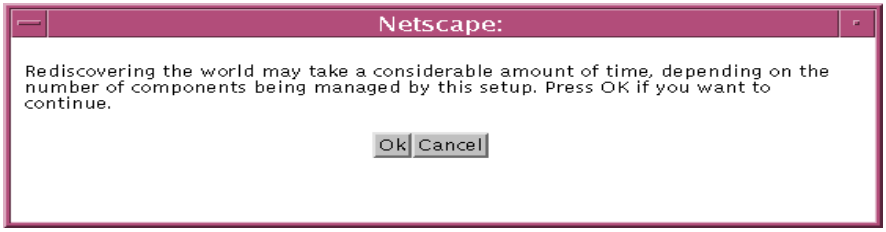


FIGURE 4-5 Rediscover World Confirmation Pop-up Window

If another user is changing the discovery mode of a component you are also trying to change, your discovery selection will not be applied.

Configuring the Sun StorEdge A5*x*00 Components

You can use the Configuration tab to perform the following tasks:

▼ To Set a Sun StorEdge A5*x*00 Name

You can change the name of your specified component by editing the Enclosure Name field. This name identifies the Sun StorEdge A5*x*00 enclosure, and it must be limited to 16 or fewer characters.

1. **In the Navigation Pane, select the component you want to rename.**

   If the Sun StorEdge A5*x*00 name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

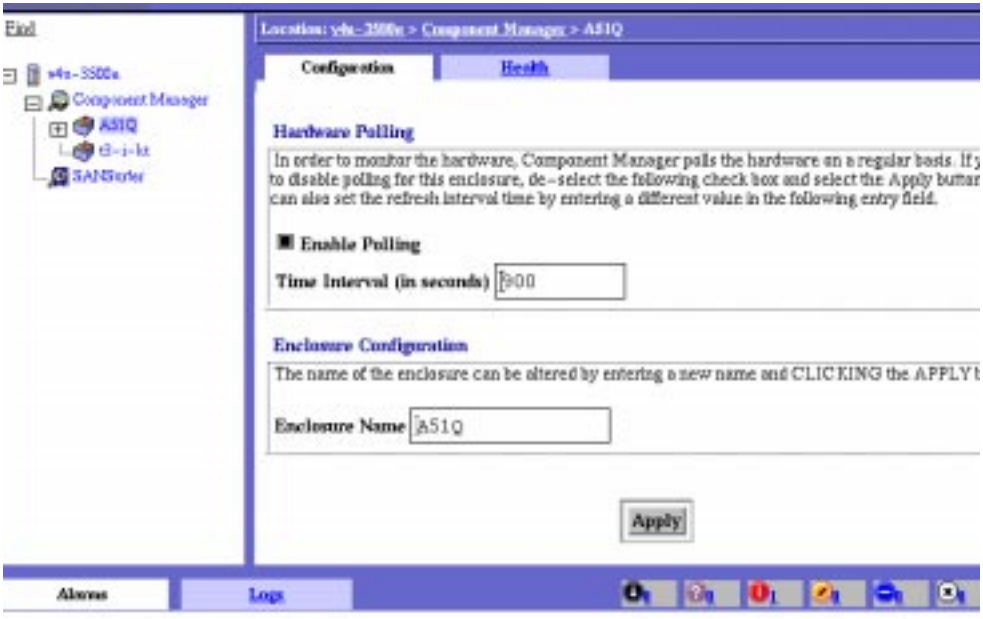


FIGURE 4-6 Sun StorEdge A5*x*00 Hardware Polling and Naming Window

3. **Change the name (see** FIGURE 4-6**).**

   a. **Double-click the current name in the Enclosure Name field to highlight the name.**

   b. **Enter the new enclosure name.**

4. **Click Apply to update your enclosure name.**

Changing Sun StorEdge A5*x*00 Hardware Polling

Polling time intervals are measured in seconds and can be customized to any value greater than 900 second (15 minutes), the default polling time (see FIGURE 4-7). Polling will occur in no less time than the polling interval specified.

You can use the Enable Polling checkbox to either disable or enable hardware polling for an enclosure. Polling is always enabled by default.

▼ To Customize Sun StorEdge A5*x*00 Polling

1. **Select the enclosure in the Navigation Pane that you are polling.**

   If the Sun StorEdge A5*x*00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab (see** FIGURE 4-7**).**

FIGURE 4-7 Sun StorEdge A5*x*00 Hardware Polling and Naming Window

3. **Customize your polling options.**

   a. **If you need to either disable or enable hardware polling, select the Enable Polling checkbox.**

      The check mark disappears when polling is disabled and reappears when polling is enabled.

   b. **If you want to change the polling time interval, double-click the current value in the Time Interval field with the left mouse button.**

      Enter the new value (in seconds).

4. **Click Apply after either disabling or enabling polling, or after resetting the polling time interval value.**

Configuring Sun StorEdge T3 Components

You can use the Configuration tab to perform the following tasks:

▼ To Set Sun StorEdge T3 System Property Values

1. **In the Navigation, select the Sun StorEdge T3 component in the Navigation Pane that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Physical View.**

4. **Select the system name text in the Physical View.**

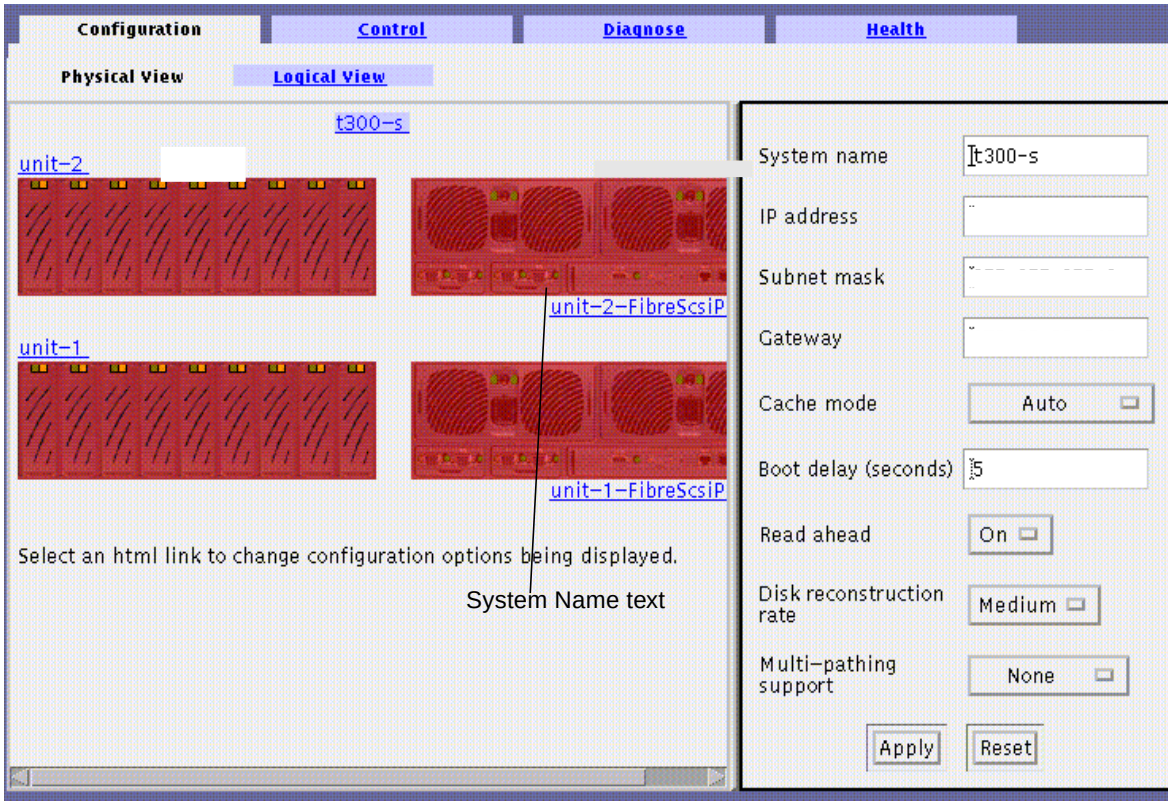


FIGURE 4-8 Sun StorEdge T3 System Property Configuration Window

5. **Change the parameter.**

   a. **For system name, system IP address, system subnet mask, system gateway, or system boot delay:**

      i. **Double-click the parameter value you would like to change.**

      ii. **Enter the new value.**

   b. **For system cache mode, read ahead, or reconstruction rate, click the pull-down menu and select the desired value.**

6. **Click Apply to save your changes.**

Note – If you click elsewhere for this Sun StorEdge T3 array, the values you just changed might not appear until the next polling cycle.

Note – For an IP address change to become fully effective, you must update the `hosts` file (see "Configuring the `hosts` File in the *Sun StorEdge Component Manager 2.2 Installation Guide*), reset the subsystem (see the "Operation" chapter in the *Sun StorEdge T3 Installation, Operation and Service Manual*), and rediscover the subsystems (see "Configuring the Component Manager Maintenance Tab" on page 41 of this manual).

Note – For a subnet mask or gateway change to become fully effective, you must rediscover the subsystems (see "Configuring the Component Manager Maintenance Tab" on page 41.)

▼ To Set Unit Polling Properties

1. **In the Navigation Pane, select the Sun StorEdge T3 component you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Physical View tab.**

4. **Select the unit name text in the Physical View.**

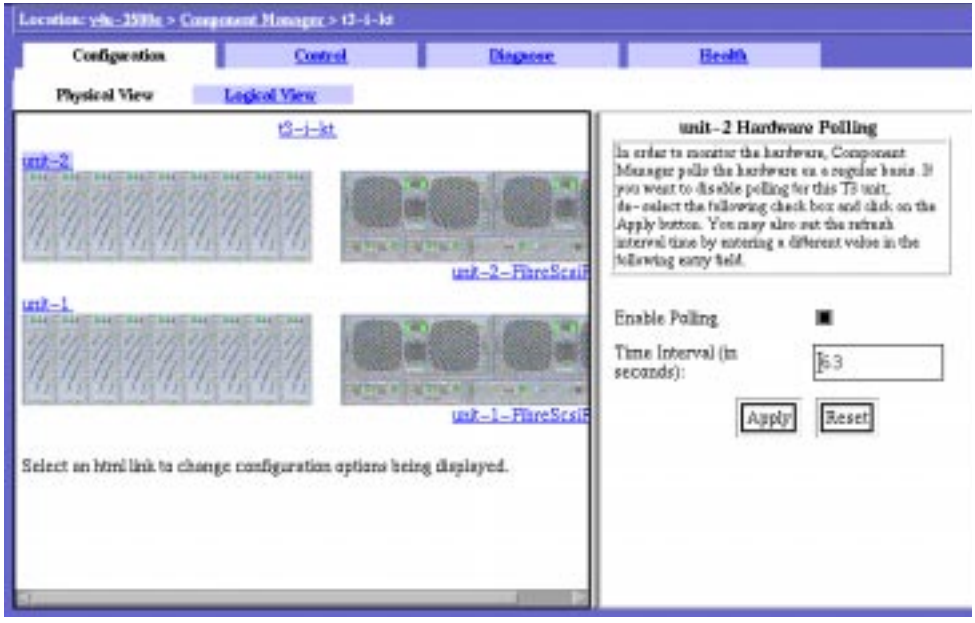


FIGURE 4-9 Sun StorEdge T3 Unit Polling Configuration Window

5. **Change the polling interval.**

6. **Click Apply.**

▼ To Set Fibre SCSI Port Properties

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Physical View tab.**

4. **Select the Fibre SCSI port name in the Physical View.**

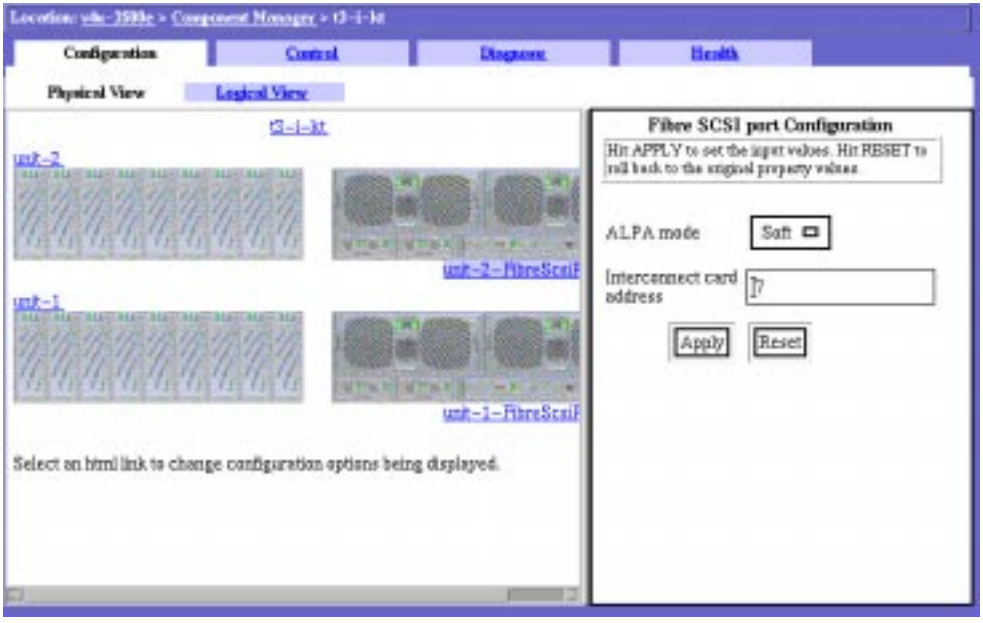


FIGURE 4-10 Sun StorEdge T3 Fibre SCSI Port Configuration WIndow

5. **Change the parameter.**

   a. **For the system ALPA mode, click the pull-down menu and select the desired value.**

   b. **For Loop Address, double-click the value and enter the new value.**

6. **Click Apply button.**

Using LUN Operations

You can create, delete, initialize, mount and unmount LUNs from the Configuration tab, Logical View tab:

Note – Only one LUN operation can be performed on a Sun StorEdge T3 array at a time.

▼ To Create a LUNs

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Logical View tab.**

4. **Click Create New LUN.**

   The Create New LUN button can be seen in FIGURE 4-11.

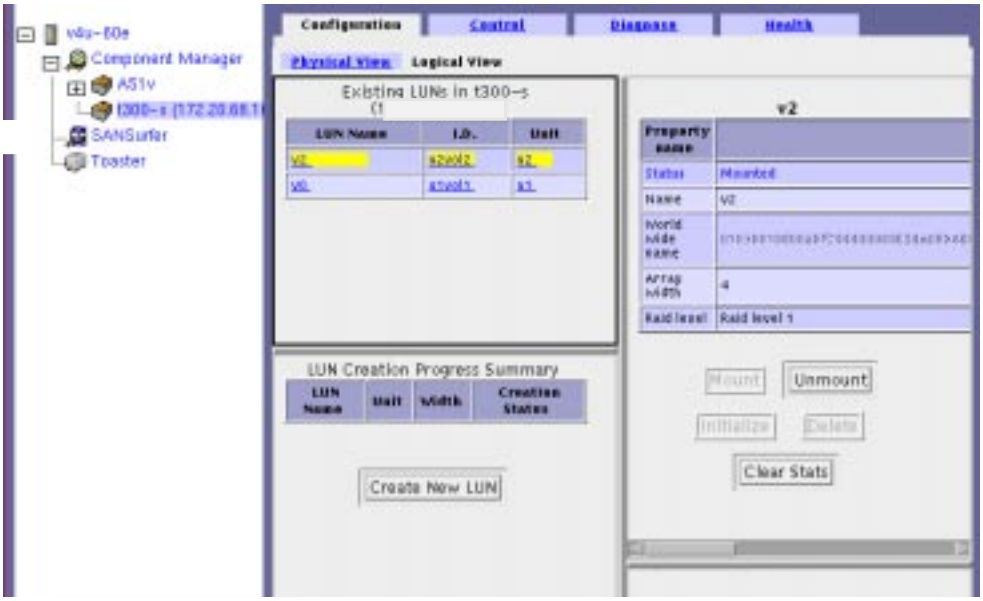


FIGURE 4-11 Configuration Tab, Logical View

5. **Specify LUN attributes.**

   The LUN configuration window can be seen in FIGURE 4-12.

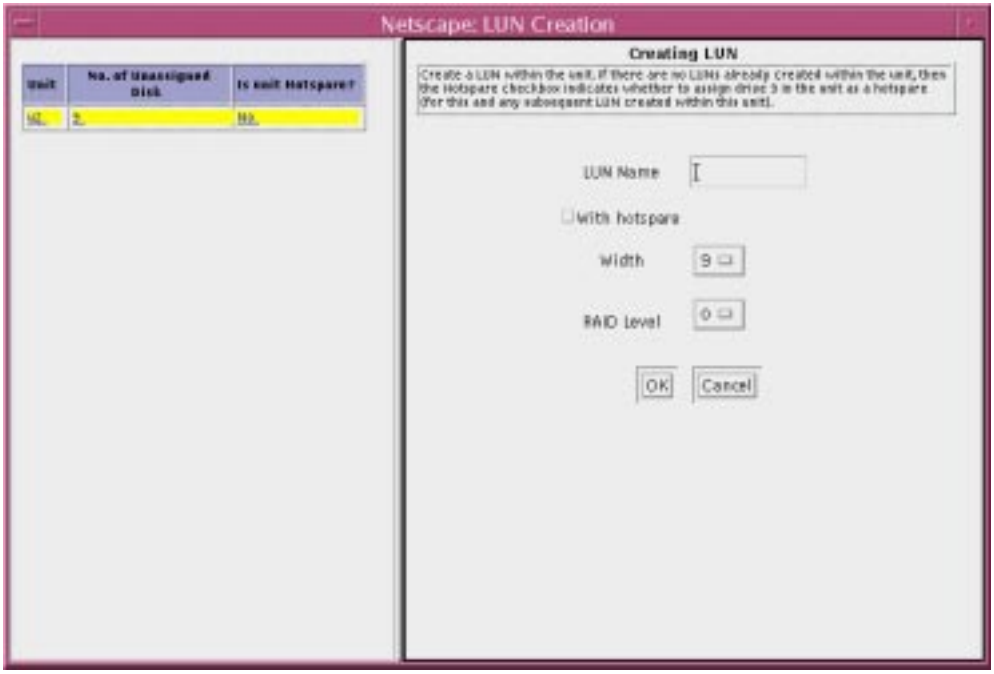


FIGURE 4-12 LUN Creation Window

a. Select the unit from the list.

b. Enter the LUN Name.

The LUN name must not exceed 12 characters.

c. Check the Hot Spare check box if so desired.

Selecting the Hot Spare check box will reserve disk FRU #9 as a spare for reconstruction in the event one of the other disks fails. A hot spare can only be selected when creating the first volume on the unit. When selected, FRU#9 will be used as a hot spare for any other volume subsequently created on the unit. Once created, the only way to remove a hot spare is to delete all LUNs on the unit.

d. Select the Width from the pull-down menu.

If this is the first LUN created on a unit, you can select the number of disks the LUN spans. If this is the second LUN created on the unit, the width is defaulted to remaining disks not included in the first LUN and less any hot spare.

e. Select the RAID Level from the pull-down menu (see TABLE 4-1 **and** TABLE 4-4**).**

TABLE 4-3 RAID Definitions

RAID Level	Definition
0	Data blocks are striped across all drives in the volume in order. There is no parity data, so RAID 0 uses the full capacity of the drives. There is, however, no redundancy; if a single drive fails, all data on the volume is lost.
1	This level gives the performance of striping with the redundancy of mirroring. The data is mirrored on two drives and is striped across all the drives in the volume. If one of the mirrored pair fails, the data from the other drive is used. Because the data is mirrored in a RAID 1 configuration, the volume has only half the capacity of the assigned drives.
5	Data is striped across the drives in the volumes in segments, with parity information being striped across the drives as well. Because of this parity, if a single drive fails, data can be recovered from the remaining drives. The failure of two drives, however, causes all data to be lost. A RAID 5 volume has the data capacity of all the drives in the logical unit, less one.

TABLE 4-4 RAID Configuration Limitations

Width	Hotspare	RAID Levels Permitted
3-9	No	0, 1, 5
2	No	0, 5
3-8	Yes	1,5
2	Yes	1

f. Click OK.

6. Enter the Sun StorEdge T3 password.

FIGURE 4-13 Password Validation Dialog Box

While the LUN is being created, you can monitor its progress in the LUN Creation Progress Summary table as shown in FIGURE 4-14.

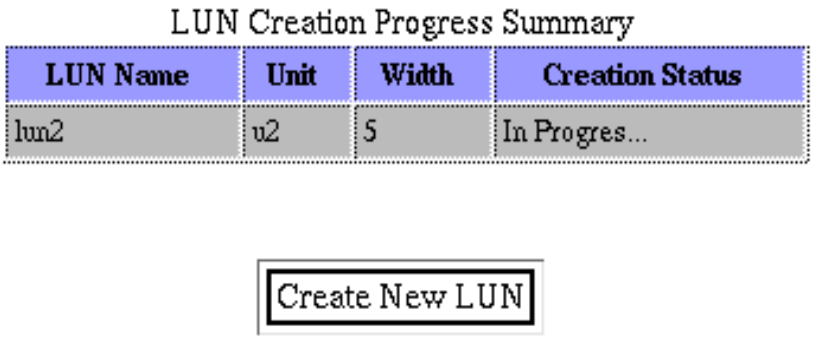


FIGURE 4-14 LUN Creation in Progress

▼ To Initialize a LUN

Note – When a LUN is created, it is automatically initialized.

---

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Logical View tab.**

4. **Select the LUN in the Existing LUNs list.**

5. **Start the initialization process by clicking the Initialize button, as shown in** FIGURE 4-15**.**

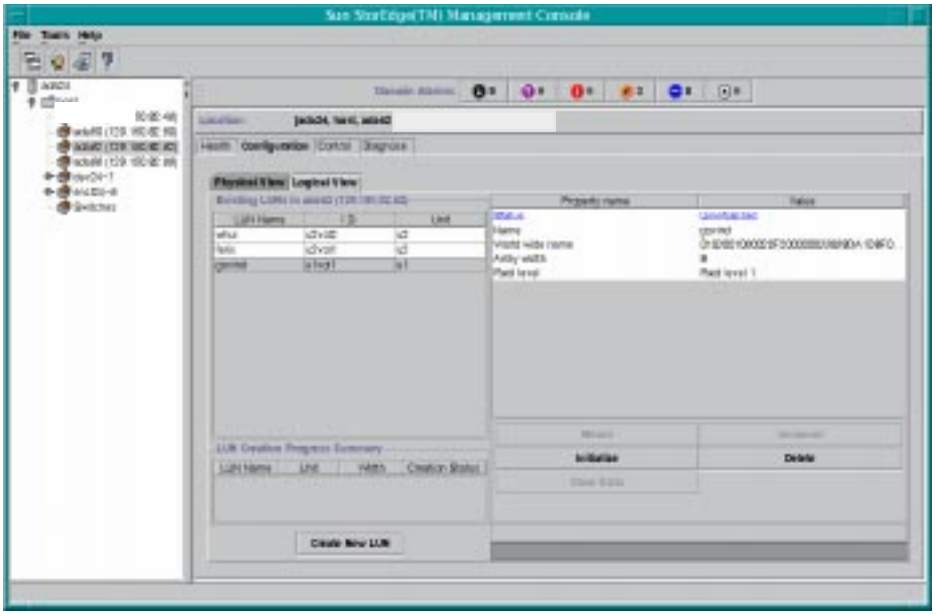


FIGURE 4-15 Active LUN Initialization Button

6. **Enter the Sun StorEdge T3 root password.**
7. **Click OK.**

   You can monitor initialization progress by the progress bar as shown in FIGURE 4-16.

FIGURE 4-16 LUN Initialization Progress Bar.

▼ To Mount a LUN

Mount a LUN with the following procedure.

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Logical View tab.**

4. **Select the LUN in the Existing LUNs list.**

5. **Mount the LUN by clicking the Mount button.**

   See FIGURE 4-17.

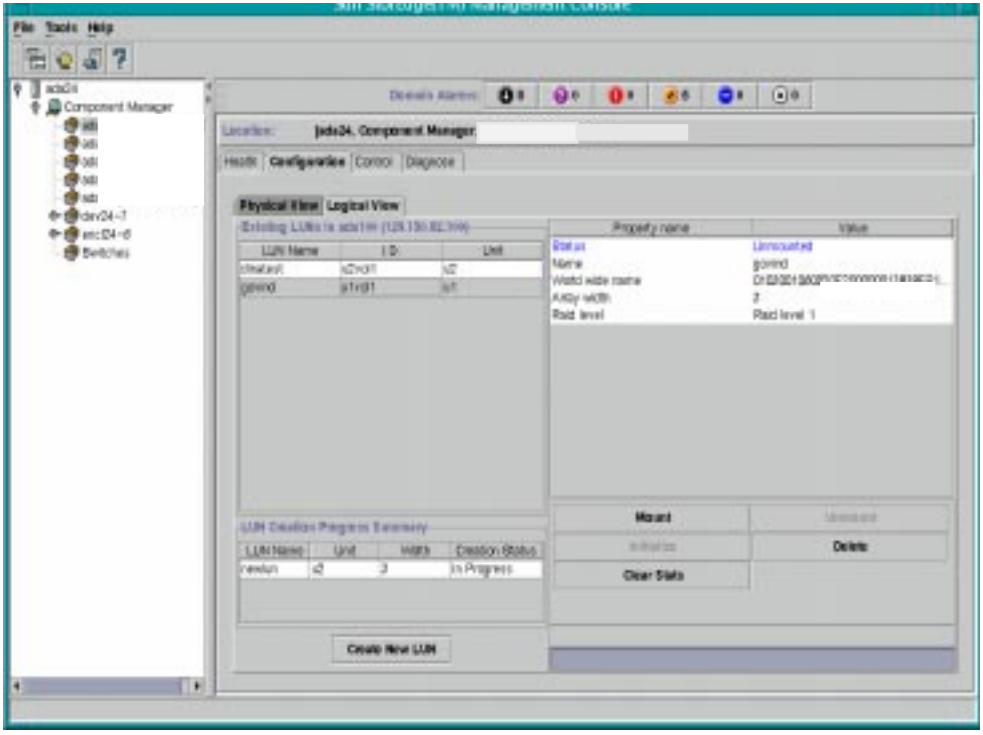


FIGURE 4-17 Created LUN Operations

6. **Enter the Sun StorEdge T3 root password.**

▼ To Delete a LUN

Delete a LUN with the following procedure.

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**
3. **Select Logical View tab.**
4. **Select the LUN in the Existing LUNs list.**
5. **Delete the LUN by clicking the Delete button (see** FIGURE 4-17**).**
6. **Enter the Sun StorEdge T3 root password.**

▼ To Clear LUN Statistics

LUN statistics are displayed on the component Health tab, Logical view (see “To Display Sun StorEdge T3 LUN Properties” on page 90).To clear LUN statistics, perform the following procedure.

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**
3. **Select Logical View tab.**
4. **Select the LUN in the Existing LUNs list.**
5. **Clear the statistics by clicking the Clear Stats button (see** FIGURE 4-17**).**
6. **Enter the Sun StorEdge T3 root password.**

▼ To Unmount a LUN

Unmount a LUN with the following procedure.

1. **In the Navigation Pane, select the Sun StorEdge T3 component that you are configuring.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Configuration tab.**

3. **Select Logical View tab.**

4. **Select the LUN in the Existing LUNs list.**

5. **Click the Unmount button.**

   See FIGURE 4-17.

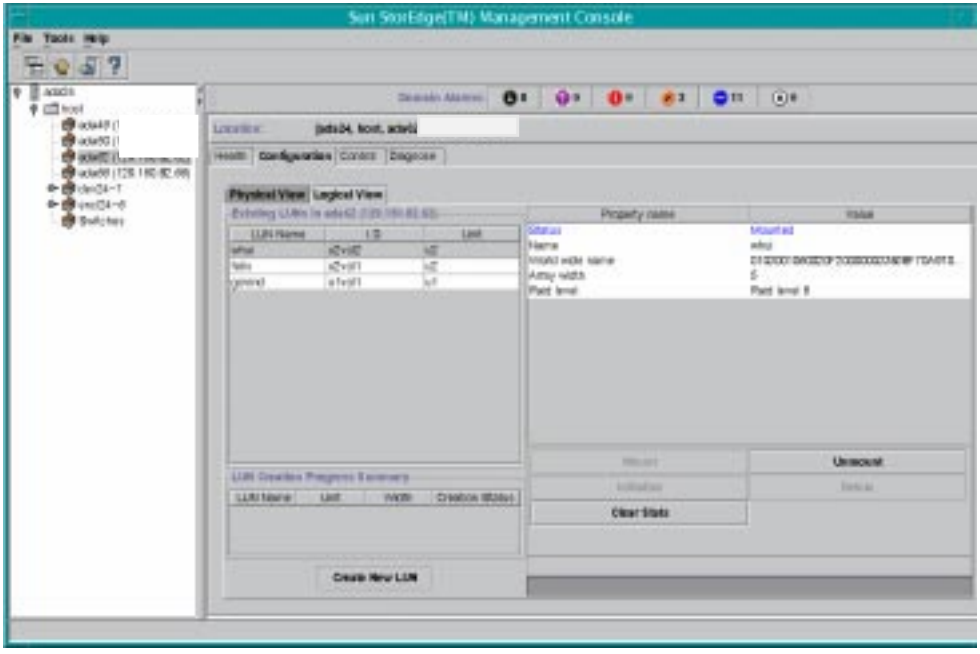


FIGURE 4-18 Active LUN Unmount Button

6. **Enter the Sun StorEdge T3 root password.**

CHAPTER 5

Monitoring With Component Manager

Use the Health tab to monitor administrative domains, components, and FRUs. This chapter discusses how to use the Health tab.

Component Manager displays icons and text in color. The significance of color usage is explained in TABLE 5-1.

TABLE 5-1 Component Manager Color Usage

Color	Significance
Blue	OK.
Black	The subsystem has not been discovered.
Gray	The subsystem has not yet been discovered.
Green	The subsystem is in the process of being discovered.
Gold	Subsystem, unit, or FRU is in a degraded state (Sun StorEdge T3 only).
Red	Physical intervention is required.

Monitoring Component Manager

At the Component Manager level, you can use the Health tab to see the status of components at a glance (FIGURE 5-1).

FIGURE 5-1 Component Manager Health Tab Component Status

Component Status

The component status possibilities are defined in TABLE 5-2.

TABLE 5-2 Component Status Definitions

Component Status	Status Definition
Being Discovered	Component is in the process of being discovered.
Connection Broken	Discovered component is still not responding.
Degraded	Some component features are compromised and might require intervention.
Discovered	Component was discovery process has succeeded.
Discovery Failed	Component not discovered after discovery attempt.
Not OK	Something has failed, requiring immediate attention.

TABLE 5-2 Component Status Definitions

Component Status	Status Definition
OK	Component has been discovered and all functionality is present.
Pending Discovery	Discovery process has not yet been attempted.
Polling Failed	Component was discovered but is temporarily not responding.

Discovery Rules

A system log message will be written under the following conditions:

- If the `/etc/opt/SUNWesm/mo/hosts` file containing Sun StorEdge T3 IP addresses could not be found or read (DOWN)
- If the HTML pages required for the Sun StorEdge T3 are missing (DOWN)
- If authorization fails (DOWN)
- If a connection cannot be established with the IP address in a host (DOWN)
- If there is an error while the persistence files are being read during a reboot of the Management Objects station (DOWN)
- If the Sun StorEdge A5000 library is returning an error (DOWN)
- If the Sun StorEdge T3 firmware cannot be determined (DOWN)
- If the Sun StorEdge T3 firmware is less than the one supported by CM (DOWN)
- If the html page cannot be obtained from Sun StorEdge T3 (DOWN)
- If the http connection to the Sun StorEdge T3 times out (DOWN)
- If there is an invalid IP address in the hosts file (DOWN)

Monitoring the Sun StorEdge A5*x*00 Enclosure

You can monitor the properties and status of selected hardware FRUs with the Health tab. This section describes the individual properties and rules specific to each component. *Rules* define the conditions under which you are notified through remote reporting when monitoring the Health tab components. Rule evaluations are integrated into the Component Manager software.

▼ To Display the Sun StorEdge A5*x*00 Properties

1. **Select your Sun StorEdge A5*x*00 name in the Navigation Pane.**

   If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

Component properties and descriptions are provided in TABLE 5-3.

TABLE 5-3 Sun StorEdge A5*x*00 Properties

Property	Description
Enclosure Name	The name of your component subsystem. This name must be 16 or fewer characters.
Status	The current status of the specified component is designated as one of the following: • OK – The component has no error conditions. • Critical – One or more critical conditions have been detected or set in the component. • Unrecoverable – One or more unrecoverable conditions have been detected or set in the component. • Unknown – The status of the component could not be determined.
Polling Status	Polling is designated as either Active or Inactive.
Box ID	The Box ID of the component.
Product ID	The Product ID of the component.
Vendor ID	The Vendor ID of the component.
Firmware Revision	The firmware revision of the component's interface board.
ANSI Revision	The supported SCSI level of the component. For example, a value of 2 indicates that the SCSI level equals 2.
ISO Revision	The ISO revision of the component.
ECMA Revision	The ECMA revision of the component.
Physical Path	The physical path of the component.
Port	The port number of the component.
Serial Number	The serial number of the component.
Node World Wide Name	The node world wide name of the component (unique across different components).

Sun StorEdge A5*x*00 FRU Summary

The current FRU status is designated as one of the following:

- OK – The FRUs are installed and no error conditions are known.
- NOT OK – Some (or all) of the FRUs are not in an OK state.

An example of a FRU summary is shown in the following figure.

FIGURE 5-2 Sun StorEdge A5*x*00 Health and FRU Summary Window

Sun StorEdge A5*x*00 Rules

A system log message will be written under the following condition:

- When the name of the component changes

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a critical condition is detected (CRITICAL)
- When an unrecoverable condition is detected (CRITICAL)
- When an unknown condition is detected (ALERT)

▼ To Display Sun StorEdge A5*x*00 Disk Properties

1. **Display the disk icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure icon to view individual subcomponent icons.**

   c. **Double-click (GUI) or click (browser) the Disks icon to view individual disk icons.**

2. **Select a disk by clicking it.**

   Disk properties and descriptions are provided in TABLE 5-4.

TABLE 5-4 Sun StorEdge A5*x*00 Disk Properties

Property	Description
Status	The current status of the specified disk is designated as one of the following: • OK – The disk is installed and no error conditions are known. • OFF – The disk is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The disk is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the disk status is not available.
Loop Status	The current disk loop status is designated as one of the following: • OK – The disk loop is installed and no error conditions are known. • OFF – The disk loop is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The disk loop is not installed. • Unknown – The sensor has failed or the disk loop status is not available.
Disk Location	The physical location of a disk, described by the panel name and the slot number. For example, Front Panel, Slot Number: 0.
Disk Capacity	The disk unformatted capacity, in megabytes.
Node World Wide Name	The disk node world wide name, unique to every disk.
Product ID	The product ID of the disk.
Vendor Name	The vendor ID of the disk.
Firmware Revision	The firmware revision of the disk.
ANSI Revision	The supported SCSI level of the disk. For example, a value of 2 indicates that the SCSI level equals 2.
ISO Revision	The ISO revision of the disk.
ECMA Revision	The ECMA revision of the disk.
Disk Serial Number	The serial number of the disk.
Logical Path Name	The logical path of the disk.
Physical Path Name	The physical path of the disk.
Port A World Wide Name	The port A world wide name of the disk.
Disk Port A Status	The status of port A of the disk.

TABLE 5-4 Sun StorEdge A5*x*00 Disk Properties *(Continued)*

Property	Description
Port B World Wide Name	The port B world wide name of the disk.
Disk Port B Status	The status of port B of the disk.
CRC Error Count	The number of disk CRC errors.

Disk Rules

A system log message will be written under the following conditions:

- When a disk drive is powered off
- When a disk drive is powered on
- When a disk drive is bypassed by the user (Port A or B)
- When a disk drive is bypassed by a device (Port A or B)
- When a disk LED is turned on or off
- When a disk LED is set to blink

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a disk drive fails due to an open failure, SCSI error, or fault condition (CRITICAL)
- When an unknown condition is detected (ALERT)
- When a disk is unplugged (DOWN)

File Monitoring

A file monitoring processing module performs matching and frequency analysis of specified string patterns. The main use of file monitoring is to review the file `/var/adm/messages` for Sun StorEdge A5*x*00-related problems that cannot be directly determined through the management interface.

Alarms or log messages are sent when a match is detected. The following string patterns are used to determine when the disk's failure prediction threshold has been exceeded:

```
"drive operation marginal, service immediately (failure prediction
threshold exceeded)"
```

```
"failure prediction threshold exceeded (false)"
```

An alarm of ALERT severity is sent for these matching strings.

▼ To Display Sun StorEdge A5*x*00 GBIC Properties

A Gigabit Interface Converter (GBIC) is a small, hot-pluggable optical/electrical conversion unit that converts standard Fibre Channel connector and signalling technologies to a standard copper serial connection.

1. **Display the GBIC icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

   c. **Double-click (GUI) or click (browser) the GBICs icon to view individual GBIC icons.**

2. **Select a GBIC by clicking it.**

GBIC properties and descriptions are provided in TABLE 5-5.

TABLE 5-5 Sun StorEdge A5*x*00 GBIC Properties

Property	Description
Status	The current status of the specified GBIC is designated as one of the following: • OK – The GBIC is installed and no error conditions are known. • OFF – The GBIC is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The GBIC is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the GBIC status is not available.
Transmission Status	The transmitting status page path of the specified GBIC, designated as one of the following: • Transmitting – The GBIC is transmitting. • Not Transmitting – The GBIC is not transmitting. • Not Available – The transmitting status is not available.
Receiving Status	The receiving status of the specified GBIC, designated as one of the following: • Receiving – The GBIC is receiving signals. • Not Receiving – The GBIC is not receiving signals. • Not Available – The receiving status is not available.
Enabling Status	The status that indicates whether the specified GBIC is enabled: • Enabled – The GBIC is enabled. • Disabled – The GBIC is disabled. • Not Available – Cannot determine if the GBIC is enabled.
Operating Status	The status that indicates whether the specified GBIC has failed: • OK – The GBIC is installed and no error conditions are known. • Failed – The GBIC has failed. • Not Available – Cannot determine the operating status.
GBIC Revision	The GBIC revision level.

GBIC Rules

A system log message will be written under the following condition:

- When a GBIC is enabled

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a GBIC is not available (DOWN)
- When a GBIC fails (DOWN)
- When an unknown condition is detected (ALERT)

File Monitoring

A file monitoring processing module performs matching and frequency analysis of specified string patterns. The main use of file monitoring is to review the file `/var/adm/messages` for Sun StorEdge A5*x*00-related problems that cannot be directly determined through the management interface.

Alarms or log messages are sent when a match is detected. The following string pattern is used to determine when the GBIC's Fibre Channel is offline:

```
"socal0...9: port 0...1: Fibre Channel is OFFLINE"
```

Alarm Progression

1. An alarm of ALERT severity is sent if this message occurs five times within one hour.
2. Thereafter, an alarm of CRITICAL severity is sent if this message occurs 11 times within 24 hours.
3. Thereafter, if any identical alarm message occurs within 20 minutes, a summary alarm message will be sent with the total number of occurrences of this incident along with the alarm message.
4. At this point, if this alarm message is not sent within 24 hours, the state is reset and future alarms would be reported as an ALERT (see step #1 above).

▼ To Display Sun StorEdge A5*x*00 Power Supply Properties

1. **Display the power supply icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

   c. **Double-click (GUI) or click (browser) the Power Supplies icon to view individual power supply icons.**

2. **Select a power supply by clicking it.**

   Power Supply properties and descriptions are provided in TABLE 5-6.

TABLE 5-6 Sun StorEdge A5*x*00 Power Supply Properties

Property	Description
Status	The current status of the specified power supply is designated as one of the following: • OK – The power supply is installed and no error conditions are known. • OFF – The power supply is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The power supply is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the power supply status is not available.
Power Supply Revision	The Power Supply revision level.

Power Supply Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a power supply is not available (DOWN)
- When an unknown condition is detected (ALERT)
- When a power supply fails due to one of the following reasons (CRITICAL):
  - Not receiving AC power
  - Not providing power
  - Over voltage
  - Under voltage
  - Over current
  - Reaching temperature critical condition

▼ To Display Sun StorEdge A5*x*00 Temperature Properties

1. **Display the temperature icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

   c. **Double-click (GUI) or click (browser) the Temperatures icon to view individual temperature sensor icons.**

2. **Select a temperature sensor by clicking it.**

   Temperature properties and descriptions are provided in TABLE 5-7.

TABLE 5-7 Sun StorEdge A5*x*00 Temperature Properties

Property	Description
Status	The current status of the specified sensor is designated as one of the following: • OK – The temperature element is installed and no error conditions are known. • OFF – The temperature element is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The temperature element is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the temperature element status is not available.
Temperature	Indicates the Celsius temperature reading of the surrounding temperature.

Note – You can also find the temperature status of interface boards (see “To Display Sun StorEdge A5x00 Interface Board Properties” on page 79).

Temperature Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a temperature element is not available (DOWN)
- When a critical condition is detected (CRITICAL)
- When an unrecoverable condition is detected (CRITICAL)
- When an unknown condition is detected (ALERT)

▼ To Display Sun StorEdge A5*x*00 Fan Properties

1. **Display fan icons in the Navigation Pane.**

a. If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

b. Double-click (GUI) or click (browser) the enclosure name to display subcomponents.

c. Double-click (GUI) or click (browser) the Fans icon to view individual fan icons.

2. Select a fan by clicking it.

Fan properties and descriptions are provided in TABLE 5-8.

TABLE 5-8 Sun StorEdge A5*x*00 Fan Properties

Property	Description
Status	The current status of the specified fan element is designated as one of the following: • OK – The fan element is installed and no error conditions are known. • OFF – The fan element is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The fan element is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the fan element status is not available.
Fan Speed	Indicates the speed value of the fan.
Fan Revision	Indicates the fan element revision level.

Fan Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a fan tray is not available (DOWN)
- When a critical condition is detected (CRITICAL)
- When an unrecoverable condition is detected (CRITICAL)
- When an unknown condition is detected (ALERT)

▼ To Display Sun StorEdge A5*x*00 Loop Properties

1. **Display loop icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

   c. **Double-click (GUI) or click (browser) the Loops icon to view individual loop icons.**

2. **Select a loop by clicking it.**

   Loop properties and descriptions are provided in TABLE 5-9.

TABLE 5-9 Sun StorEdge A5*x*00 Loop Properties

Property	Description
Status	The current status of the specified loop is designated as one of the following: • OK – No error conditions are known. • OFF – There are no known errors, but it has not been turned on or set into operation. • Not Installed – The loop is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the loop status is not available.
Loop Configuration	The configuration of the specified loop is designated as either of the following: • Single Loop – A single loop configuration. • Split Loop – A split loop configuration.

Loop Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a loop is not available (DOWN)
- When a loop is not installed (DOWN)
- When an unknown condition is detected (ALERT)

▼ To Display Sun StorEdge A5*x*00 Backplane Properties

1. **Display backplane icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

   c. **Double-click (GUI) or click (browser) the Backplanes icon to view individual backplane icons.**

2. **Select a backplane by clicking it.**

   Backplane properties and descriptions are provided in TABLE 5-10.

TABLE 5-10 Sun StorEdge A5*x*00 Backplane Properties

Property	Description
Status	The current status of the specified backplane is designated as one of the following: • OK – The backplane is installed and no error conditions are known. • OFF – The backplane is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The backplane is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the backplane status is not available.
Port A Status	The current status of the specified backplane is designated as either of the following: • Enabled – Port A is enabled. • Bypassed – Port A is bypassed.
Port B Status	The current status of the specified backplane is designated as either as either of the following: • Enabled – Port B is enabled. • Bypassed – Port B is bypassed.
Backplane Revision	The revision level of the backplane.

Backplane Rules

A system log message will be written under the following condition:

- When a backplane Port A or Port B is bypassed

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a backplane is disabled (DOWN)
- When a critical condition is detected (CRITICAL)
- When an unrecoverable condition is detected (CRITICAL)
- When an unknown condition is detected (ALERT)
- When the average temperature exceeds 60°C (CRITICAL)

▼ To Display Sun StorEdge A5*x*00 Interface Board Properties

The interface board provides a Fibre Channel connection to the component. Furnishing all intelligent controls for the array, the interface board supplies special services to report and control the state of the component and its components—sensing and setting the environmental service signals as required by conditions inside the unit. The interface board interprets component service commands from the host or the front panel module and performs the indicated component management and sensing functions.

1. **Display interface board icons in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

   c. **Double-click (GUI) or click (browser) the Interface Boards icon to view individual interface board icons.**

2. **Select an interface board by clicking it.**

   Interface Board properties and descriptions are provided in TABLE 5-11.

TABLE 5-11 Sun StorEdge A5*x*00 Interface Board Properties

Property	Description
Status	The current status of the specified interface board is designated as one of the following: • OK – The interface board is installed and no error conditions are known. • OFF – The interface board is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The interface board is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the interface board status is not available.
Interface Board Over Temperature	The current value of the specified interface board indicates if the interface board is over temperature: • True – The interface board is over temperature. • False – The interface board is not over temperature.
Interface Board Loop 0 Status	The current status of the specified interface board is designated as either of the following: • OK – The loop has not failed. • Failed – The loop has failed.
Interface Board Loop 1 Status	The current status of the specified interface board is designated as either of the following: • OK – The loop has not failed. • Failed – The loop has failed.
Interface Board Revision	The revision level of the interface board.

Interface Board Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When an interface board is not available (DOWN)
- When an interface board fails due to the following reasons:
  - Over temperature (CRITICAL)
  - Loop 0 or 1 failure (ALERT)
- When an unknown condition is detected (ALERT)

▼ To Display Sun StorEdge A5*x*00 Motherboard Properties

1. **Display the Motherboard icon in the Navigation Pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure name to display subcomponents.**

2. **Select a motherboard by clicking it.**

   Motherboard properties and descriptions are provided in TABLE 5-12.

TABLE 5-12 Sun StorEdge A5*x*00 Motherboard Properties

Property	Description
Status	The current status of the motherboard is designated as one of the following: • OK – The motherboard is installed and no error conditions are known. • OFF – The motherboard is installed and there are no known errors, but it has not been turned on or set into operation. • Not Installed – The motherboard is not installed in the component. • Critical – A critical condition has been detected. • Unrecoverable – An unrecoverable condition has been detected. • Unknown – The sensor has failed or the motherboard status is not available.
Motherboard EPROM Status	The current status of the motherboard indicates if the motherboard EPROM has failed: • OK – The motherboard EPROM has not failed. • Failed – The motherboard EPROM has failed.
Motherboard Revision	The revision level of the motherboard.

Motherboard Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a motherboard is not available (DOWN)
- When a motherboard fails due to EPROM failure (CRITICAL)

- When an unknown condition is detected (ALERT)

Monitoring the Sun StorEdge T3 Array

The Health tab enables you to monitor the properties and status of selected hardware FRUs. This section describes the individual properties and rules specific to each FRU. *Rules* define the conditions under which you are notified through remote reporting when monitoring the Health tab components. Rule evaluations are integrated into the Component Manager software.

▼ To Display Sun StorEdge T3 System Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select the Physical View tab.**

4. **Select the system name text in the physical view.**

   System properties and values are displayed, as shown in FIGURE 5-3.

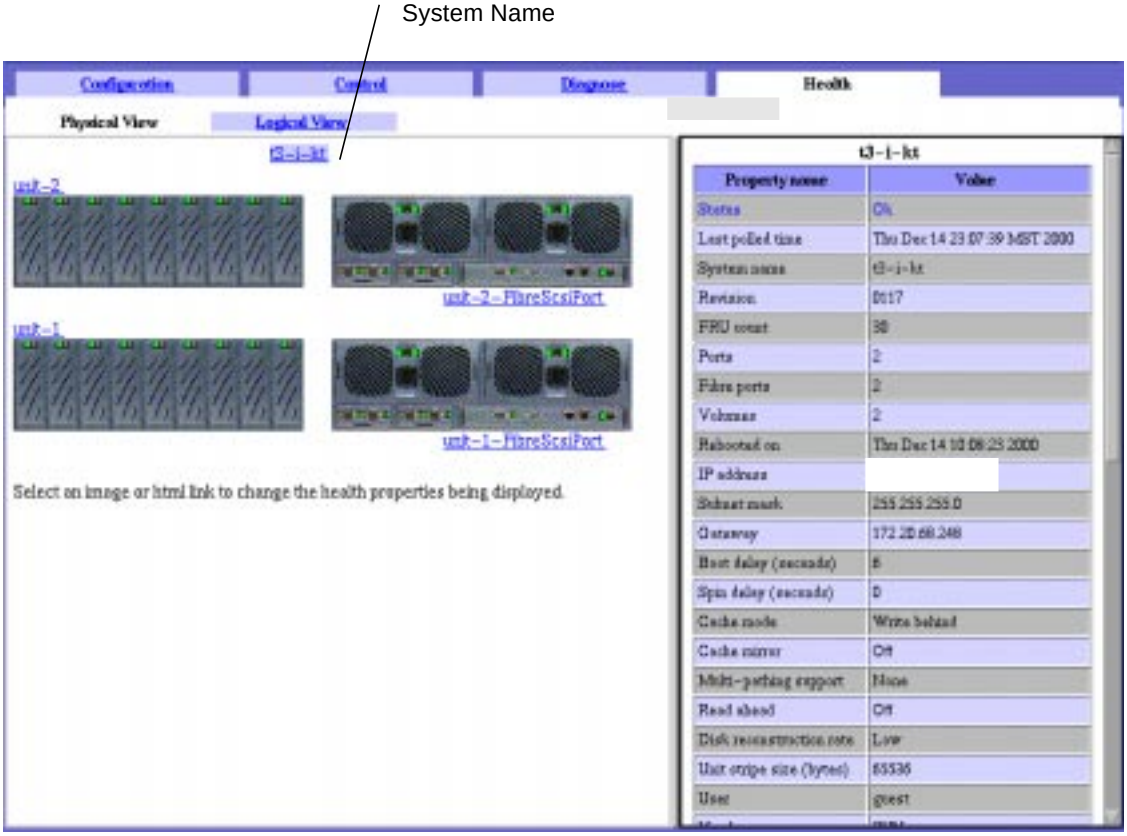


FIGURE 5-3 Health Tab, Sun StorEdge T3 System Properties

System properties and performance parameter descriptions are provided in TABLE 5-13 and TABLE 5-14 respectively.

TABLE 5-13 Sun StorEdge T3 System Properties

Property	Description
Status	The current status of the system is designated as one of the following: • OK – The system has no error conditions. • Not OK - The system or one of the FRUs has an error. The problem component will have a red image or will be displayed as red text on Physical View. • Degraded – The system or one of the FRUs is physically OK. However, something may be running in a degraded condition and will be outlined in gold or gold text (for example, a disk may be reconstructing or aport is offline). • Polling Failed – Component Manger could not communicate to the system during a polling cycle. This might be a temporary condition due to a network congestion. • Connection Broken – Component Manager could not communicate with a Sun StorEdge T3 system for more than two minutes. This is a serious condition, because the system cannot be monitored.
Last Polled Time	Date and time stamp of most recent successful polling event.
System name	The name of the system.
Revision	Firmware revision.
FRU Count	Total number of FRUs in the system.
Ports	Number of ports in the system.
Fibre ports	Number of Fibre ports.
Volumes	Number of LUNs defined.
Rebooted on	The date and time of the most recent system reboot.
IP address	The IP address.
Subnet mask	The subnet mask of the system.
Gateway	The default gateway IP address.
Boot delay (seconds)	The time delay during which time a user could strike a key at the system console to interrupt the EPROM boot process.
Spin delay (seconds)	The drive spin-up delay in seconds.
Cache mode	The current system buffer cache mode. It can be one of the following values: disabled, write through, write behind, auto.
Cache mirror	The current system buffer cache mirror code. It can be either off or auto.

TABLE 5-13 Sun StorEdge T3 System Properties *(Continued)*

Property	Description
Multi-pathing Support	The current multi-pathing support mode. It can be either none or read write.
Read ahead	The number of consecutive, contiguous read commands received before triggering read-ahead. This feature is useful mainly when host read requests are smaller than the system stripe unit size. For example, consider the case in which host read requests are 4K (8 SCSI blocks), stripe unit size is 64K, and sysReadAhead is on. If the host issues a read to block X, immediately followed by a read of block X+8, the system will read all blocks, starting at block X+8 and continuing to the end of the stripe unit. If the host then issues a read to block X+16, this block will most likely already be in the cache.
Disk reconstruction Rate	A value controlling the amount of bandwidth allocated to disk reconstruction. “High” allocates the greatest amount of bandwidth to reconstruct (slowing down host I/O), and “Low” allocates the least amount of bandwidth to reconstruct (least impact on host I/O).
Unit stripe size (bytes)	The current system stripe unit size. This is the amount of data written to one disk before moving onto the next disk. This value is changeable only if there are no created volumes. The stripe unit size is also sometimes referred to as the block size; however, this block size should not be confused with the SCSI block size as seen by the host (which is always 512 bytes).
User	Specifies the current user login (only root and guest today).
Vendor	The system vendor.
Model	The system model, that is, T3.
Current time	The current date and time. The format of the string is: “Wed Mar 17 18:30:00 1999"
Time zone	Specifies the time zone offset, that is, the difference between local time and universal time (UTC). This value is expressed as a string in the form `SHHMM`, where `S` is the sign `+` or `-`. For example, for Pacific Standard Time, use `-0800`. (For Pacific Daylight Time, use `-0700`.)
Has volumes	A flag indicating whether volumes have been defined.

TABLE 5-14 Sun StorEdge T3 Performance Parameters

Property	Description
Blocks read	The current number of blocks read (transmitted to) all host ports.
Blocks written	The current number of blocks written (received from) all host ports.
Total blocks	The current total number of blocks transferred via all host ports.

TABLE 5-14 Sun StorEdge T3 Performance Parameters *(Continued)*

Property	Description
Read requests	The current number of read requests received from all host ports.
Write requests	The current number of write requests received from all host ports.
Total requests	The current total number of read / write commands received from all host ports.

System Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When the system will shut down in *n* minutes (CRITICAL)
- When the connection to the host has failed (CRITICAL)
- When Component Manager loses connection with a Sun StorEdge T3 array during configuration (CAUTION)
- When any FRU is missing (ALERT)
- When a FRU has been missing for 30 minutes (CRITICAL

▼ To Display Sun StorEdge T3 Unit Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select Physical View.**

4. **Select the unit name text in the Physical View.**

   Unit properties and values appear, as shown in FIGURE 5-4.

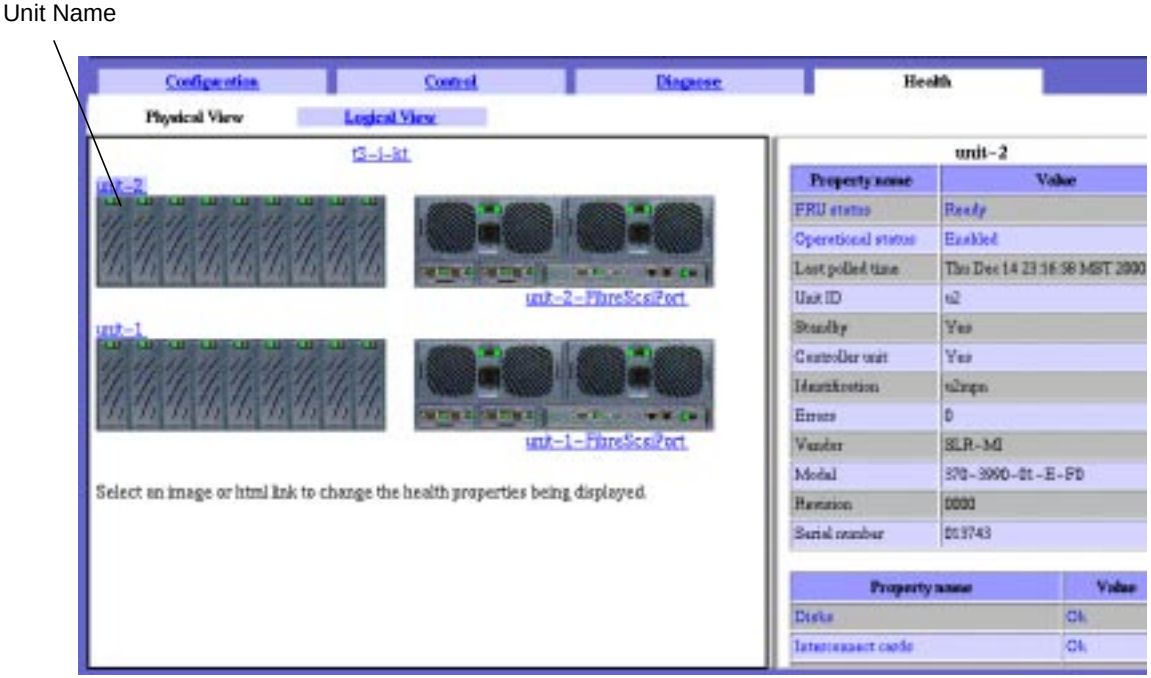


FIGURE 5-4 Health Tab, Sun StorEdge T3 Unit Properties

Unit properties and descriptions are provided in TABLE 5-15.

TABLE 5-15 Sun StorEdge T3 Unit Properties

Property	Description
FRU status	Absent, Fault, Ready, Polling failed, Connection broken, Diagnostics in Progress.
Operational status	Enabled, Disabled, Substituted, Polling failed, Connection broken, Diagnostics in Progress.
Unit ID	The unit ID string, for example, `u1`.
Standby	A flag indicating whether drive 9 in the unit is a standby.
Last polled time	Date and time stamp of the most recent successful polling event.
Controller unit	A flag indicating whether the unit is a controller unit.
Identification	The FRU ID string, for example, `u1pcu2`.
Errors	The number of errors for a FRU.
Vendor	The FRU vendor ID string.

TABLE 5-15 Sun StorEdge T3 Unit Properties *(Continued)*

Property	Description
Model	The FRU model ID string.
Revision	The FRU revision string.
Serial Number	The FRU serial number string.

Unit Summary

The current unit component status is designated as one of the following:

- OK – The unit components are installed and no error conditions are known
- NOT OK – Some (or all) of the unit components are not in an OK state
- DEGRADED – There has been a loss of redundant functionality (that is, a controller, disk, power supply, or interconnect cable or card).

Unit Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When any FRU is missing (ALERT)
- When a FRU has been missing for 30 minutes (CRITICAL)

▼ To Display Sun StorEdge T3 Disk Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select Physical View tab.**

4. **Select the disk FRU in the Physical View.**

   Disk properties are displayed, as shown, in FIGURE 5-5.

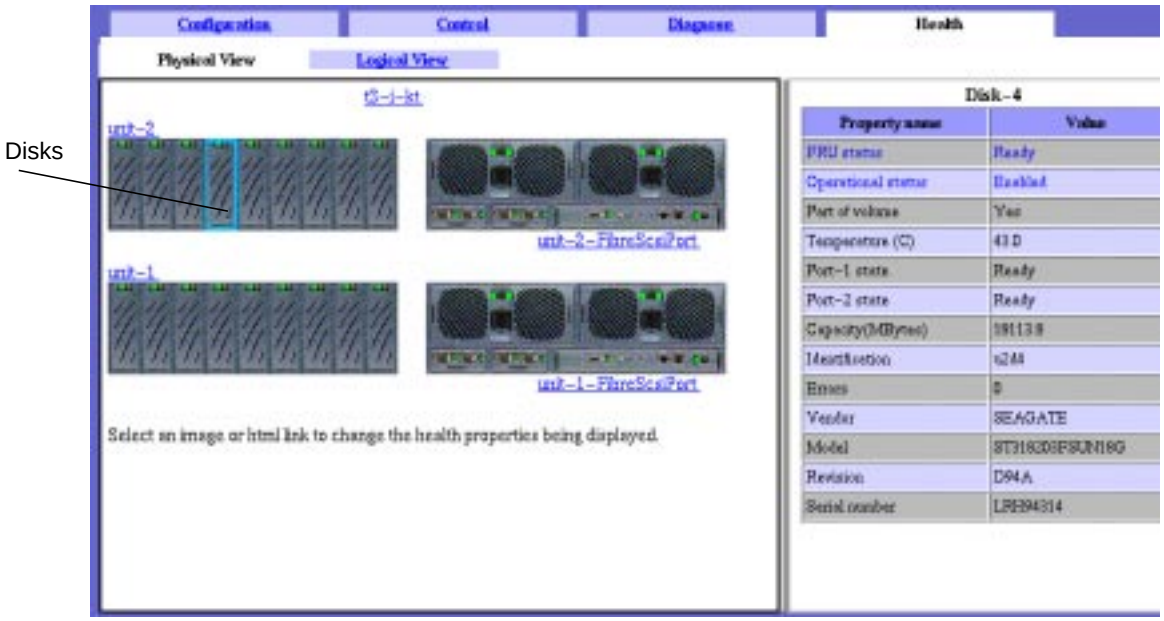


FIGURE 5-5 Health Tab, Sun StorEdge T3 Disk Properties

Disk properties and descriptions are provided in TABLE 5-16.

TABLE 5-16 Sun StorEdge T3 Disk Properties

Property	Description
FRU status	Absent, Fault, Ready, Polling failed, Connection broken, Diagnostics in Progress.
Operational status	Enabled, Disabled, Substituted, Polling failed, Connection broken, Diagnostics in Progress.
Part of volume	A flag indicating whether this disk has been defined as part of a volume.
Temperature	Temperature in degrees Celsius.
Port-1 state	The status the disk FRU via the disk's interface port 1.
Port-2 state	The status the disk FRU via the disk's interface port 2.
Capacity	The number of bytes / 1,000,000 of storage on the disk FRU.
Identification	The FRU ID string, for example, `u1d1`.
Errors	The number of errors for a FRU.

TABLE 5-16 Sun StorEdge T3 Disk Properties *(Continued)*

Property	Description
Vendor	The FRU vendor ID string.
Model	The FRU model ID string.
Revision	The FRU revision string.
Serial Number	The FRU serial number string.

Disk Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a disk drive has been removed (ALERT)
- When a disk drive is disabled (ALERT)
- When the system area of disk drive is bad (ALERT)
- When attempting to being a newly installed disk online (CAUTION)
- When there is a disk error (ALERT)

▼ To Display Sun StorEdge T3 LUN Properties

To create LUNs, see "To Create a LUNs" on page 51. To clear LUN statistics, see "To Clear LUN Statistics" on page 58.

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select Logical View.**

4. **Select the LUN in the Existing LUNs list.**

   Disk properties are displayed, as shown in FIGURE 5-6.

FIGURE 5-6 Health Tab, Sun StorEdge T3 LUN Properties

LUN properties and performance parameters are provided in TABLE 5-17 and TABLE 5-18 respectively.

TABLE 5-17 Sun StorEdge T3 LUN Properties

Property	Description
Name	The LUN name.
Status	The status of the LUN (that is, mounted, unmounted, initializing, uninitialized, etc.).
ID	Unit number and volume number.
World wide name	Unique identifier.
Cache mode	Off, writebehind, writethrough or auto.
Cache mirror	The current system buffer cache mirror mode: on or off.
Capacity	The number of bytes / 1,000,000 of storage on the LUN.
Array width	The number of disks the LUN spans

TABLE 5-17 Sun StorEdge T3 LUN Properties *(Continued)*

Property	Description
RAID level	The RAID level the LUN was created with. See TABLE 4-3 for RAID definitions.
Disabled disk id	FRU id of disabled disk.
Substituted disk id	FRU id of disk being substituted for disabled disk.
Current operation	Mounted, unmounted, initialized, created
Operation progress (%)	Percentage of operation completed.
Primary Port	The primary port.
Fail over Port	The fail over port.
Owner	User who created LUN.

TABLE 5-18 Sun StorEdge T3 LUN Performance Parameters

Property	Description
Total requests	The current total number of read / write commands received from all host ports.
Write requests	The current number of write requests received from all host ports.
Read requests	The current number of read requests received from all host ports.
Total Blocks	The current total number of blocks transferred via all host ports.
Blocks written	The current number of blocks written (received from) all host ports.
Blocks read	‘The current number of blocks read (transmitted to) all host ports.
Soft errors	Number of errors in which a disk retry succeeded.
Hard errors	Number of times input or output failed for a LUN.
Firm errors	Number of stripe parity replacements but successful comebacks.
Cache write hits	The current number of blocks in the cache rewritten before the previous contents have been written to disk.
Cache write misses	The current number of new blocks written to the cache.
Cache read hits	The current number of blocks read from cache.
Cache read misses	The current number of blocks read from disk into the cache.

TABLE 5-18 Sun StorEdge T3 LUN Performance Parameters *(Continued)*

Property	Description
Cache rmw flushes	The current number of read-modify-write stripe operations executed by cache flush.
Cache recon flushes	The current number of reconstruct-write stripe operations executed by cache flush.
Cache stripe flushes	The current number of stripe-write stripe operations executed by cache flush.

TABLE 5-19 LUN Disk Status

Property	Description
Disk Id	The FRU id string, for example, `u1d1`.
State	The FRU state.
Status	The FRU status.
In Standby	Whether the FRU is defined as the standby (hot spare) disk.

LUN Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a disk drive has been removed (ALERT)
- When a disk drive is disabled (ALERT)
- When the system area of a disk drive is bad (ALERT)
- When soft, firm, or hard errors are increasing in frequency (ALERT)
- When LUN status changes (CAUTION)
- When Component Manager loses the connection with a unit during a LUN operation (CAUTION)
- When another user is creating a LUN

▼ To Display Sun StorEdge T3 Interconnect Card Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select Physical View.**

4. **Select the loop FRU in the Physical View.**

   Interconnect properties are displayed, as shown in FIGURE 5-7.

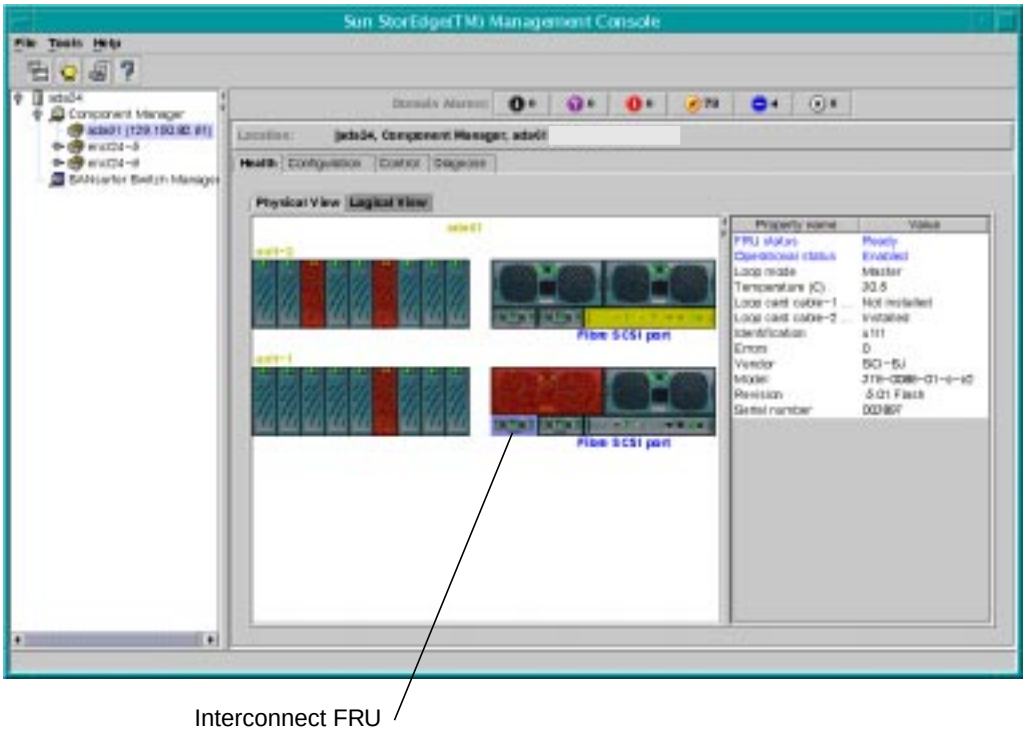


FIGURE 5-7 Health Tab, Sun StorEdge T3 Interconnect Card Properties

Interconnect properties and descriptions are provided in TABLE 5-20.

TABLE 5-20 Sun StorEdge T3 Interconnect Properties

Property	Description
FRU status	Absent, Fault, Ready, Polling failed, Connection broken, Diagnostics in Progress.
Operational status	Enabled, Disabled, Substituted, Polling failed, Connection broken, Diagnostics in Progress.
Interconnect card mode	Whether the interconnect card is the master or slave.

TABLE 5-20 Sun StorEdge T3 Interconnect Properties *(Continued)*

Property	Description
Temperature	The temperature in degrees Celsius.
Interconnect card cable-1 state	The status of the interconnect cable.
Interconnect card cable-2 state	The status of the interconnect cable.
Identification	The FRU ID string, for example, “u1l2”.
Errors	The number of errors for a FRU.
Vendor	The FRU vendor ID string.
Model	The FRU model ID string.
Revision	The FRU revision string.
Serial number	The FRU serial number string.

Interconnect Card Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When an interconnect card is not available (ALERT)
- When an interconnect cable is not installed (ALERT)
- When an interconnect cable is missing (ALERT)
- When an interconnect card is disabled (ALERT)
- When an interconnect card has an error (ALERT)

▼ To Display Sun StorEdge T3 Power Module Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select Physical View.**

4. **Select the power module FRU in the Physical View.**

Power Module properties are displayed, as shown in FIGURE 5-8.

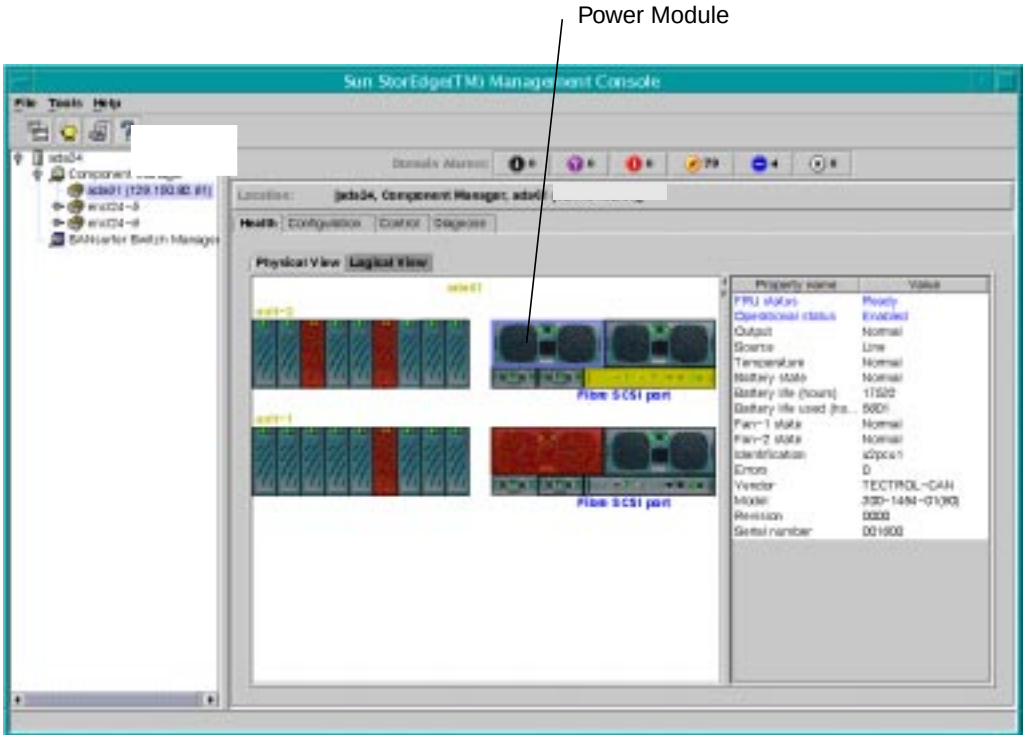


FIGURE 5-8 Health Tab, Sun StorEdge T3 Power Module Properties

Power Module properties and descriptions are provided in TABLE 5-21.

TABLE 5-21 Sun StorEdge T3 Power Module Properties

Property	Description
FRU status	Absent, Fault, Ready, Polling failed, Connection broken, Diagnostics in Progress.
Operational status	Enabled, Disabled, Substituted, Polling failed, Connection broken, Diagnostics in Progress.
Output	The current power output state of the power/cooling FRU.
Source	The current power input source of the power/cooling FRU.
Temperature	The temperature in degrees Celsius.

TABLE 5-21 Sun StorEdge T3 Power Module Properties *(Continued)*

Property	Description
Battery state	The current state of the battery.
Battery life (hours)	The expected battery life.
Battery life Used	The hours of battery life used.
Fan-1 state	The current state of fan 1 in the power/cooling FRU.
Fan-2 state	The current state of fan 2 in the power/cooling FRU.
Identification	The FRU ID string, for example, `u1pcu2`.
Errors	The number of errors for a FRU.
Vendor	The FRU vendor ID string.
Model	The FRU model ID string.
Revision	The FRU revision string.
Serial number	The FRU serial number string.

Power Module Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a power supply unit is missing (ALERT)
- When a power supply unit is over temperature (ALERT)
- When a fan fault exists on a power supply unit (ALERT)
- When the DC of a power supply unit is not OK (ALERT)
- When a power supply unit has been disabled (ALERT)
- When a power supply unit is off (ALERT)
- When a power supply unit has switched to battery for a power source (ALERT)
- When a battery is missing from a power supply unit (ALERT)
- When a battery is fully drained or approaching total battery life (ALERT)
- When the power supply unit has an error (ALERT)

▼ To Display Sun StorEdge T3 Controller Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**
3. **Select Physical View tab.**
4. **Select the controller FRU in the Physical View.**

   Controller properties are displayed, as shown in FIGURE 5-9.

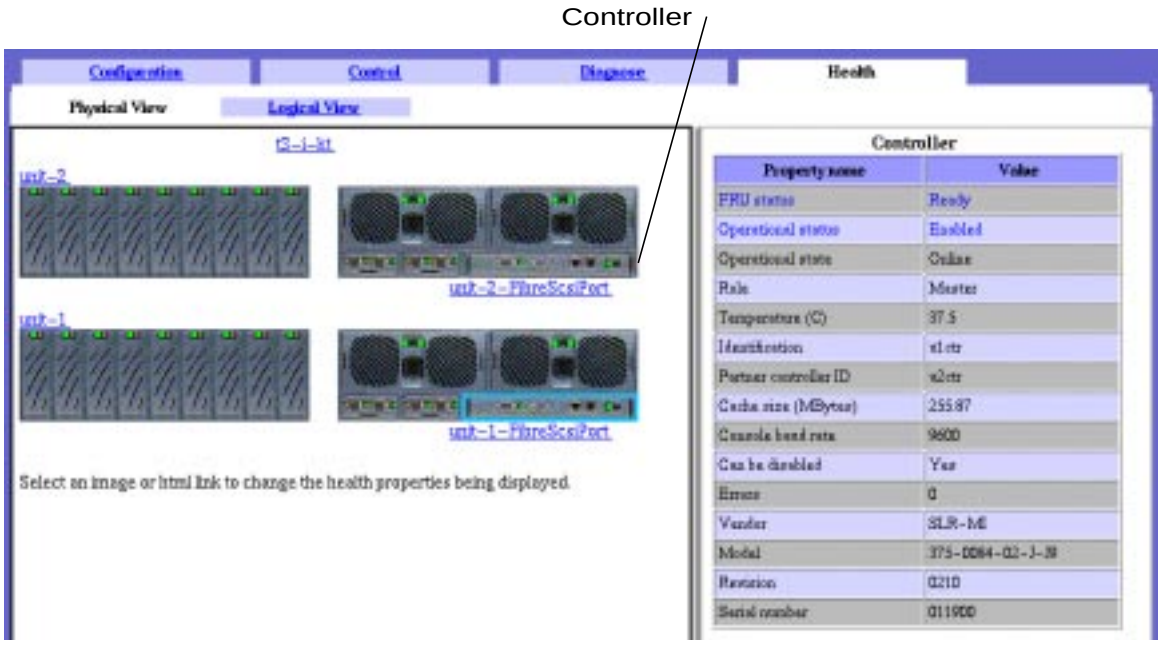


FIGURE 5-9 Health Tab, Sun StorEdge T3 Controller Properties

Controller properties and descriptions are provided in TABLE 5-22.

TABLE 5-22 Sun StorEdge T3 Controller Properties

Property	Description
FRU status	Absent, Fault, Ready, Polling failed, Connection broken, Diagnostics in Progress.
Operational status	Enabled, Disabled, Substituted, Polling failed, Connection broken, Diagnostics in Progress.
Operational state	Expansion unit, Booting, Disabling, Resetting, Reconfiguring, Hot plug, Virtual, Online, Disabled, Reset.
Role	The current operational role of this controller FRU.

TABLE 5-22 Sun StorEdge T3 Controller Properties *(Continued)*

Property	Description
Temperature	The temperature in degrees Celsius.
Identification	The FRU ID string, for example, `u1ctr`.
Partner controller ID	In a dual controller system, the partner controller's FRU ID.
Cache size	The cache size in bytes / 1,000,000.
Console baud rate	Data transfer rate from unit to console.
Can be disabled	A flag indicating whether the controller may be disabled.
Errors	The number of errors for a FRU.
Vendor	The FRU vendor ID string.
Model	The FRU model ID string.
Revision	The FRU revision string.
Serial number	The FRU serial number string.

Controller Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a controller is missing (ALERT)
- When a controller has been disabled (ALERT)
- When an controller role change (master, slave, alternate master) takes place (ALERT)
- When a controller error has been detected (ALERT)
- When connection is lost during an enable / disable operation (CAUTION)

▼ To Display Sun StorEdge T3 Fibre SCSI Port Properties

1. **Display the Sun StorEdge T3 array icon in the Navigation Pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Health tab.**

3. **Select Physical View.**

4. **Select the “Fibre SCSI port” text in the Physical View.**

Fibre SCSI Port properties are displayed, as shown in FIGURE 5-10.

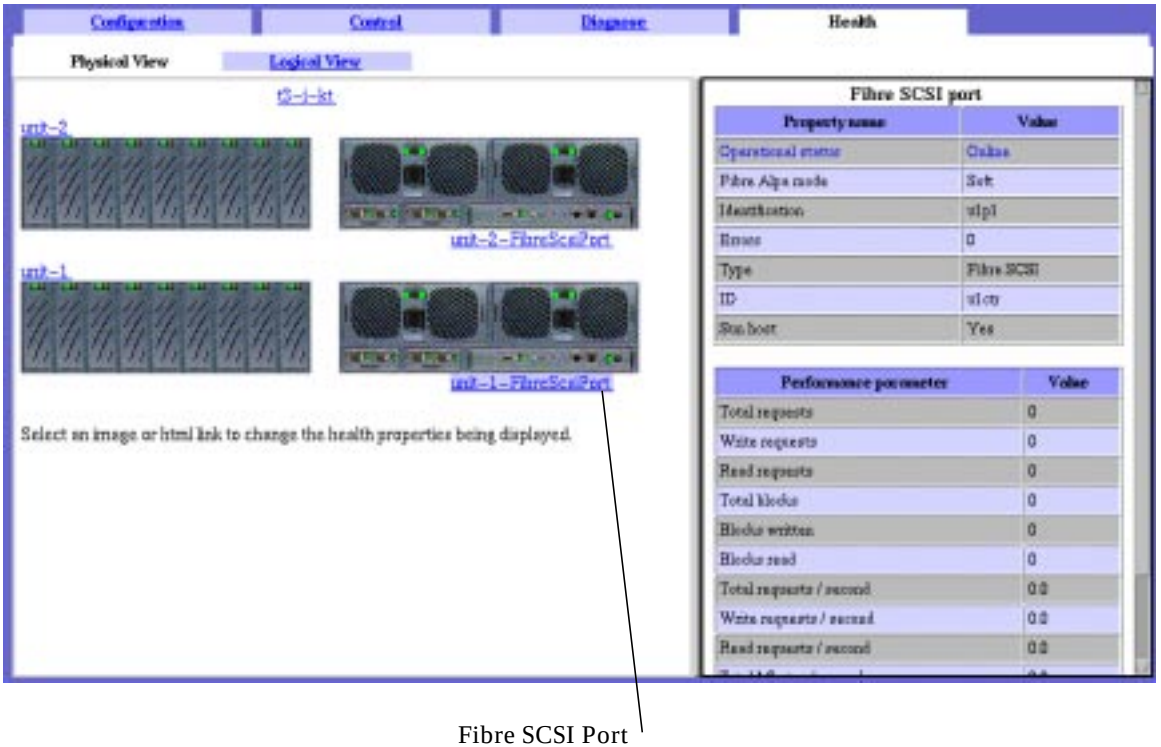


FIGURE 5-10 Health Tab, Sun StorEdge T3 Fibre SCSI Port Properties

Fibre SCSI Port properties and performance parameter descriptions are provided in TABLE 5-23 and TABLE 5-24 respectively.

TABLE 5-23 Sun StorEdge T3 Fibre SCSI Port Properties

Property	Description
Operational status	Online, Disabled, Substituted, Polling failed, Connection broken, Diagnostics in Progress
Fibre Alpa mode	The ALPA mode of the port.
Alpa port	The ALPA of the port when the ALPA mode is hard.
Identification	The port ID string, for example, u1p1.

TABLE 5-23 Sun StorEdge T3 Fibre SCSI Port Properties *(Continued)*

Property	Description
WWN	World wide name.
Errors	The number of errors.
Type	The current port type.
ID	The controller FRU ID string that contains this port.
Sun host	A flag indicating whether this port is connected to a Sun host.

TABLE 5-24 Sun StorEdge T3 Fibre SCSI Performance Parameters

Property	Description
Total requests	The current total number of read / write commands received from all host ports.
Write requests	The current number of write requests received from a host port.
Read requests	The current number of read requests received from a host port.
Total blocks	The current total number of blocks transferred via a host port.
Blocks written	The current number of blocks written (received from) a host port.
Blocks read	‘The current number of blocks read (transmitted to) a host port.
Total requests / second	The number of read / write requests received per second during the sampling period.
Write requests / second	The number of write requests received per second during the sampling period.
Read requests / second	The number of read requests received per second during the sampling period.
Total Mbytes / second	The number of bytes / 1,000,000 transferred per second during the sampling period.
Written Mbytes / second	The number of bytes / 1,000,000 written per second during the sampling period.
Read Mbytes / second	The number of bytes / 1,000,000 read per second during the sampling period.

Fibre SCSI Rules

A system log message will be written and an alarm message will be generated (also triggering a remote support notification) under the following conditions:

- When a port is not available (DOWN)
- When an unknown condition is detected (ALERT)
- When unable to contact the host (CAUTION)
- When connection is lost during a configuration operation (CAUTION)

Monitoring Switches

If you are running Component Manager on Solaris, you can launch switch management software (if installed) from the Health tab. See the SANSurfer Switch Manager software documentation for further information on monitoring switches. This feature is not supported in the Microsoft NT operating environment.

▼ To Launch SANSurfer Switch Manager Software

1. **Double-click (GUI) or click (browser) the SANSurfer icon (see** FIGURE 5-11**).**

   If it is not installed, the application will notify you in the Application Pane.

Note – To install SANSurfer Switch Manager, use the `pkgadd` command with the `SUNWsmgr` package. This package is not part of Component Manager.

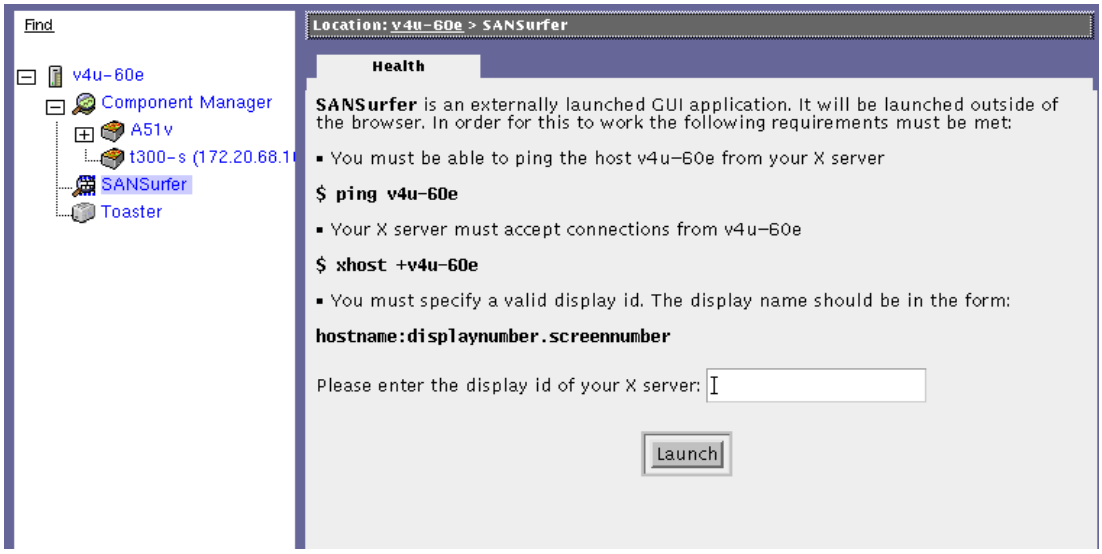


FIGURE 5-11 Health Tab, Switch Software Launch Window

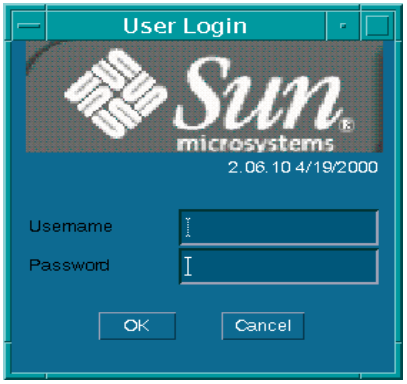
2. **Enter the display ID of your X server.**

3. **Click Launch in the Physical View application Pane.**

   GUI version only: If the SANSurfer Switch Manager software is already running when you click the Launch button a second time, you will be prompted as to whether you want to terminate your first SANSurfer Switch Manager session.

4. **Login to SANSurfer Switch Manager.**

   a. **Enter your user name and password.**



   b. **Click OK.**

Monitoring the RAID HBA Controller

In the Solaris operating environment, you can launch Sun Storage Manager software (if installed) from the Health tab to monitor RAID HBA controllers. This feature is not supported in the Microsoft NT operating environment.

▼ To Launch Sun Storage Software

1. **Double-click (GUI) or click (browser) the RAID HBA icon (see** FIGURE 5-12**).**

   If it is not installed, the application will notify you in the Application Pane.

FIGURE 5-12 Health Tab, RAID HBA Controller Launch Window

2. **Enter the display ID of your X server.**

3. **Click Launch in the Physical View application Pane.**

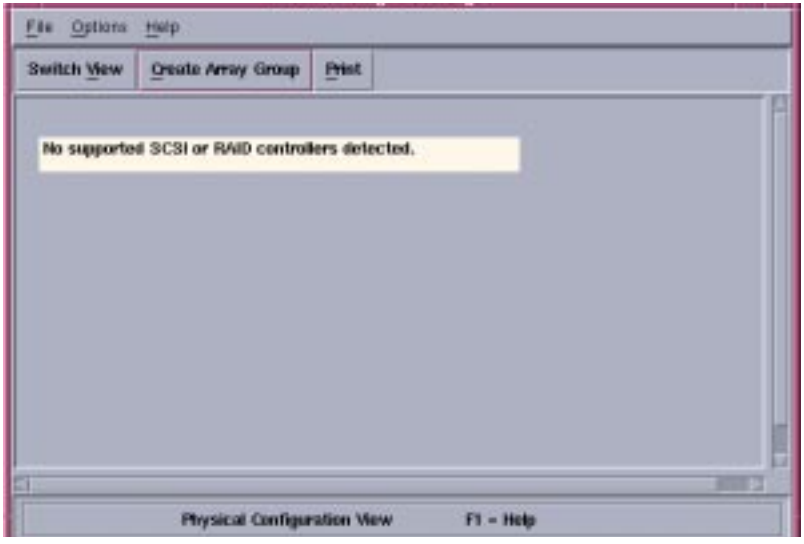


FIGURE 5-13 Sun Storage Manager Software

CHAPTER 6

Controlling With Component Manager

You control the status of selected hardware components with the Control tab. This chapter contains the following subsections:

Controlling the Sun StorEdge A5*x*00 Enclosure

This section discusses using the Control tab with the Sun StorEdge A5*x*00 Enclosure.

▼ To Control Disks

1. **Display the disk icons in the navigation pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure icon to view individual subcomponent icons.**

   c. **Double-click (GUI) or click (browser) the Disks icon to view individual disk icons.**

2. **Select a disk by clicking it.**

3. **Select the Control tab (see** FIGURE 6-1**).**

4. **Select the appropriate button at the bottom of the window.**

TABLE 6-1 Sun StorEdge A5*x*00 Disk Control Window

Button	Function
Power Up	Sets the drive to its normal start-up state.
Power Down	Sets the disk to the drive off/unmated state. In this state, the disk is stopped and in bypass (power-save) mode. Power down a disk only when performing diagnostics or when you need to actually replace the disk.
Blink LED	Requests that the drive cause the LED associated with the disk to blink.
Stop Blink LED	Requests that the drive disable (turn off) the LED associated with the disk.
Bypass Port A	Bypasses port A of the disk.
Bypass Port B	Bypasses port B of the disk.
Enable Port A	Enables port B of the disk.
Enable Port B	Enables port B of the disk.

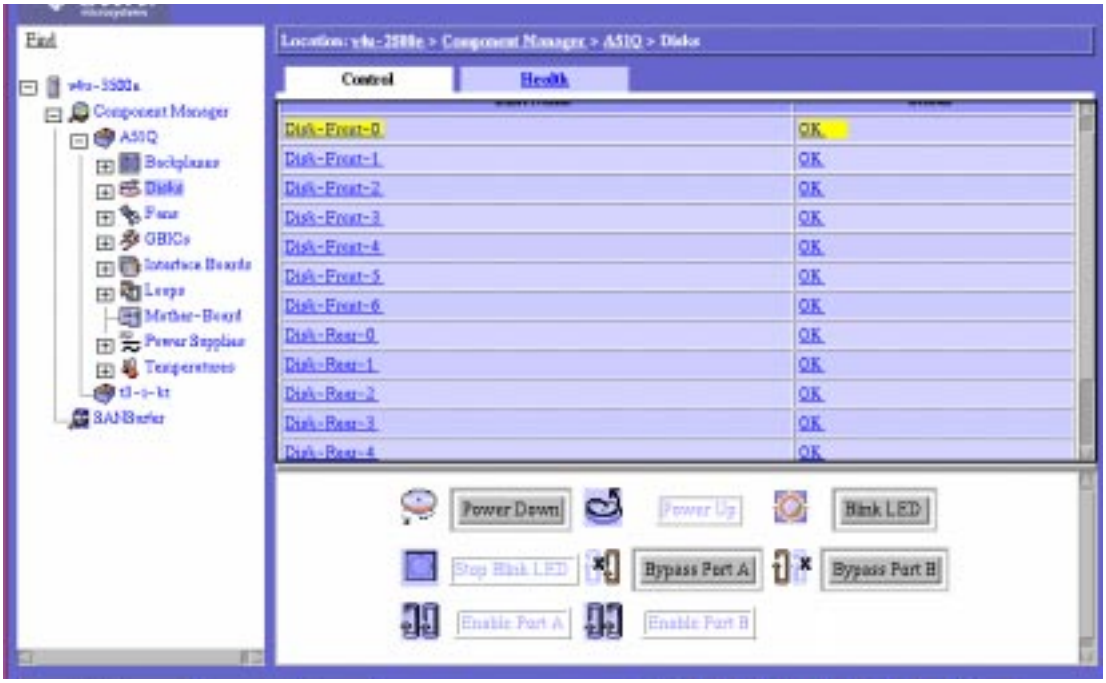


FIGURE 6-1 Sun StorEdge A5*x*00 Disk Control Window

▼ To Control Backplanes

1. **Display the backplane icons in the navigation pane.**

   a. **If the Sun StorEdge A5x00 enclosure name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.**

   b. **Double-click (GUI) or click (browser) the enclosure icon to view individual subcomponent icons.**

   c. **Double-click (GUI) or click (browser) the Backplanes icon to view individual backplane icons.**

2. **Select a backplane by clicking it.**

3. **Select the Control tab (see** FIGURE 6-2**).**

   Select the appropriate button at the bottom of the window to do one of the following:

   - Bypass Port A – Bypasses port A of the backplane.
   - Bypass Port B – Bypasses port B of the backplane.
   - Enable Port A – Enables port A of the backplane.
   - Enable Port B – Enables port B of the backplane.

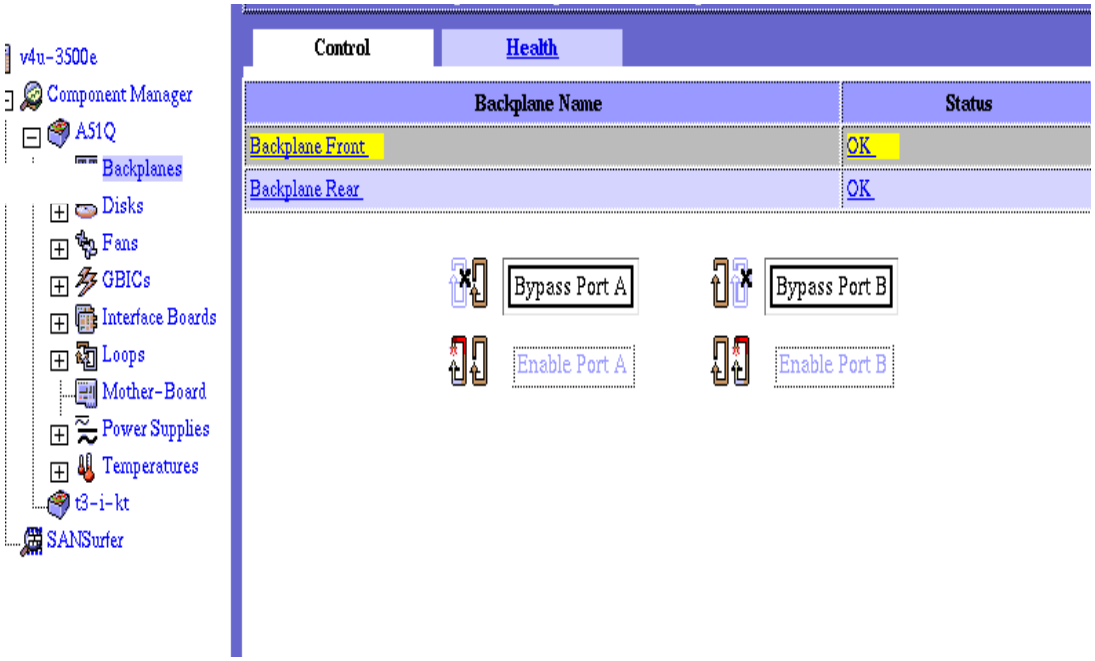


FIGURE 6-2 Sun StorEdge A5*x*00 Backplane Control Window

Controlling the Sun StorEdge T3 Array

This section discusses using the Control tab with the Sun StorEdge T3 array.

▼ To Control the Sun StorEdge T3 Controller

If the system consists of two or more units, you can enable or disable a controller. You cannot, however, disable a controller on a singe-unit system.

1. **Display the Sun StorEdge T3 Array icon in the navigation pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Control tab.**

3. **Select the controller in the Physical Pane (see** FIGURE 6-3**).**

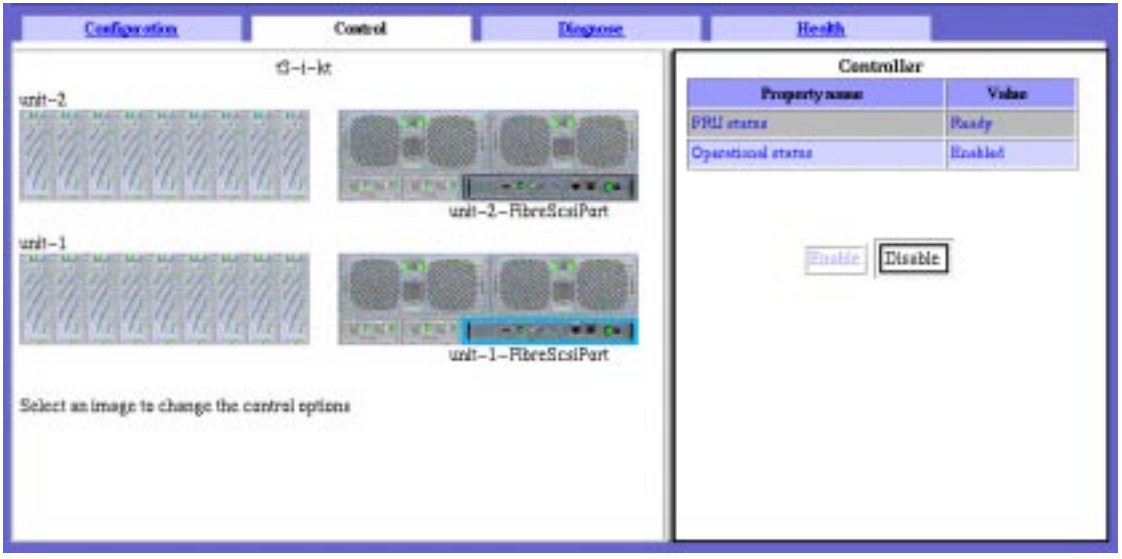


FIGURE 6-3 Sun StorEdge T3 Controller Window

4. **Select the attribute or its value**

5. Select the appropriate button at the bottom of the window.

If the controller belongs to a “single controller unit system” then both enable and disable operations are disallowed. If there are two controllers in the system, see TABLE 6-2 for valid operations.

TABLE 6-2 Valid Controller Operations

Controller State		Valid Operation	
Controller 1	**Controller 2**	**Controller 1**	**Controller 2**
Enable	Enable	Disable (if Controller #2 is enabled)	Disable (if Controller 1 is enabled)
Enabled	Disabled	(None)	Enable
Disabled	Enabled	Enable	(None)

Note – Component Manager will display a dialog box if you attempt an invalid controller operation.

CHAPTER 7

Diagnosing With Component Manager

You can run diagnostic tests on the Sun StorEdge T3 array with the Diagnose tab. This chapter discusses the following topics:

Note – When you are performing offline diagnostic tests (that is, health and interconnect tests), no other control, configuration or LUN operations are allowed. Also, if a controller unit is defective, no offline diagnostic operation is allowed.

Testing a Sun StorEdge T3 Array

Sun StorEdge Component Manager supports three kinds of offline diagnostic tests: general HealthCheck, interconnect card and cable connectivity, and LUN verification. This section contains procedures for all three tests.

▼ To Test Sun StorEdge T3 Disk Array Health

The HealthCheck is a system level test that runs FastTest (see “To Test Sun StorEdge T3 Interconnect (Loop) Cards and Cables” on page 118) on all controllers and their associated backend loops (interconnect cables and cards):

1. **Display the Sun StorEdge T3 Array icon in the navigation pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Diagnose tab.**

3. **Select Physical View tab.**

4. **Select the system name text in the physical view (see** FIGURE 7-1**).**

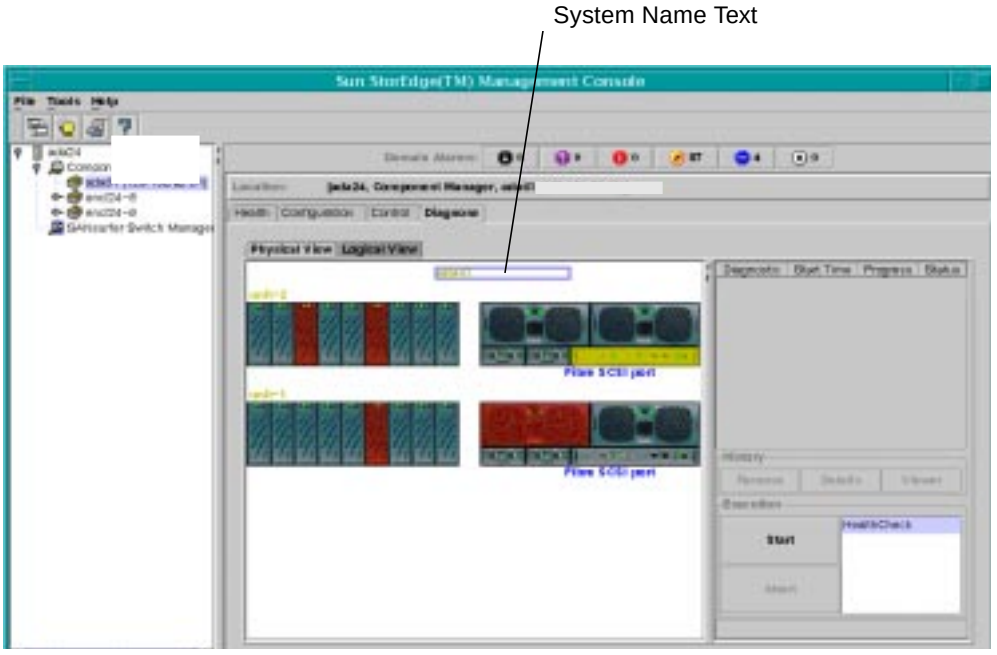


FIGURE 7-1 Diagnose Tab, Sun StorEdge T3 Health Check Window

5. **Click Start.**

6. **Enter the root password for the Sun StorEdge T3 array.**

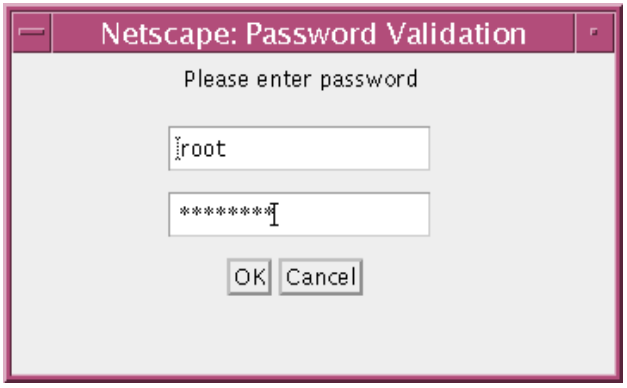


FIGURE 7-2 Sun StorEdge T3 Array Root Password Validation Dialog Box

7. **Click OK at the Offline Confirmation dialog box.**

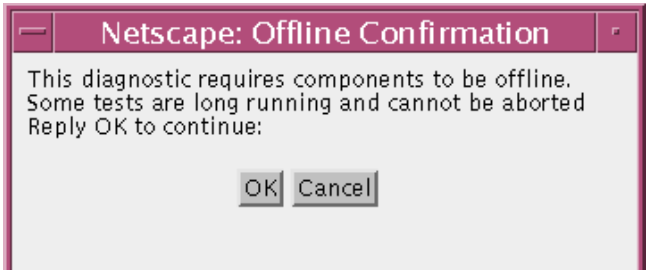


FIGURE 7-3 Offline Confirmation Dialog Box

You can monitor the status of the test in the status bar as shown in FIGURE 7-4. The status bar displays activity while a subsystem is selected.

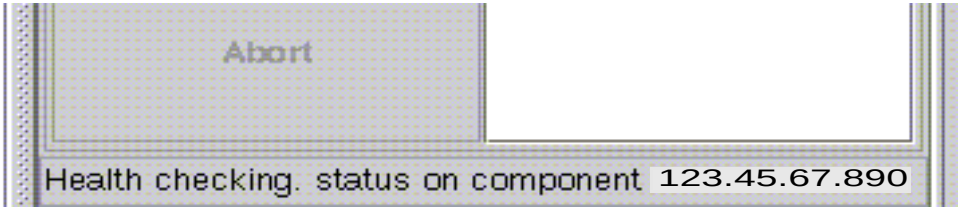


FIGURE 7-4 Status Bar (GUI version)

8. **View diagnostic progress, details or history.**

See “Viewing Diagnostic Results” on page 124.

▼ To Test Sun StorEdge T3 Interconnect (Loop) Cards and Cables

1. **Display the Sun StorEdge T3 Array icon in the navigation pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Diagnose tab.**

3. **Select Physical View tab.**

4. **Select the interconnect (loop) FRU in the physical view.**

   See the interconnect FRU highlighted in FIGURE 7-5.

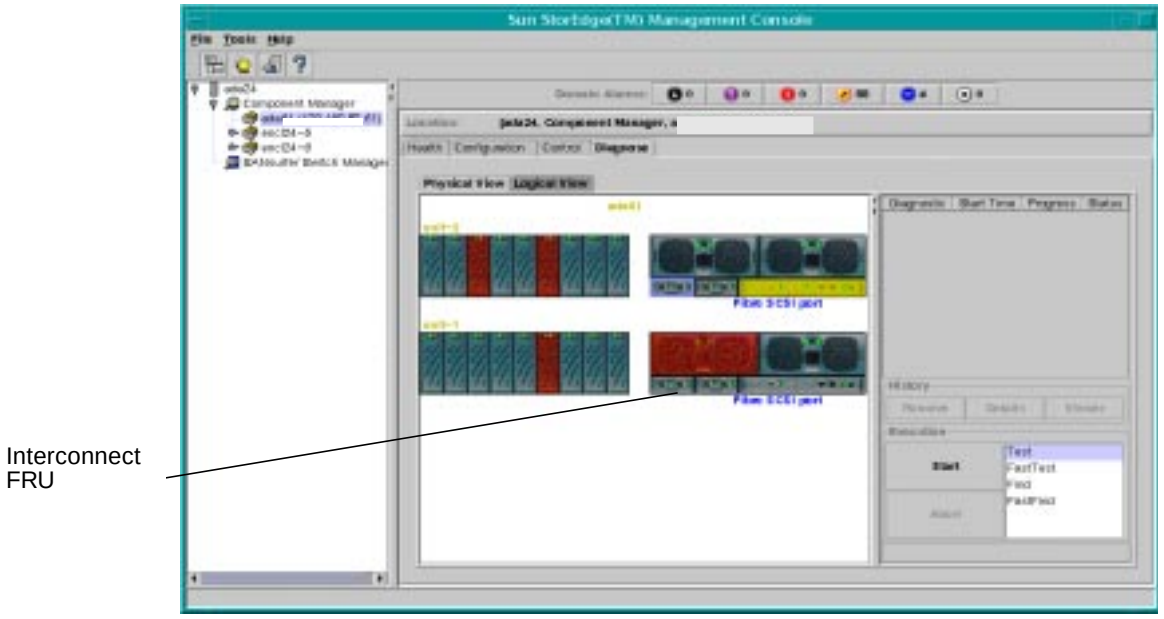


FIGURE 7-5 Sun StorEdge T3 Interconnect (Loop) Test Window

5. **Click the desired text in the Execution box list.**

   Disk properties and descriptions are provided in TABLE 7-1.

TABLE 7-1 Sun StorEdge T3 Interconnect (Loop) Tests

Property	Description
Test	This test provides a go / no-go interconnect (loop) test.
FastTest	This test provides a go / no-go loop test without changing the loop DUT configuration.
Find	This test provides a go / no-go loop test. If the loop test fails then additional diagnostics are invoked to find the faulty FRU.
FastFind	This test should be performed on failed loops or data paths after a system HealthCheck (see "Testing a Sun StorEdge T3 Array" on page 115).

6. **Click Start.**

7. **Enter the root password for the Sun StorEdge T3 array.**

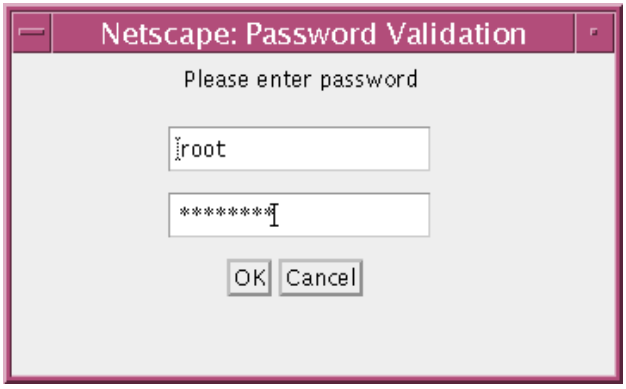


FIGURE 7-6 Sun StorEdge T3 Array Root Password Validation Dialog Box

8. **Click OK at the Offline Confirmation dialog box.**

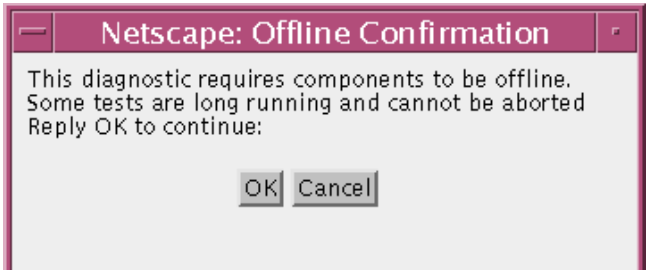


FIGURE 7-7 Offline Confirmation Dialog Box

Note – You can abort these tests by clicking Abort.

---

9. **View diagnostic progress, details or history.**

   See "Viewing Diagnostic Results" on page 124.

▼ To Test Sun StorEdge T3 Disk Array LUNs

To test a LUN, you must first make sure that the LUN is unmounted. (See "To Unmount a LUN" on page 58 for more information.)

1. **Display the Sun StorEdge T3 Array icon in the navigation pane.**

   If the Sun StorEdge T3 array name is not displayed in the Navigation Pane, double-click (GUI) or click (browser) on Component Manager in the Navigation Pane.

2. **Select the Diagnose tab.**

3. **Select Logical View tab.**

4. **Select a LUN in the Existing LUNs list (see in** FIGURE 7-8**).**

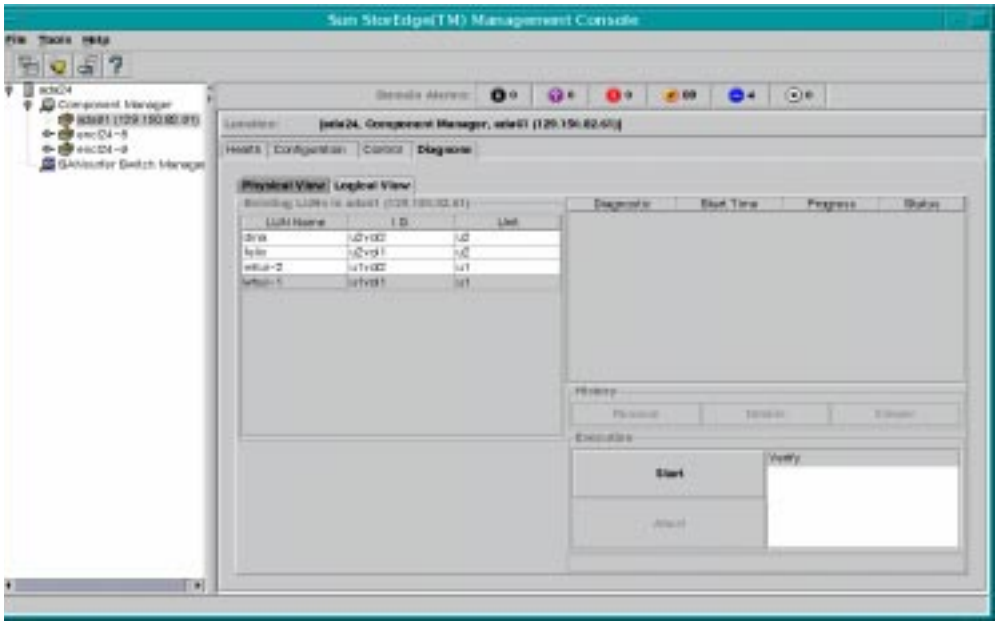


FIGURE 7-8 Diagnose Tab, Sun StorEdge T3 LUN Test Window

5. **Click Start.**

6. **Enter the root password for the Sun StorEdge T3 array.**

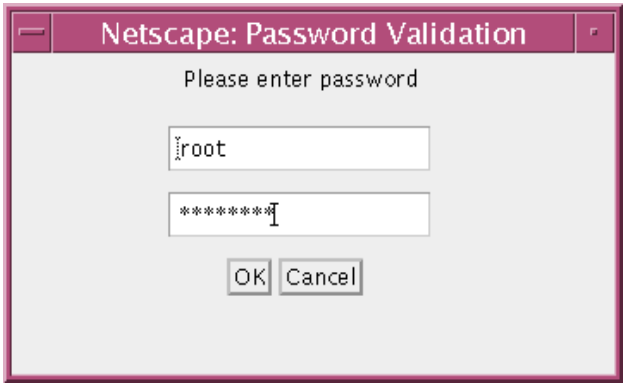


FIGURE 7-9 Sun StorEdge T3 Array Root Password Validation Dialog Box

7. **Click OK at the Offline Confirmation dialog box.**

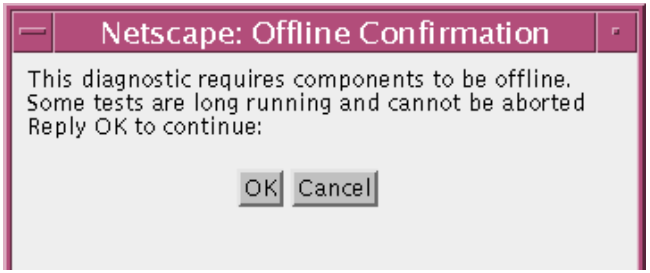


FIGURE 7-10 Offline Confirmation Dialog Box

8. **Select LUN Verification options and click OK.**

9. **View diagnostic progress, details, or history (see “Viewing Diagnostic Results” on page 124).**

▼ To Abort a Diagnostic Test

1. **Select the name of the test running in the Available Test box.**

2. **Click Abort.**

FIGURE 7-11 Diagnostic Test Abort Button

3. **Enter the root password for the Sun StorEdge T3 array.**

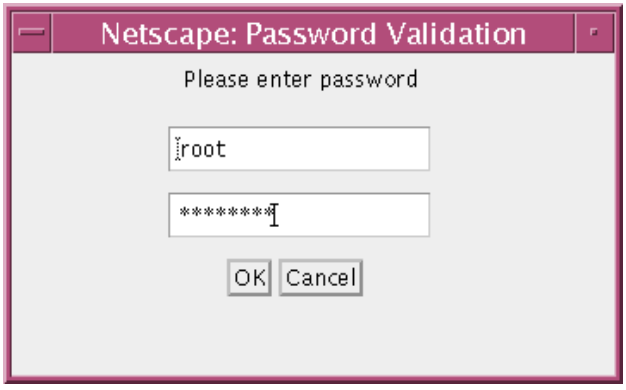


FIGURE 7-12 Sun StorEdge T3 Array Root Password Validation Dialog Box

Viewing Diagnostic Results

This section contains the following topics:

Physical View Diagnostic Table

You can view the diagnostic test progress in the table in the Physical View as shown in FIGURE 7-13.

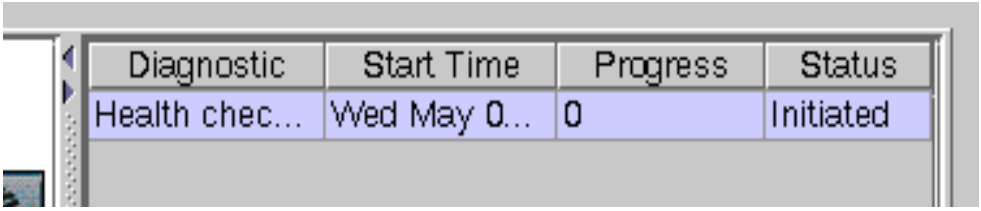


FIGURE 7-13 Diagnostic Table

See TABLE 7-2 for column definitions.

TABLE 7-2 Physical View Diagnostic Table

Pane Column	Definition
Diagnostic	The test performed.
Start Time	The date and time of when the diagnostic test began.
Progress	The percentage of completion.
Status	The status of the diagnostic test (active, completed, and so forth.).

▼ To Remove Diagnostic Table Entries

1. **Select the desired diagnostic test in the physical view table.**
2. **Click the Remove button in the History Pane.**

   If you selected an active diagnostic entry, a confirmation box will be displayed as shown in FIGURE 7-14.

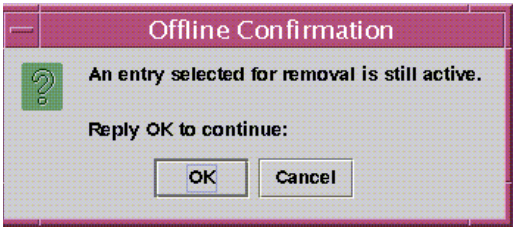


FIGURE 7-14 Active Entry Removal Confirmation Dialog Box

▼ To Display Test History Details

1. **Select the desired diagnostic test in the Physical View table.**
2. **Click the Detail button in the History Pane.**

   The History Detail pop-up is shown in FIGURE 7-15.

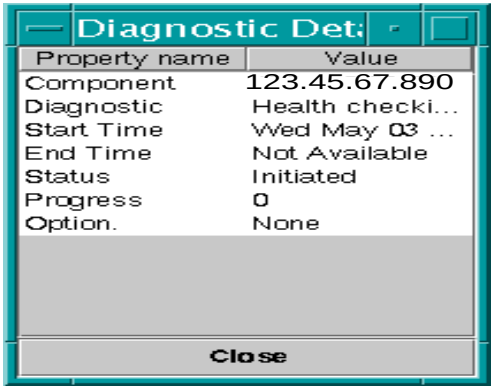


FIGURE 7-15 Diagnostic Detail Window

An explanation of the contents is summarized in TABLE 7-3.

TABLE 7-3 History Details

Property	Description
Component	The IP address of the subsystem.
Diagnostic	The diagnostic test performed.
Start Time	The date and time when the diagnostic test began.
End Time	The date and time when the diagnostic test ended.
Status	The status of the diagnostic test ended.
Progress	The percentage of completion.
Option	The options selected for the diagnostic test.
Hint	Additional diagnostic information.

▼ To Display the Syslog Message Viewer

1. **Select the desired diagnostic test in the physical view table.**
2. **Click the Viewer button in the History Pane.**

   The Viewer is shown in FIGURE 7-16.

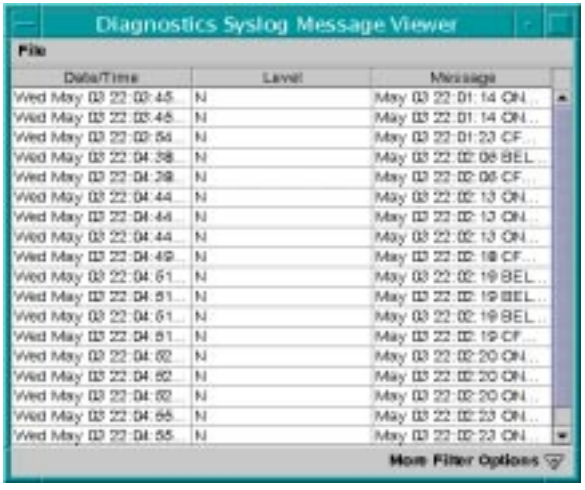


FIGURE 7-16 Syslog Message Viewer With Fewer Filtering Options

An explanation of the contents is summarized in TABLE 7-4.

TABLE 7-4 Syslog Message Viewer Column Definitions

Pane Column	Definition
Date/Time	The date and time when the diagnostic test was performed.
Level	The level of the diagnostic test.
Message	Syslog message.

▼ To Filter Syslog Message Viewer Entries

1. **Click the More FIlter Options triangle in the lower-right corner of the Syslog Message Viewer window to view filtering options.**

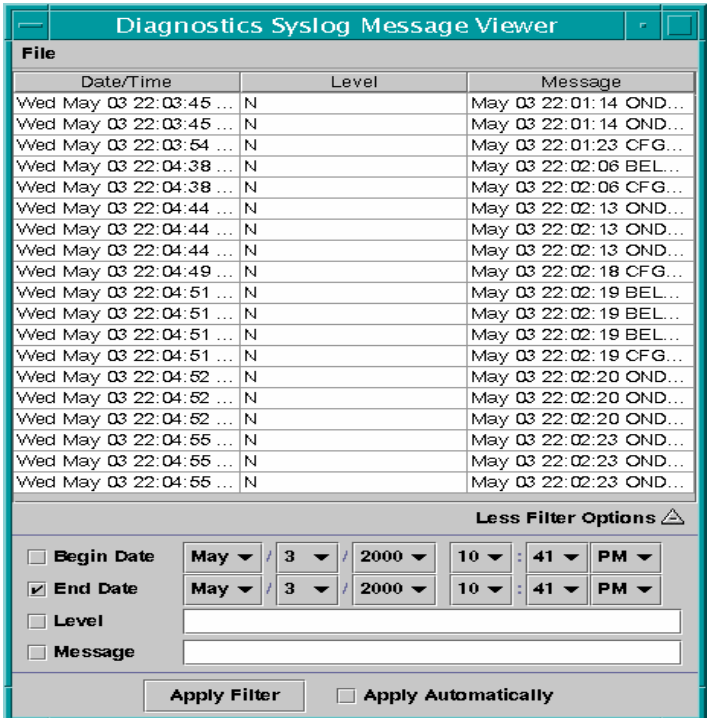


FIGURE 7-17 Syslog Message Viewer with More Filtering Options

2. **Enter filter criteria.**

   a. **Check the box of the filter option.**

   b. **Use the pull-down menus if you are setting dates.**

   c. **Enter matching search text for Level and Message.**

3. **Select the Apply Filter button or the Apply Automatically checkbox.**

   Selecting the Apply Automatically checkbox will execute the filter criteria when any of the date menu items are changed.

▼ To Display Individual Syslog Entries

- **Double-click a syslog message in the viewer to display a pop-up box.**

CHAPTER 8

Troubleshooting

This chapter addresses scenarios in which troubleshooting might be necessary. The troubleshooting issues are described within the following categories:

- "Error Messages" on page 130
- "Common Problems" on page 132

Many of the problems listed in the above two sections can be remedied by starting and stopping the Component Manager Daemons. The above two sections may direct you how to stop and start the daemons.

- "Stopping and Starting the Component Manager Daemons" on page 135

Error Messages

You may encounter the following error message when using Sun StorEdge Component Manager.

Download Correct HTML Files

Description

If you are using old or incompatible HTML files for the Sun StorEdge T3 array, you will receive an alert alarm message and an email message as follows:

```
Download the correct version of HTML files.  Refer to
Troubleshooting in online help for more details.
```

This message will be generated each time that Component Manager attempts to discover the Sun StorEdge T3 or that the Component Manager daemons are stopped and started.

User Action

To correct this problem, install the correct HTML files for the firmware. This is documented in the README file of the Sun StorEdge T3 array firmware patch.

Use the Advanced Search link on the following web site for the latest Sun StorEdge A5*x*00 or Sun StorEdge T3 firmware:

`http://sunsolve.sun.com`

Station Connection

Description

If he management class station cannot establish a connection to the managed object station, you might receive the following error message:

```
# ./esm_mcboot -v start
MCBoot: INFO: starting realm "StoreX" on station "MCStation"
MCBoot: INFO: realm "StoreX" on station "MCStation" - started
MCBoot: INFO: connecting station "MCStation" to remote stations on realm
"StoreX"
MCBoot: INFO: building InetStationAddress for all hosts
MCBoot: INFO: building InetStationAddress for host "localhost"
```

User Action

Caution – When the system is rebooted it is important to note that all alarms that have not been addressed (that is, deleted by means of the alarm viewer prior to reboot) will be reissued. The email notification of these alarm events will also be regenerated.

- See “Stopping and Starting the Component Manager Daemons” on page 135

Common Problems

The following common problems are known to exist for this version of Component Manager:

Remote Reporting

After you enable remote reporting under the Configuration tab, alarm messages are not being sent to designated email addresses and are not logged to designated log files.

User Action

Be sure to press Return and then click Apply after entering or editing email addresses or log file locations. This will enable your updates to be retained and take effect.

Too Many Email Messages or Alarms

Excessive alarm messages are being sent to the Log Viewer and Alarm Viewer.

User Action

- Regularly handle and delete alarms.
- Do not configure CAUTION alarms for notification.
- Be certain to handle alarms before rebooting; otherwise they will be reissued.

Powering Off Disks

The administrator is uncertain when it is okay to power off a disk.

User Action

Power off a disk only when performing diagnostics or when you need to replace the disk.

Before powering off a disk, make sure that the disk is not mounted by any file system and that it is not being used by any application (for example, volume manager software, Solstice DiskSuite™ software, a database server, and so on).

Full Disk in Log Directory

The disk space in the log directory is full.

User Action

1. **Move the following files in** `/var/opt/SUNWesm/mc/log` **to another directory:**
   - `Logging.log.`*x*
   - `Trace.log.`*x*

   The *x* file extension will be a number.
2. **See "Stopping and Starting the Component Manager Daemons" on page 135**

Sun StorEdge Management Console Does Not Launch

When you attempt to start the Sun StorEdge Management Console, only the following message appears:

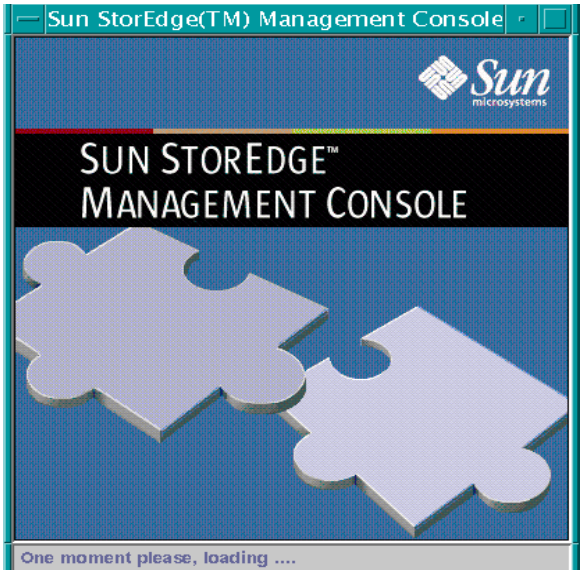
```
Console: ERROR: no MCStation found on realm StoreX on host(s) specified: "localhost"
```

User Action

- See "Stopping and Starting the Component Manager Daemons" on page 135

Splash Screen Appears Followed by a Dialogue Box

The initial GUI spash screen appears.



After about two or three minutes a dialog box appears informing the user that there is no MC station running.

User Action

- **See “Stopping and Starting the Component Manager Daemons” on page 135**

Panel in Browser Version Fails to Load

One of the subpanes in the browser does not load or is not refreshed.

User Action

1. **Open a menu from anywhere in the pane by clicking your secondary mouse button.**
2. **Select Reload Frame.**

Stopping and Starting the Component Manager Daemons

This section contains the following topics:

▼ To Stop and Start the Component Manager Daemons in the Solaris Operating Environment

1. **Stop any currently running management class and managed object stations:**

```
# /usr/opt/SUNWesm/sbin/esm_orderly stop
# /usr/opt/SUNWesm/sbin/esm_orderly start
```

2. **If the Sun StorEdge Management Console is already running, exit it.**
3. **Restart the Sun StorEdge Management Console.:**

```
# /usr/opt/SUNWesm/bin/esm_gui &
```

▼ To Stop and Start the Component Manager Daemons in the Microsoft NT Operating Environment

1. **Stop the Component Manager daemon.**

   a. **Open the Control Panel.**

   b. **Double-click Services.**

   c. **Select “ESMService” in the list.**

   d. **Click Stop.**

2. **Start the Component Manager daemon:**

   a. **Select “ESMService” in the list.**

   b. **Click Start.**

3. **Start Component Manager by opening the menu: Start->Programs->StorEdge->Start Management Console.**

Glossary

A

administrative domain Partner groups (interconnected controller units) that share common administration through a master controller.

alternate master unit The secondary disk array unit in a partner group that provides fail-over capability from the master unit.

alternate pathing (AP) A mechanism that reroutes data to the other disk array controller in a partner group upon failure in the host data path. Alternate pathing requires special software to perform this function.

auto cache mode The default cache mode for the Sun StorEdge T3 disk array. In a fully redundant configuration, cache is set to write-behind mode. In a non-redundant configuration, cache is set to write-through. Read caching is always performed.

B

buffering Data that is being transferred between the host and the drives.

C

command-line interface (CLI) The interface between the Sun StorEdge T3 disk array's pSOS operating system and the user, in which the user types commands to administer the disk array.

controller unit (CU) A Sun StorEdge T3 disk array, which includes a controller card. The controller card has the FC-AL host interfaces.

E

erasable programmable read-only memory (EPROM) Memory stored on the controller card; useful for stable storage for long periods without electricity while still allowing reprogramming.

expansion unit (EU) A Sun StorEdge T3 disk array without a controller card.

F

Fibre Channel Arbitrated Loop (FC-AL) A 100 MB/s serial channel, which allows the connection of multiple devices (disk drives and controllers).

field replaceable unit (FRU) The FRU is a component that is easily removed and replaced by a client service engineer (CSE), by design.

G

gigabit interface converter (GBIC) An adapter used on an SBus card to convert a fiber-optic signal to copper.

gigabyte (GB or Gbyte) One gigabyte is equal to one billion bytes (1 x 109).

graphical user interface (GUI) A software interface that enables configuration and administration of the Sun StorEdge T3 disk array and Sun StorEdge A5*x*00 enclosures through the use of a graphic application.

H

hardware polling The time interval to poll and monitor a subsystem.

hot-plug The capability of a field replaceable unit (FRU) to be removed and replaced while the system remains powered on and operational.

hot-swap To remove and replace a field-replaceable unit (FRU) while the system remains powered on and operational.

I

Input/Output Operations Per Second (IOPS) A performance measurement of the transaction rate.

interconnect cable An FC-AL cable with a unique switched-loop architecture that is used to interconnect multiple Sun StorEdge T3 disk arrays.

interconnect card A disk array component that contains the interface circuitry and two connectors for interconnecting multiple Sun StorEdge T3 disk array units.

L

light-emitting diode (LED) A device that converts electrical energy into light that is used to display activity.

logical unit number (LUN) One or more drives that can be grouped into a unit; also called a volume.

M

managed class station A managed class daemon.

managed object station A managed object daemon.

master unit The main controller unit in a partner-group configuration.

media access control (MAC) address A unique address that identifies a storage location or a device.

megabyte (MByte) One million bytes (1×10^6).

megabytes per second (MByte/s) A performance measurement of the sustained data transfer rate.

P

parity Additional information stored with data on a disk that enables the controller to rebuild data after a drive failure.

partner group A pair of interconnected controller units. Expansion units interconnected to the pair of controller units can also be part of the partner group.

power/cooling unit A component (FRU) in the Sun StorEdge T3 disk array. It contains a power supply, cooling fans, and an integrated UPS battery. There are two power/cooling units in a Sun StorEdge T3 disk array.

R

read caching Data for future retrieval, to reduce disk I/O as much as possible.

redundant array of independent disks (RAID) A configuration in which multiple drives are combined into a single virtual drive, to improve performance and reliability.

reliability, availability, serviceability (RAS) A term to describe product features that have high availability and reliability and easily serviced components.

remote reporting Remote reporting enables you to designate recipients for the levels of alarms according to severity.

S

Simple Network Management Protocol (SNMP) A network management protocol designed to give a user the capability to remotely manage a computer network.

synchronous dynamic random access memory (SDRAM) A form of dynamic random access memory (DRAM) that can run at higher clock speeds than conventional DRAM.

system area Located on the disk drive label, the space that contains configuration data, boot firmware, and file-system information.

U

un-interruptible power supply (UPS) A component within the power/cooling unit. It supplies power from a battery in the case of an AC power failure.

V

volume One or more drives that can be grouped into a unit for data storage. Also called a LUN.

W

world wide number (WWN) A number used to identify disk array volumes in both the disk array system and Solaris environment.

write caching Data used to build up stripes of data, eliminating the read-modify-write overhead. Write caching improves performance for applications that are writing to a disk.

APPENDIX **A**

Diagnostic Error Messages

This appendix contains a list of the error messages associated with the Sun StorEdge T3 disk tray:

Verify Messages

The messages in this subsection are for volume/LUN verification and for general LUN events that could occur during its execution.

Warning Messages

The following are the warning messages in the verify messages.

control-unit `recon failed in vol(`*number*`)`

A reconfiguration attempt failed. Look for additional messages that might indicate the cause of the failure.

control-unit hard err in vol(*number*) starting auto disable

A hard error was detected on a volume, and an auto disable has been issued. The resulting volume state will be unmounted.

control-unit could not enable lun *number*

The *control-unit* could not enable the specified LUN. It is possible that the LUN is inaccessible or that some other task has it reserved.

SCSI Disk Error Occurred (path = *number*, port = *number* lun = *number*)

A SCSI disk error occurred on the specified path (interconnect), port, and LUN.

Notices

The following are the notices from the verify messages.

control-unit Unmount of vol(*number*) failed due to bg task

A background task was found running when an unmount was attempted. The unmount was rejected. Confirm through HealthCheck what task was running and when none is running, reissue the command.

control-unit `config change to vol(`*number*`) failed due to bg task`

A background task was found running when a configuration change was attempted. The configuration change was rejected. Confirm through Health what task is running, and when none are running, reissue the command.

control-unit `User should remove this volume and reconfigure`

A failure occurred in a volume. The user is being notified that the volume needs to be removed and reconfigured.

control-unit `verify failed in vol(`*number*`)`

A verify attempt failed. Look for additional messages that might indicate the cause of the failure. This message might be generated by an abort or failure to repair a stripe.

control-unit `Verify volume fails on u1d`*n*`, error code=`*number*

A verify command found a bad disk. In this case the code specifies information important to the field personnel when resolving this problem.

control-unit `unsupported opcode number lun` *number*

The unsupported opcode implies an interface problem or an application that has issued improper opcode.

control-unit `could not close lun=`*number*

The *control-unit* could not close the specified LUN. It is possible that the LUN is inaccessible or that some other task has it reserved.

control-unit `Takeover failed getting LUN data base err=`*number*

The *control-unit* takeover failed to obtain the format information for the LUN.

control-unit `could not disable mirroring on lun` *number*

The *control-unit* could not disable the specified LUN. It is possible that the LUN is inaccessible or that some other task has it reserved.

control-unit `All mirroring turned off due to lun scan failure`

All mirroring has been turned off because a scan of the LUNs failed.

control-unit `could not enable mirroring on lun` *number*

The *control-unit* could not enable mirroring on the specified LUN. It is possible that the LUN is inaccessible or un-formatted or that some other task has it reserved.

control-unit `Open failure - svd_init_lun failed`

A *control-unit* could not open a LUN for initialization.

control-unit `Open failure - svd_init_lun failed (lid =` *number*`)`

A *control-unit* could not open a LUN for initialization. The LUN id is given.

control-unit `Error - Unit Not Ready (path=`*number*`, port=`*number*`,\ lun=` *number*`)`

A unit containing the identified LUN is not ready.

control-unit `multiple read failure on verify scb =` *number*

A verify command detected a multiple read failure on the specified stripe control block (scb).

control-unit `read disk failure on verify scb =` *number*

A verify command detected a read disk failure on the specified stripe control block.

control-unit `multiple read failure on verify scb =` *number*

A verify command detected a multiple read failure on the specified stripe control block.

control-unit `Disk error on block` *number* `during verify`

A disk error occurred on the specified block during a verify command.

control-unit Disk error on stripe *number* during verify

A disk error occurred on the specified stripe during a verify command.

control-unit Disk error on block *number* during verify fix

A disk error occurred on the specified block during a verify fix.

control-unit Disk error on stripe *number* during verify fix

A disk error occurred on the specified stripe during a verify fix.

control-unit Disk error on block *number* during verify write

A disk error occurred on the specified block during a verify write command.

control-unit Disk error on strip *number* during verify write

A disk error occurred on the specified stripe during a verify write command.

Informational Messages

The following are the informational messages in the verify messages.

control-unit attempt to change mounted volume *name*

A volume was mounted when a rename of the volume was attempted. Unmount the volume before renaming it.

control-unit `attempt to change mounted volume config`

A volume was found mounted when an attempt was made to configure it. Unmount the volume before configuring it.

control-unit `Attempting to fix block` *number* `in vol(`*number*`)`

Verify operation found a bad block in the volume and is attempting to make a repair.

control-unit `Attempting to fix parity on stripe` *number* `in vol(`*number*`)`

Verify operation found a bad stripe in the volume and is attempting to make a repair.

control-unit `Mirror block number is fixed in vol(`*number*`)`

An operation found a bad mirror block in the volume and a repair has been made.

control-unit `Parity on stripe number is fixed in vol(`*number*`)`

An operation found a bad strip in the volume and a repair has been made.

control-unit `lun` *number* `is not enabled`

The logical unit number (LUN) is not presently enabled.

control-unit `disable mirror failed on lun` *number*

A mirror failed on a LUN.

control-unit `LUN` *number* `failover granted`

The LUN is failing over to the mirror.

control-unit `disabled mirroring on lun` *number*

The *control-unit* disabled the mirror on the specified LUN. A possible cause is that a LUN scan failed.

control-unit `enabled mirroring on lun` *number*

The *control-unit* enable mirroring on the specified LUN.

control-unit `fixing data on verify scb =` *number*

A verify command is fixing the associated data on the specified stripe control block.

control-unit `fixing parity on verify scb =` *number*

The verify command is fixing a parity error on the specified stripe control block.

control-unit `Verify failed on block` *number*

A verify command failed on the specified block.

control-unit `Verify failed on stripe` *number*

A verify command failed on the specified stripe.

Offline Diagnostic Messages

The messages in this section are for interconnect / offline diagnostics (OFDG) and for general LUN events that could occur during execution. Due to future considerations for running this test online, the messages were written using the acronym for online diagnostics (ONDG).

Warning Messages

The following are the warning messages in the offline diagnostics messages.

interconnect-element`: Offline` *encid*

The *interconnect-element* is offline.

interconnect-element`: Offline` *pathid*

The *interconnect-element* is offline.

Notices

The following are the notices from the offline diagnostic messages.

interconnect-element: Not ready on loop *number*

The *interconnect-element* cannot process against the specified interconnect.

interconnect-element: Bypassed on loop *number*

The *loop-element* has bypassed processing against the specified interconnect.

interconnect-id ONDG Loop Down Fault

The OFDG interconnect is unavailable.

interconnect-id ONDG No Loop Trouble Found

No errors were encountered during OFDG.

interconnect-id ONDG Loop Trouble Found

Errors were encountered during OFDG.

interconnect-id ONDG_MONITOR Loop Down Fault

The OFDG monitor encountered a interconnect down fault.

interconnect-id `ONDG_MONITOR FC-AL Link Status Fault`

The OFDG monitor encountered an FC-AL link status fault.

interconnect-id `ONDG Test Enclosure Phase - Failed`

The OFDG test function failed during the phase of testing a specific enclosure. Refer to OFDG failed message for information on the proper fix to the problem.

control-unit `ioctl loop manager err=`*slot-number*

The ioctl interconnect manager encountered an I/O control operation error. The error number is given.

controller-id`: Transfers suspended for loop reconfig`

Data transfers have been suspended during interconnect reconfiguration.

controller-id`: Transfers resumed for loop reconfig`

Data transfers have been resumed following interconnect reconfiguration.

control-unit `ioctl disk failed err=`*slot-number*

An I/O control command failed on the specified disk slot number.

interconnect-id ONDG Loop Fault: cannot isolate to FRU

OFDG could not resolve a interconnect fault to any field-replaceable unit. Please refer to field documentation for additional isolation techniques.

diskid ONDG Bad Disk FRU Found on *interconnect-id*

The specified disk should be replaced.

control-unit ONDG LUNSB Compare Error (pattern = *number*)

When running the specified pattern, OFDG found a compare error within the LUN status block (LUNSB).

enclosure-id ISP2100[%x] ONDG LMSB Compare Error (pattern = *number*)

When running the specified pattern, OFDG found a compare error within the loop monitor status block (LMSB).

controller-id: ISP not ready on loop *number*

The task manager (ISP2100) was unavailable for use.

interconnect-id: Loop forced open

An error occurred that caused the interconnect to split.

controller-id `could not disable mirroring on lun` *number*

Some other condition prevented mirroring from being disabled on the specified LUN. For example, a reservation or unavailability could cause such a condition.

controller-id `disabled mirroring on lun` *number*

Mirroring has been disabled on the specified LUN.

controller-id `could not scan bus on B-loop`

A condition prevented the specified controller from accessing the B-interconnect bus.

controller-id `loop 2 path available event received`

The specified control unit received a path available event from the specified interconnect.

controller-id `loop 2 path failed event received`

The specified control unit received a path failed event from the specified interconnect.

controller-id`: Reserved` *path-id* `Loop: A Mask=`*string*`, B Mask=`*string*

The controller reserved the specified path.

Informational Messages

The following are the informational messages in the offline diagnostic messages.

```
Loop number Not Available
```

The specified interconnect is not available for data transfers.

control-unit: Not bypassed on loop *slot-number*

The specified slot was not bypassed.

interconnect-id: Controller off the loop

The controller is off the interconnect.

interconnect-element: Ready on loop *number*

The *interconnect-element* can begin processing against the specified interconnect.

interconnect-id ONDG Bypassing all disk ports

The OFDG test running has disabled all disk ports on the specified *interconnect-id*.

interconnect-id ONDG_MONITOR Loop Monitor Initiated interconnect-id = *cnt-unit-num*

The OFDG monitor was started.

interconnect-id `ONDG_MONITOR Loop Monitor Completed`

The OFDG monitoring completed the interconnect evaluation.

control-unit `ONDG_MONITOR Initiated`

The OFDG monitoring has been initiated.

control-unit `ONDG_MONITOR Completed`

The OFDG monitoring has completed.

interconnect-id `ONDG Loop Mask =` *number*

The OFDG test running is using the specified interconnect mask.

interconnect-id `ONDG Fast Loop Test Initiated`

OFDG initiated a FastTest that tests all ports with patterns.

interconnect-id `ONDG Disk Mask =` *number*

The OFDG test running is using the specified disk mask.

interconnect-id ONDG Bypassing all SIM ports

The OFDG is bypassing all SIM ports.

interconnect-id ONDG lac_reserve() successfully completed

The OFDG test successfully reserved the interconnect.

interconnect-id ONDG Enclosure Mask = *number*

The OFDG is using the specified enclosure mask.

interconnect-id ONDG SIM Mask = *number*

The OFDG is using the specified SIM mask.

interconnect-id ONDG FC-AL Map - Port Count = *number-of-ports*

The *interconnect-id* contains the specified port count.

interconnect-id ONDG FC-AL Map - Port *#number* has ALPA = *physical-address*

The *interconnect-id* contains the physical address for the specified port number.

interconnect-id `ONDG Test Enclosure Phase - Passed`

The OFDG test function passed.

interconnect-id `LMM Setting Loop Mask =` *number*

The interconnect manager is setting the specified mask.

diskid `LIP Count =` *number*

The specified disk accumulated the specified number of interconnect instructions.

diskid `LOOP-UP Count =` *number*

The specified disk accumulated the specified interconnect-up count.

diskid `LOOP-DOWN Count =` *number*

The specified disk accumulated the specified interconnect-down count.

diskid `Path Error Count =` *number*

The specified disk accumulated the specified path error count.

interconnect-id ONDG Loop Test Initiated

The OFDG interconnect test has started.

interconnect-id ONDG Loop Test Completed

The OFDG has completed the interconnect test.

enclosure-id ONDG Mode changed to *ondg-mode-str*

The OFDG mode has been changed. The valid values are `off`, `passive`, and `active`.

interconnect-id ONDG Fast Loop Fault Diag Initiated

The OFDG has initiated the fast interconnect diagnostics.

interconnect-id ONDG Fast Loop Fault Diag Completed

The OFDG has completed the fast interconnect fault diagnostics.

interconnect-id ONDG Bypassing all disk ports

The OFDG is bypassing all disk ports.

interconnect-id ONDG Test Enclosure Phase Initiated

The OFDG initiated the test enclosure phase.

interconnect-id ONDG Test Enclosure Phase Completed

The OFDG completed the test enclosure phase on the specified interconnect.

interconnect-id ONDG Enclosure Drill Down Phase Initiated

The OFDG initiated the enclosure drill-down phase on the specified interconnect.

interconnect-id ONDG *interconnect-id* Enclosure Drill Down Phase Completed

The OFDG completed the enclosure drill-down phase on the specified interconnect.

interconnect-id ONDG Drill Down Phase Initiated

The OFDG initiated the drill-down phase on the specified interconnect.

interconnect-id ONDG Drill Down Phase Completed

The OFDG completed the drill-down phase on the specified interconnect.

interconnect-id ONDG Disk Drill Down type 1 Initiated

The OFDG find test initiated a drill-down type 1 on the specified interconnect. The type represents one of the patterns of composing clusters of disks and retesting to find problems.

interconnect-id ONDG Disk Drill Down Type 1 Completed

The OFDG find test completed a drill-down type 1 on the specified interconnect. The type represents one of the patterns of composing clusters of disks and retesting to find problems.

interconnect-id ONDG Disk Drill Down type 2 Initiated

The OFDG find test initiated a drill-down type 2 on the specified interconnect. The type represents one of the patterns of composing clusters of disks and retesting to find problems.

interconnect-id ONDG Disk Drill Down type 2 Completed

The OFDG find test completed a drill-down type 2 on the specified interconnect. The type represents one of the patterns of composing clusters of disks and retesting to find problems.

interconnect-id: Alternate loop present

An alternate interconnect has been detected on the specified interconnect.

enclosure-id: ISP ready on loop number

The ISP2100 reports are ready on the interconnect for the specified enclosure.

interconnect-id: Controller on the loop

A controller reports to be ready on the specified interconnect.

interconnect-id: Loop closed

The specified interconnect has been repaired.

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