Sun StorEdge™ Component Manager 1.0 User's Guide

For Sun StorEdge™ A5x00 Subsystems

THE NETWORK IS THE COMPUTER™

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Part No. 806-0160-10
June 1999, Revision A

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Contents

Preface

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

How This Book Is Organized

Chapter 1 provides an overview of the software.

Chapter 2 describes the features of the Sun StorEdge Component Manager graphical user interface.

Chapter 3 provides steps on how to operate the key components of the software.

Chapter 4 describes potential scenarios in which troubleshooting may be required.

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:

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

Typographic Conventions

TABLE P-1 Typographic Conventions

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

Shell Prompts

TABLE P-2 Shell Prompts

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

Related Documentation

TABLE P-3 Related Documentation

Application	Title	Part Number
Install	*Sun StorEdge Component Manager Installation Guide*	806-0159
Release	*Sun StorEdge Component Manager Release Notes*	806-0161
Help	Sun StorEdge Component Manager Online Help	GUI

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CHAPTER 1

Software Overview

This chapter contains the following topics as an introduction to Sun StorEdge Component Manager software:

Sun StorEdge Component Manager

Sun StorEdge Component Manager provides monitoring and management of one or more Sun StorEdge A5*x*00 subsystem enclosures that are connected to a host. It provides a graphical user interface (GUI) to display the status of enclosure components, as well as their associated properties.

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

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

The following are key features provided by Sun StorEdge Component Manager:

- Alarm notification
- Remote reporting
- Viewing of component status and properties

Alarms

Alarms are a means of notification that signify a problem may need to be resolved, depending on its degree of severity. An alarm corresponds to informational and/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 11.

Remote Reporting

Remote reporting is a Component Manager feature that enables you to designate recipients for the different 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 "Remote Reporting" on page 40.

Component Status and Properties

Component Manager monitors your enclosures through the Health Tab. The Health module 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 and viewing a component's status and properties, see "Using the Health Tab" on page 19.

Subsystem Support

This version of Sun StorEdge Component Manager supports the Sun StorEdge A5000, Sun StorEdge A5100, and Sun StorEdge A5200 subsystems, and operates under the Solaris™ 2.6 and Solaris 7 environments.

CHAPTER 2

Features of the Sun StorEdge Management Console

This chapter describes the features of the Sun StorEdge Component Manager graphical user interface, known as the *Sun StorEdge™ Management Console*. For details on how to perform basic Component Manager operations using the Sun StorEdge Management Console, see Chapter 3.

Sun StorEdge Management Console

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

Starting the Sun StorEdge Management Console and Sun StorEdge Component Manager

1. **Become root.**
2. **Start the Sun StorEdge Management Console:**

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

The following figure shows an example of the Console main window, and TABLE 2-1 provides a detailed description of the main window elements.

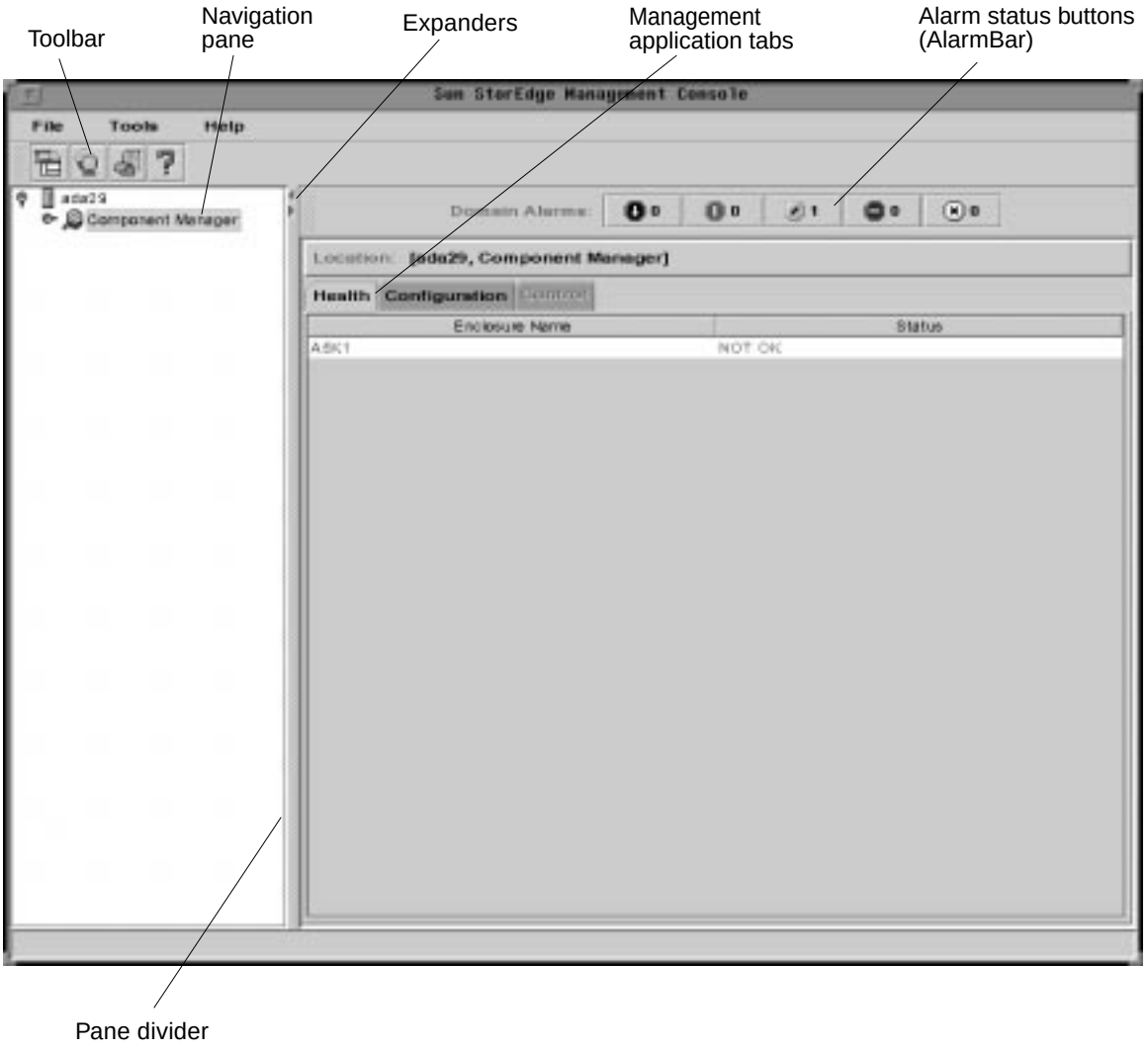

FIGURE 2-1 Sun StorEdge Management Console Main Window

TABLE 2-1 Sun StorEdge Management Console and Component Manager Window Elements

Window Element	Description
Navigation pane	This portion of the window shows the enclosure for which the Console is running, and also displays the individual enclosure components.
Toolbar	The toolbar enables you to to display Alarm Viewer, Log Viewer, new Console windows, and Online Help.
Management appplication tabs	Component Manager provides three tabs: Health, Control, and Configuration (see Chapter 3).
Alarm status buttons	These 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.
Pane divider	The divider lets you adjust the size of the pane.
Expanders	The expanders let you expand or collapse the size of the pane with one mouse click.

Resizing a Pane

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

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

Sun StorEdge Management Console Toolbar

The Toolbar has four icons as described in TABLE 2-2.

TABLE 2-2 Sun StorEdge Management Console Toolbar Icons

Icon	Name	Clicking This Icon:
	New Window	Launches another Sun StorEdge Management Console window
	Alarm Viewer	Displays the Alarm Viewer window (see “Alarm Viewer”)
	Log Viewer	Displays the Log Viewer window (see “Log Viewer”)
	Online Help	Displays online help for Component Manager (see “Online Help”)

Restarting the Software

Management stations consist of both the management class station and the managed object station. These are the server processes that perform the monitoring and management of the A5*x*00 subsystems.

Use this procedure if you need to stop and restart the management stations, or if the software fails to start automatically.

1. **Close the Sun StorEdge Management Console window.**

   Choose File ➤ Exit.

2. **Become root.**

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

```
# /usr/opt/SUNWesm/sbin/esm_mcboot stop
# /usr/opt/SUNWesm/sbin/esm_moboot stop
```

4. **Start the managed object station:**

```
# /usr/opt/SUNWesm/sbin/esm_moboot -v start
```

Wait until you see the following message before proceeding to the next step:

```
“MOBoot: INFO: realm “StoreX” on station “MOStation” - booted”
```

5. **Start the management class station:**

```
# /usr/opt/SUNWesm/sbin/esm_mcboot -v start
```

Wait until you see the following message before proceeding to the next step:

```
“MCBoot: INFO: realm “StoreX” on station “MCStation” - booted”
```

6. **Type the following commands:**

```
# /usr/opt/SUNWesm/sbin/esm_em_moboot start
```

```
# /usr/opt/SUNWesm/sbin/esm_em_mcboot start
```

7. **Start the Sun StorEdge Management Console:**

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

Alarm Viewer

The AlarmBar displays the alarm summary for the Sun StorEdge Management Console. Alarms are sorted into five categories as shown in the following table:

TABLE 2-3 Alarm Viewer Icons

Icon	Name	Description
	Down	A high priority requiring immediate attention.
	Critical	An urgent warning notification that requires corrective action.
	Alert	A component or running process requires corrective action.
	Caution	A condition has occurred that requires preventive action.
	Disabled	A condition has occurred that has no known cause.

To view information about alarms:

1. **Click one of the Alarm Status buttons in the AlarmBar, or click the Alarm Viewer icon on 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 chosen. The number of outstanding alarms for each level is designated on each button.

   The View alarms in originating language checkbox enables you to view the alarms in the language in which the alarms were generated, regardless of the locale where your Sun StorEdge Management Console is running.

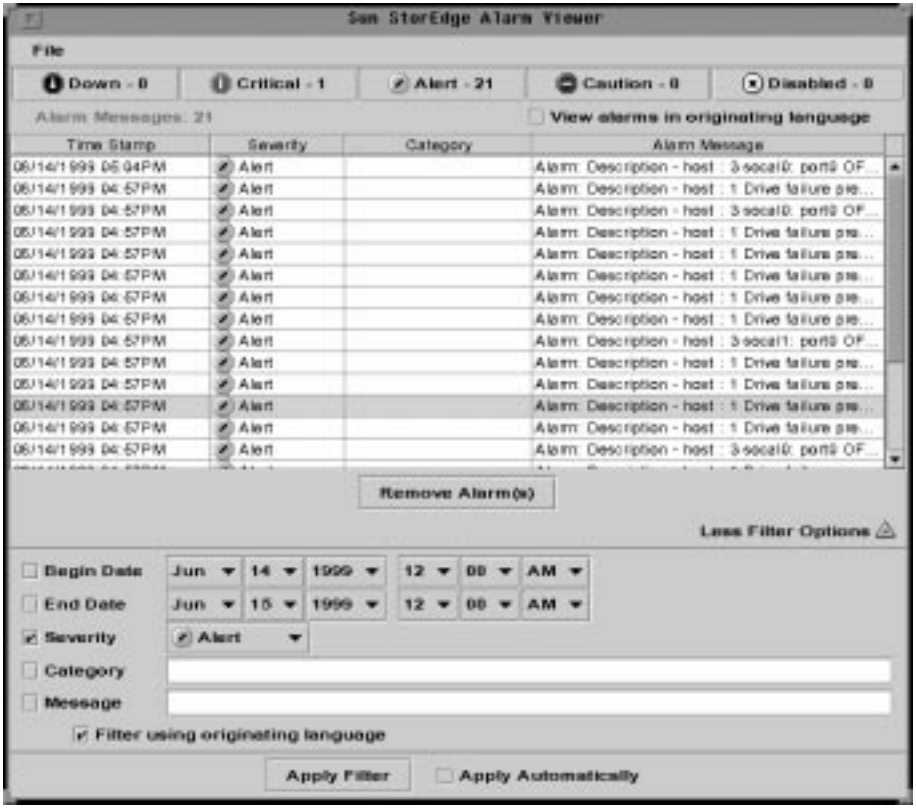

FIGURE 2-2 Alarm Viewer Window

2. **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 on Apply Filter. Be sure 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, click the Apply Automatically checkbox. If you choose this option, you do not need to click on 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 Sun StorEdge Management Console is running.

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

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

Log Viewer

Component Manager logs an event for each monitoring or control operation performed, including failed operations. You can view these log messages in the Log Viewer window (see FIGURE 2-3).

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

   The Log Viewer window is displayed, showing up to 100 Component Manager log messages. Click on the Next button to view (up to) 100 more messages. The Previous and Next buttons enable you to toggle between log messages listed in increments of 100.

2. **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, category, or message string, enter the applicable values in each field, and click on Apply Filter. Be sure 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, click the Apply Automatically checkbox. If you choose this option, you do not need to click on Apply Filter for each search.

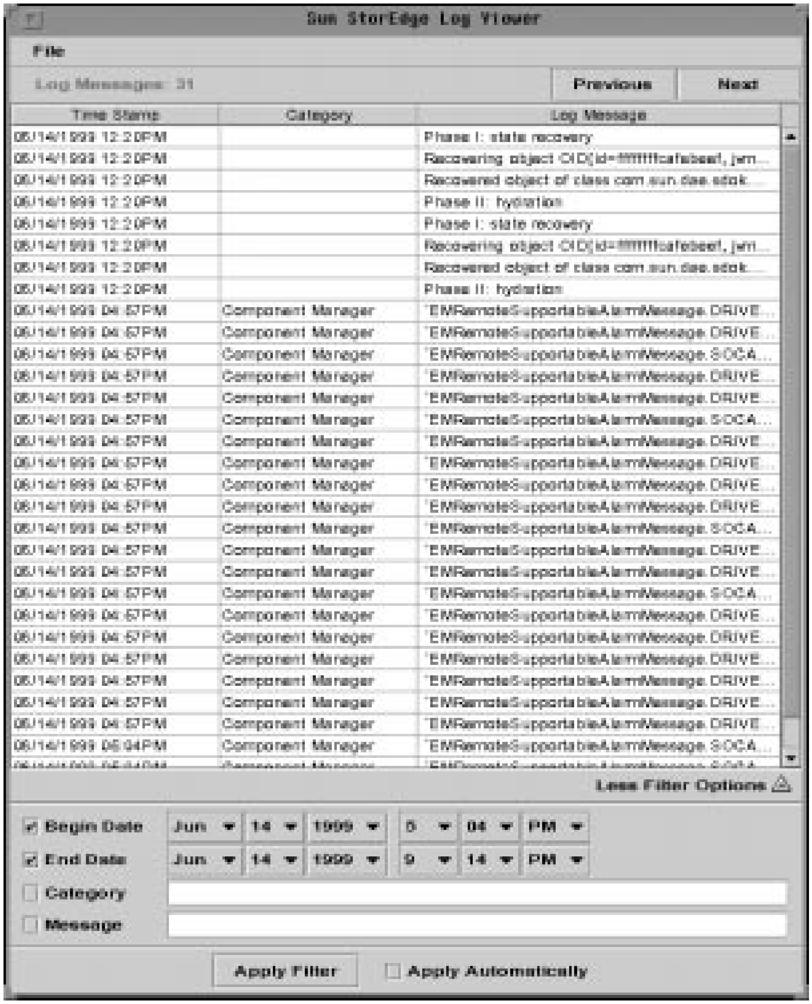

FIGURE 2-3 Log Viewer Window

Online Help

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

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

   The Sun StorEdge Management Console Online Help window is displayed. For a description of the Online Help window elements, see TABLE 2-4.

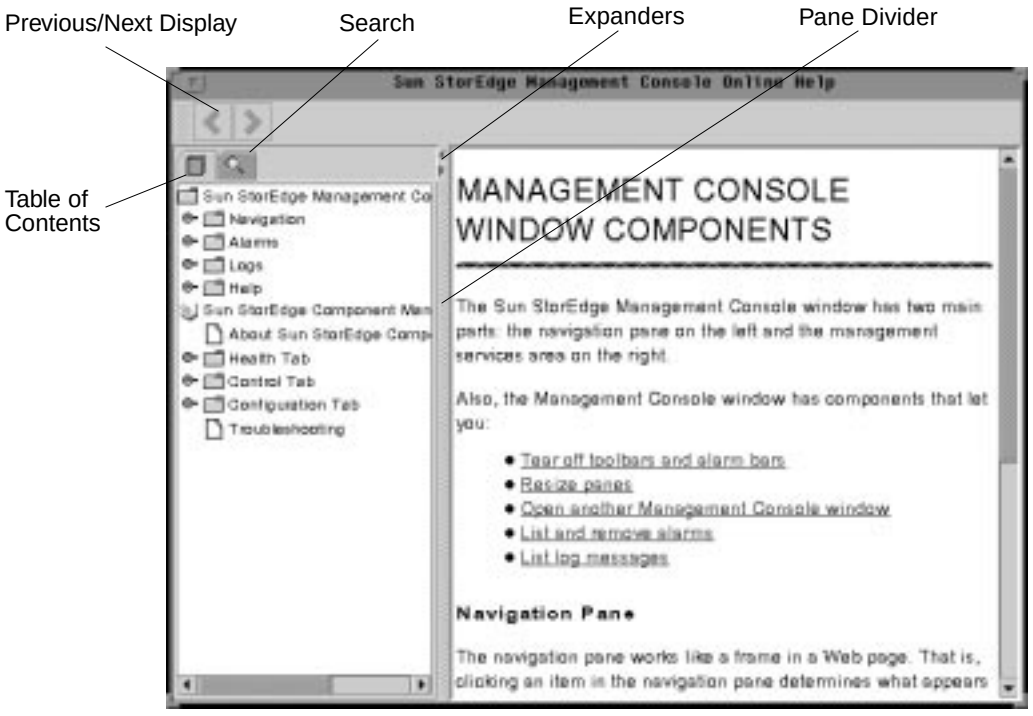

FIGURE 2-4 Online Help Window

2. **Click on 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.

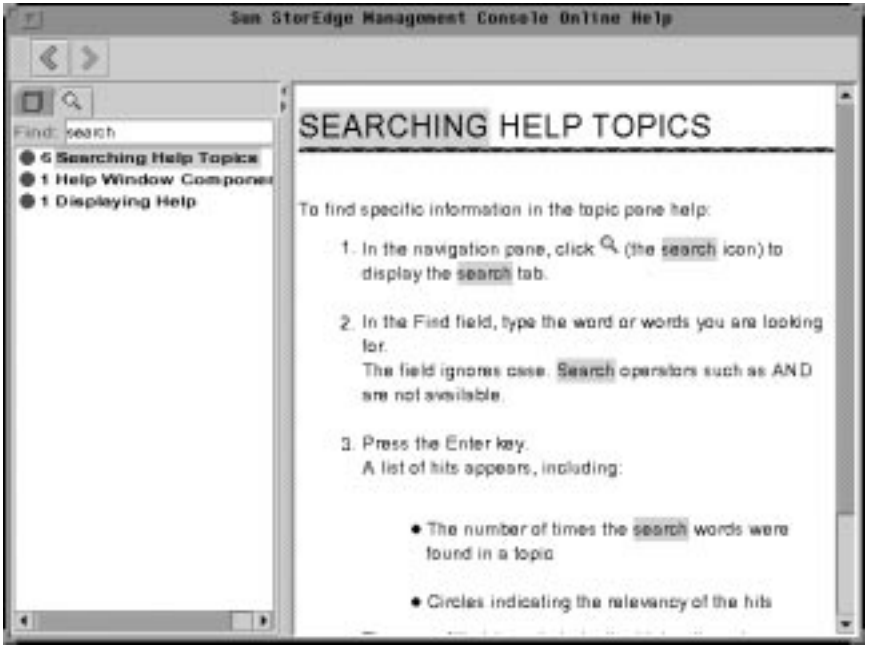

FIGURE 2-5 Online Help Search

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 2-4 Online Help Window Elements

Window Element	Description
Table of Contents	This pane lists the individual topics within Online Help.
Search	Click on 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 3

Using Sun StorEdge Component Manager

This chapter contains the following topics for using the Sun StorEdge Component Manager software:

Sun StorEdge Management Console

The Sun StorEdge Management Console is the application window in which the Sun StorEdge applications reside. The Console enables you to navigate and use the Sun StorEdge applications such as Component Manager.

To start the Sun StorEdge Management Console, see the steps detailed in Chapter 2. The following figure is an example of the Sun StorEdge Management Console main window.

FIGURE 3-1 Sun StorEdge Management Console Main Window

Using the Health Tab

The Health module enables you to monitor the properties and status of selected hardware components. 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 module components. Rule evaluations are integrated into the Component Manager software.

Common examples of Health monitoring include checking the following:

- Firmware version of an enclosure
- Loop configuration of the physical enclosure
- Disk status and size
- Temperature of an enclosure
- A health summary of all the components within an enclosure

Enclosure Properties

To view the enclosure properties:

1. **Select your enclosure name in the navigation pane.**

   Double-click on the words Component Manager to view your enclosure names.

2. **Select the Health Tab.**

   Enclosure properties and descriptions are provided in TABLE 3-1.

TABLE 3-1 Enclosure Properties

Property	Description
Enclosure Name	The name of your enclosure subsystem. This name must be 16 or fewer characters; it identifies the A5*x*00 enclosure interface board.
Enclosure Status	The current status of the specified enclosure is designated as one of the following: • OK – The enclosure has no error conditions. • Critical – One or more critical conditions has been detected or set in the enclosure. • Unrecoverable – One or more unrecoverable conditions has been detected or set in the enclosure. • Unknown – The status of the enclosure could not be determined.
Polling Status	Polling is designated as either Active or Inactive.
Box ID	The Box ID of the enclosure.
Product ID	The Product ID of the enclosure.
Vendor ID	The Vendor ID of the enclosure.
Firmware Revision	The firmware revision of the enclosure's interface board.
ANSI Revision	The supported SCSI level of the enclosure. For example, a value of 2 indicates that the SCSI level equals 2.
ISO Revision	The ISO revision of the enclosure.
ECMA Revision	The ECMA revision of the enclosure.
Physical Path	The physical path of the enclosure.
Port	The port number of the enclosure.
Serial Number	The serial number of the enclosure.
Node World Wide Name	The node world wide name of the enclosure (unique across different enclosures).

Enclosure Component Summary

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

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

An example component summary is shown in the following figure.

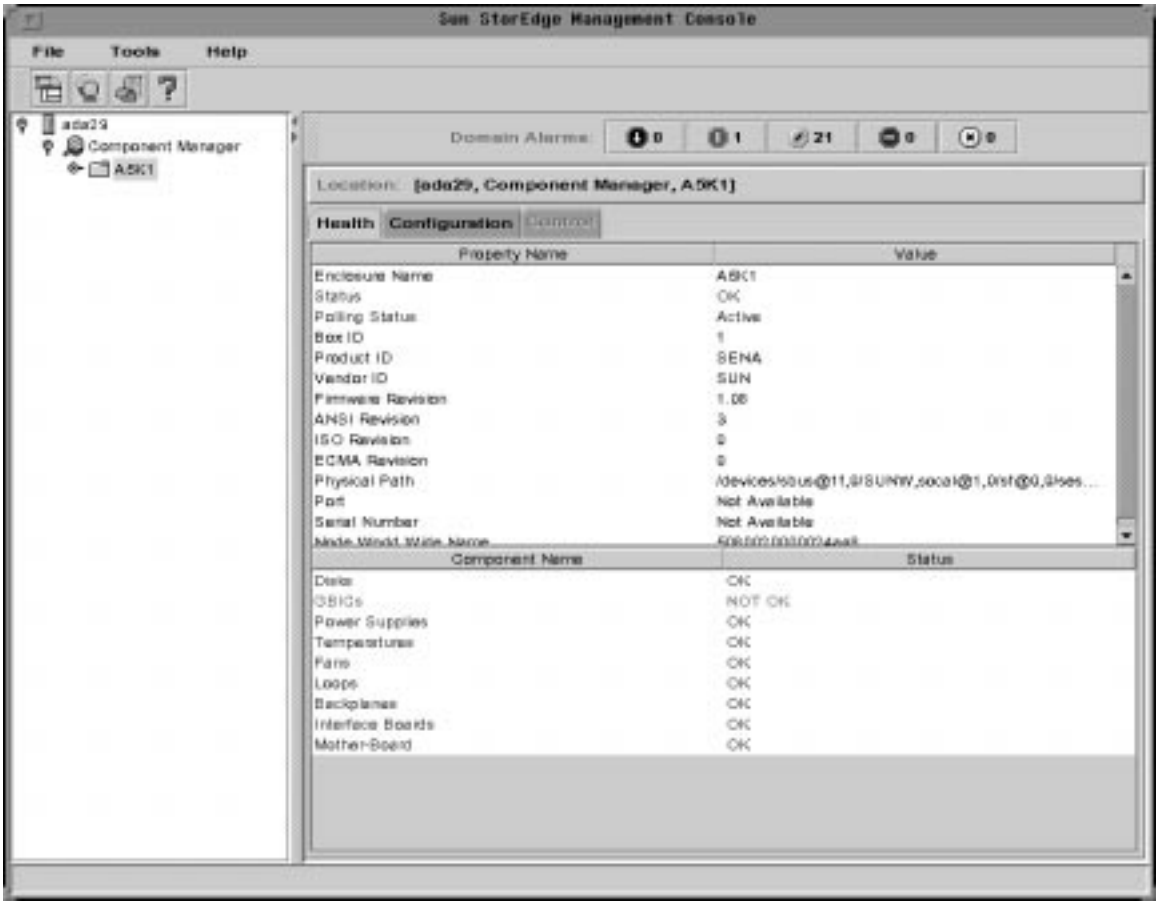

FIGURE 3-2 Enclosure Component Summary Window

Enclosure Rules

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

- When the name of the enclosure 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 alarm)
- When an unrecoverable condition is detected (Critical alarm)
- When an unknown condition is detected (Alert alarm)

Disk Properties

To view disk properties:

1. **Display the Disks icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Disks icon to select a specific disk.**

3. **Select the Health Tab.**

   Disk properties and descriptions are provided in TABLE 3-2.

TABLE 3-2 Disk Properties

Property	Description
Disk 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 enclosure. • 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.

TABLE 3-2 Disk Properties *(Continued)*

Property	Description
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.
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 down
- When a disk drive is powered up
- 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 alarm)
- When an unknown condition is detected (Alert alarm)

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 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.

GBIC Properties

A Gigabit Interface Converter (GBIC) module 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 GBICs icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the GBICs icon to select a specific GBIC.**

3. Select the Health Tab.

GBIC properties and descriptions are provided in TABLE 3-3.

TABLE 3-3 GBIC Properties

Property	Description
GBIC 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 enclosure. • 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 alarm)
- When a GBIC fails (Down alarm)
- When an unknown condition is detected (Alert alarm)

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 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"
```

An alarm of ALERT severity is sent if this message occurs three times within one hour.

An alarm of CRITICAL severity is sent if this message occurs 10 times within 24 hours.

Power Supply Properties

To view power supply properties:

1. **Display the Power Supplies icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Power Supplies icon to select a specific power supply.**

3. **Select the Health Tab.**

Power Supply properties and descriptions are provided in TABLE 3-4.

TABLE 3-4 Power Supply Properties

Property	Description
Power Supply 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 enclosure. • 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 alarm)
- When an unknown condition is detected (Alert alarm)
- When a power supply fails due to one of the following reasons (Critical alarm):
  - Not receiving AC power
  - Not providing power
  - Over voltage
  - Under voltage
  - Over current
  - Reaching temperature critical condition

Temperature Properties

To view temperature properties:

1. **Display the Temperatures icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Temperatures icon to select a specific temperature.**

3. **Select the Health Tab.**

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

TABLE 3-5 Temperature Properties

Property	Description
Temperature 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 enclosure. • 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 temperature element surrounding.

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 alarm)
- When a critical condition is detected (Critical alarm)
- When an unrecoverable condition is detected (Critical alarm)
- When an unknown condition is detected (Alert alarm)

Fan Properties

To view fan properties:

1. **Display the Fans icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Fans icon to select a specific fan tray.**

3. **Select the Health Tab.**

   Fan properties and descriptions are provided in TABLE 3-6.

TABLE 3-6 Fan Properties

Property	Description
Fan 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 enclosure. • 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 alarm)
- When a critical condition is detected (Critical alarm)
- When an unrecoverable condition is detected (Critical alarm)
- When an unknown condition is detected (Alert alarm)

Loop Properties

To view loop properties:

1. **Display the Loops icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Loops icon to select a specific loop.**

3. **Select the Health Tab.**

   Loop properties and descriptions are provided in TABLE 3-7.

TABLE 3-7 Loop Properties

Property	Description
Loop 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 enclosure. • 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: • 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 alarm)
- When a loop is not installed (Down alarm)
- When an unknown condition is detected (Alert alarm)

Backplane Properties

To view backplane properties:

1. **Display the Backplanes icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Backplanes icon to select a specific backplane.**

3. **Select the Health Tab.**

   Backplane properties and descriptions are provided in TABLE 3-8.

TABLE 3-8 Backplane Properties

Property	Description
Backplane 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 enclosure. • 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: • Enabled – Port A is enabled. • Bypassed – Port A is bypassed.
Port B Status	The current status of the specified backplane is designated as either: • 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 alarm)
- When a critical condition is detected (Critical alarm)
- When an unrecoverable condition is detected (Critical alarm)
- When an unknown condition is detected (Alert alarm)
- When the average temperature exceeds 60°C (Critical alarm)

Interface Board Properties

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

1. **Display the Interface Boards icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Interface Boards icon to select a specific interface board.**

3. **Select the Health Tab.**

   Interface Board properties and descriptions are provided in TABLE 3-9.

TABLE 3-9 Interface Board Properties

Property	Description
Interface Board 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 enclosure. • 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: • 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: • 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 alarm)
- When an interface board fails due to the following reasons:
  - Over temperature (Critical alarm)
  - Loop 0 or 1 failure (Alert alarm)
- When an unknown condition is detected (Alert alarm)

Motherboard Properties

To view motherboard properties:

1. **Display the Mother-Boards icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Select the Mother-Boards icon.**

3. **Select the Health Tab.**

   Motherboard properties and descriptions are provided in TABLE 3-10.

TABLE 3-10 Motherboard Properties

Property	Description
Motherboard 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 enclosure. • 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 alarm)
- When a motherboard fails due to EPROM failure (Critical alarm)
- When an unknown condition is detected (Alert alarm)

Using the Control Tab

The Control module allows you to control the status of selected hardware components.

Disk Status

1. **Display the Disks icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Disks icon to select a specific disk.**

3. **Select the Control Tab (see** FIGURE 3-3**).**

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

   - 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 the drive to begin blinking the LED associated with the disk.
   - Stop Blink LED – Requests the drive to 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 A of the disk.
   - Enable Port B – Enables port B of the disk.

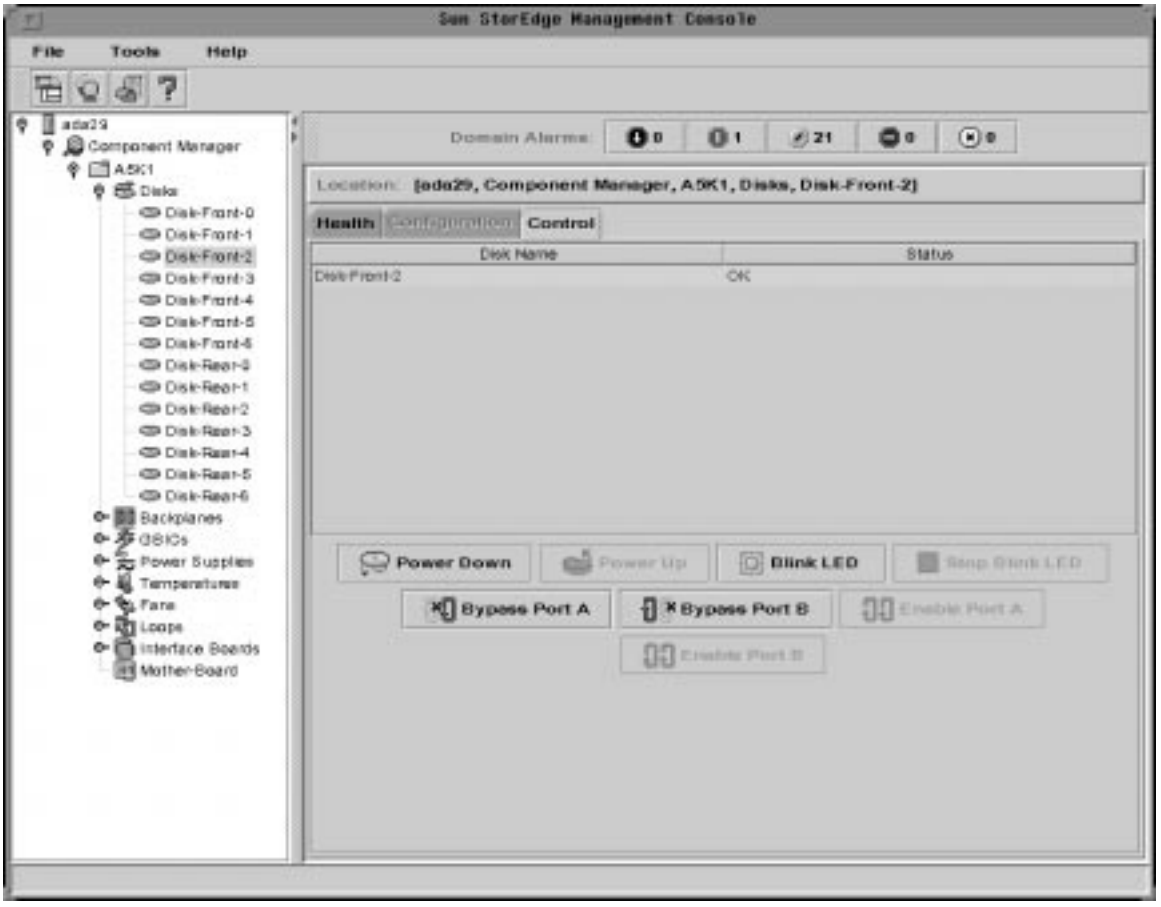

FIGURE 3-3 Control Disk Window

Backplane Status

1. **Display the Backplanes icon in the navigation pane.**

   If the component icons are not already visible, double-click on your enclosure name to view the component icons.

2. **Double-click on the Backplanes icon to select a specific backplane.**

3. **Select the Control Tab (see** FIGURE 3-4**).**

   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.

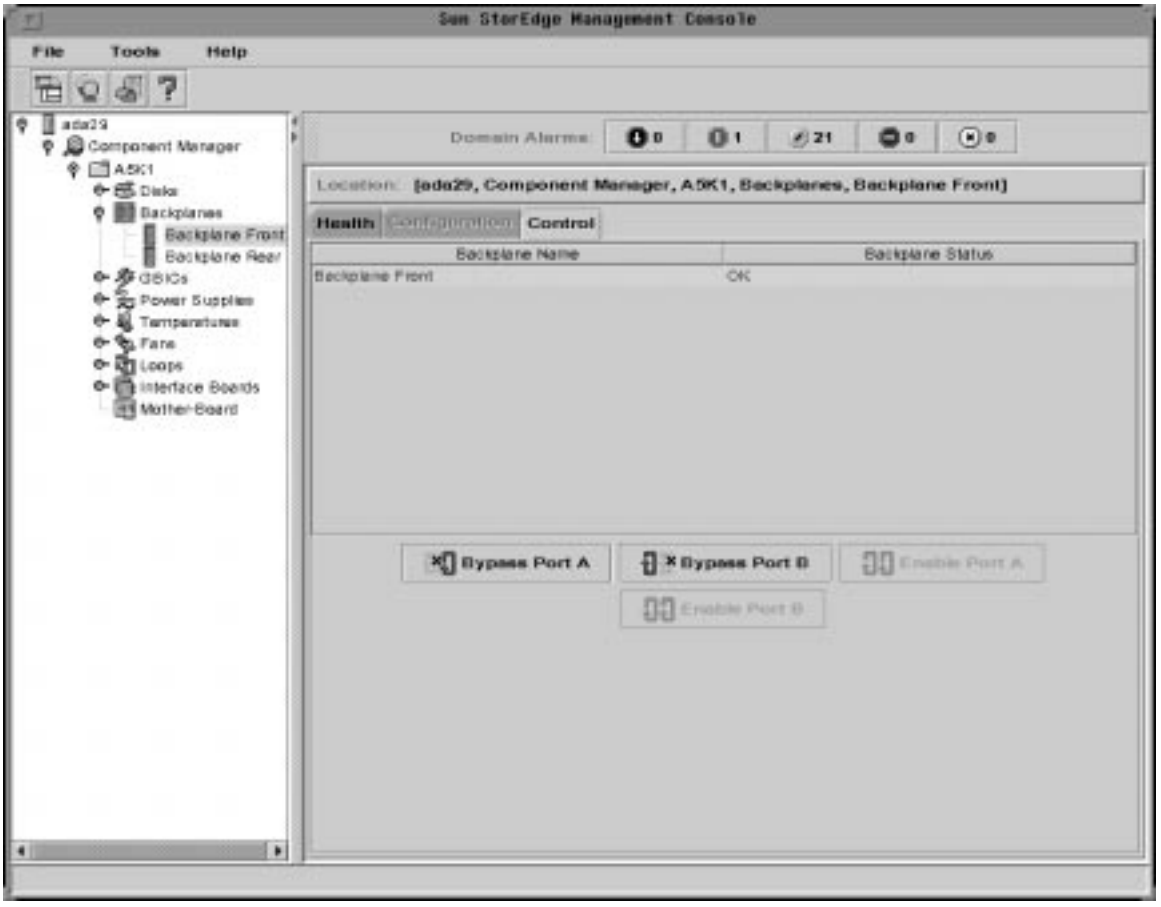

FIGURE 3-4 Control Backplane Window

Using the Configuration Tab

The Configuration module enables you to perform the following tasks:

- Specify email addresses and log files for remote reporting of alarms
- Disable alarms when hardware reconfiguration is necessary
- Customize time intervals for polling hardware components
- Change designated enclosure names

Remote Reporting

Remote Reporting enables you to notify selected email recipients of designated alarms and to log the alarms in selected (log) files. Because both of these options are independent of one another, you can choose to send only designated alarm messages to email recipients, or send only designated alarm messages to log files (if you should decide not to do both). See FIGURE 3-5.

TABLE 3-11 shows the severity levels available for remote reporting.

TABLE 3-11 Remote Reporting Severity Levels

Severity Level	Description
DOWN	A high priority requiring immediate attention.
CRITICAL	An urgent warning notification that requires corrective action.
ALERT	A component or running process requires corrective action.
CAUTION	A condition has occurred that requires preventive action.
DISABLED	A condition has occurred that has no known cause.

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. **Select the Configuration Tab.**
3. **Customize your remote reporting options.**

a. If you want to either disable or enable remote reporting, click on the Enable Remote Reporting checkbox.

The check mark disappears when reporting is disabled and reappears when 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, double-click the checkbox for that entry so 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.

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

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

Note – Make sure 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, double-click the checkbox for that entry so the check mark appears under Send Alarm.

4. Click the Apply button after completing your updates.

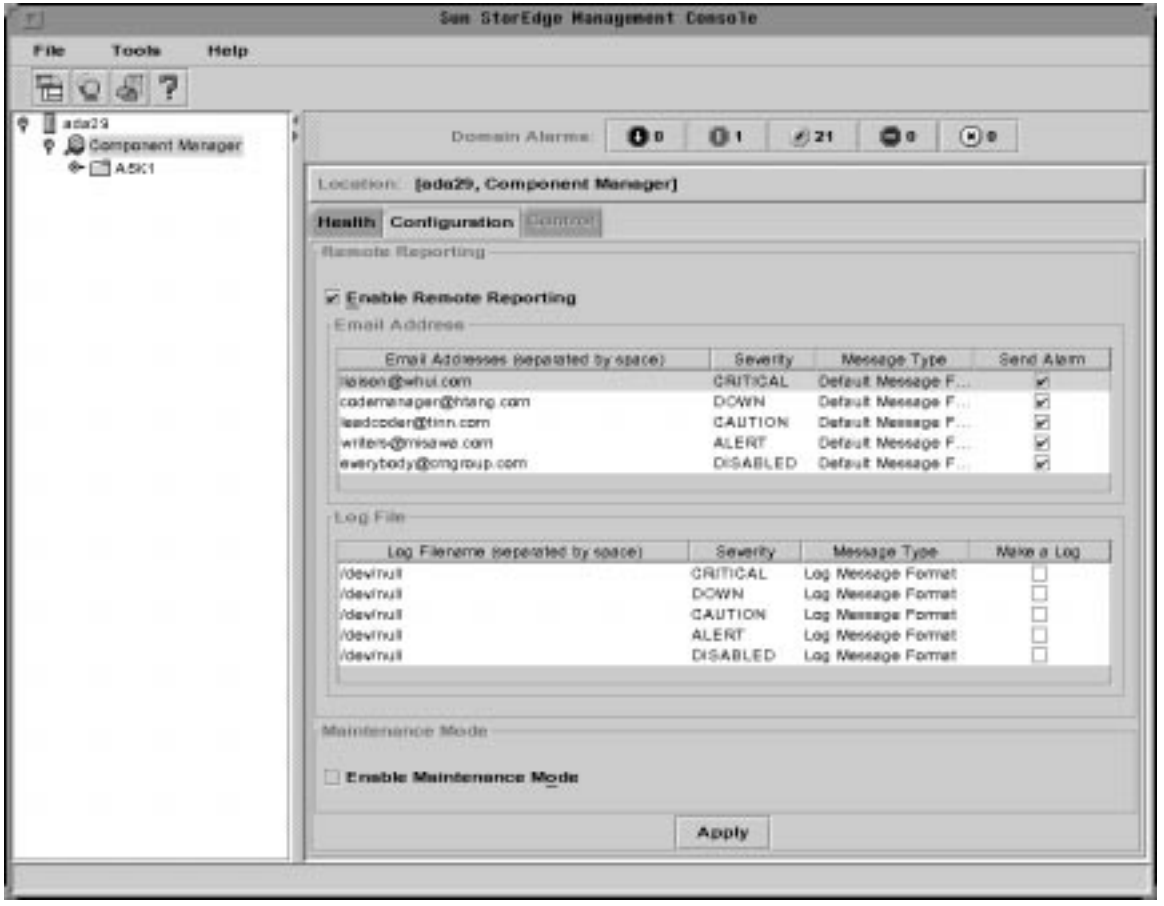

FIGURE 3-5 Component Manager Remote Reporting and Maintenance Mode Window

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

DATE: 4/14/99 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
```

FIGURE 3-6 Example Remote Reporting Email Notification

```
StoreX (4/16/99 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot Number
4 failed because: The component is not installed in the enclosure
StoreX (4/16/99 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot Number
5 failed because: The component is not installed in the enclosure
StoreX (4/16/99 11:22 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot Number
3 failed because: The component is not installed in the enclosure
StoreX (4/16/99 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot Number
4 failed because: The component is not installed in the enclosure
StoreX (4/16/99 11:22 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot Number
3 failed because: The component is not installed in the enclosure
StoreX (4/16/99 10:57 AM localhost):P2:Enclosure A5K1 - Front Disk, Slot Number
5 failed because: The component is not installed in the enclosure
```

FIGURE 3-7 Example Remote Reporting Log File

Maintenance Mode

The maintenance mode option can be used when you need to reconfigure hardware (for example, adding or replacing enclosures attached to a host) or to replace components in the enclosure (for example, replacing a disk).

Before performing a reconfiguration, you should set the maintenance mode check box, which in turn disables all polling. This avoids all polling during reconfiguration.

Caution – Failure to set the maintenance mode option could cause device reconfiguration to fail and potentially cause excessive alarms.

After the maintenance work has been completed, you can return Component Manager to its normal operating mode by clearing the maintenance mode check box. This enables Component Manager to rediscover all the enclosures attached to the host and to restart polling. See FIGURE 3-5.

1. **Select Component Manager in the navigation pane.**
2. **Select the Configuration Tab.**
3. **Enable Maintenance Mode:**
   a. **Click on the Enable Maintenance Mode checkbox.**
      The check mark appears to designate that Maintenance Mode is enabled.
   b. **Click the Apply button.**
4. **When ready to continue polling, disable Maintenance Mode:**
   a. **Click on the Enable Maintenance Mode checkbox.**
      The check mark disappears to designate that Maintenance Mode is disabled.
   b. **Click the Apply button.**
      A time warning window will appear as shown in FIGURE 3-8. Click OK to continue.
      A restart warning window will appear as shown in FIGURE 3-9. Click OK.
5. **Start the Sun StorEdge Management Console:**

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

FIGURE 3-8 Maintenance Mode Time Warning Window

FIGURE 3-9 Maintenance Mode Restart Warning Window

Hardware Polling

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.

Polling time intervals are measured in seconds, and can be customized to any value with a minimum of 900 seconds. The default polling time is set to 900 seconds (15 minutes). See FIGURE 3-10.

The Enable Polling checkbox lets you either disable or enable hardware polling for an enclosure. Polling is always enabled by default.

1. **Select the enclosure in the navigation pane that you are polling.**
2. **Select the Configuration Tab.**
3. **Customize your polling options.**

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

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

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

Enter your new value (in a measurement of seconds).

Caution – If the polling time interval is set to a value that is *less than* 900 seconds, you will create excessive loop traffic that could potentially interfere with the A5*x*00 loops and cause problems.

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

Setting the Enclosure Name

You can change the name of your specified enclosure by editing the Enclosure Name field. This name identifies the A5*x*00 enclosure interface board, and it must be limited to 16 or fewer characters. See FIGURE 3-10.

1. Select the enclosure in the navigation pane that you want to rename.

2. Select the Configuration Tab.

3. With the left mouse button, double-click the current name in the Enclosure Name field.

Enter your new enclosure name.

4. Click the Apply button to update your enclosure name.

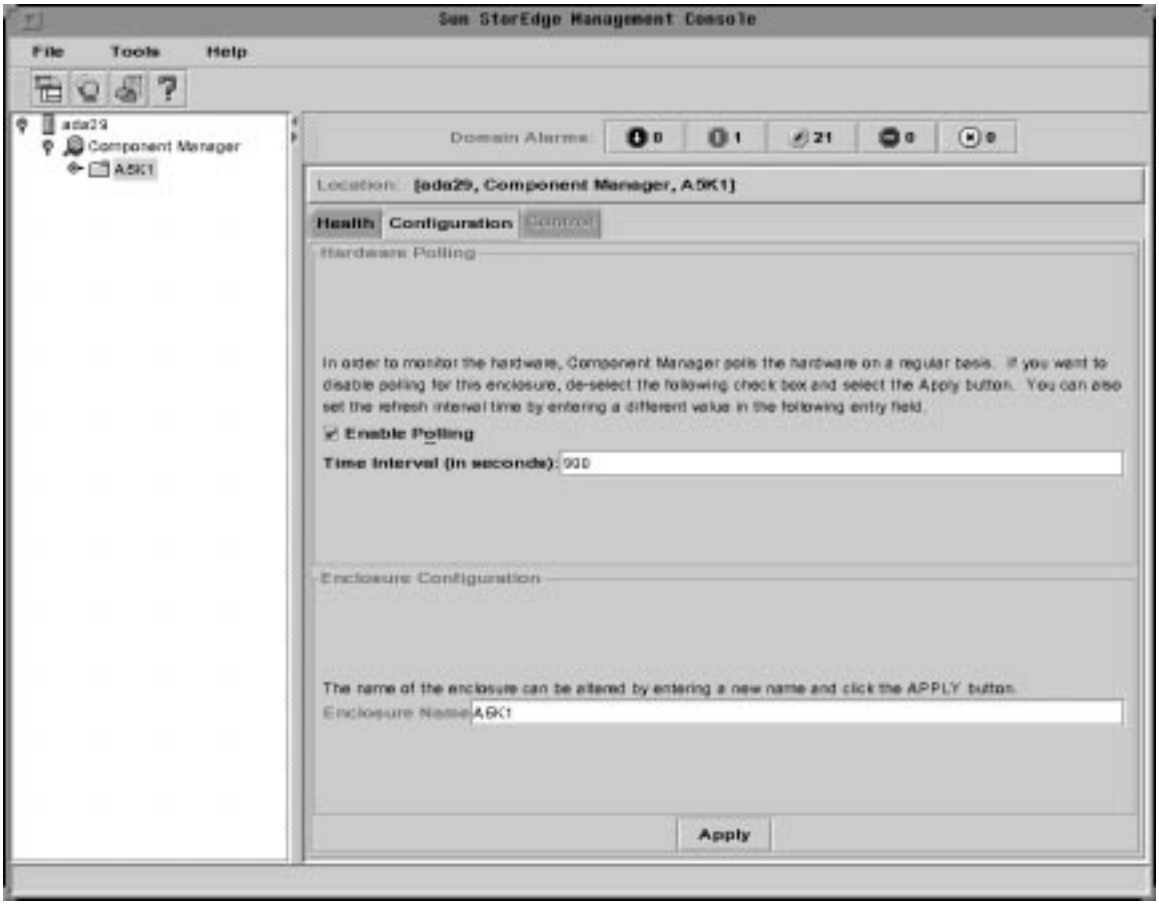

FIGURE 3-10 Enclosure Hardware Polling and Naming Window

CHAPTER 4

Troubleshooting

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

Error Messages

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

Station Connection

```
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 "ada24"
MCBoot: ERROR: protocol exception host <hostname>, station MOStation
MCBoot: INFO: skipping ...
MCBoot: ERROR: all hosts were invalid "[Ljava.lang.String;@8849e65e"
```

Description

The management class station cannot establish a connection to the managed object station.

User Action

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

```
# /usr/opt/SUNWesm/sbin/esm_mcboot stop
# /usr/opt/SUNWesm/sbin/esm_moboot stop
```

3. **Start the managed object station:**

```
# /usr/opt/SUNWesm/sbin/esm_moboot -v start
```

Wait until you see the following message before proceeding to the next step:

```
“MOBoot: INFO: realm “StoreX” on station “MOStation” - booted”
```

4. **Start the management class station:**

```
# /usr/opt/SUNWesm/sbin/esm_mcboot -v start
```

Wait until you see the following message before proceeding to the next step:

```
“MCBoot: INFO: realm “StoreX” on station “MCStation” - booted”
```

5. **Type the following commands:**

```
# /usr/opt/SUNWesm/sbin/esm_em_moboot start
```

```
# /usr/opt/SUNWesm/sbin/esm_em_mcboot start
```

6. **Start the Sun StorEdge Management Console:**

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

Common Problems

The following common problems are known to exist for this version of Sun StorEdge Component Manager.

Remote Reporting

After enabling 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 the Apply button after entering or editing email addresses or log file locations. This will enable your updates to be retained and take effect.

Powering Down Disks

I am not sure when it is okay to power down a disk.

User Action

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

Before powering down a disk, make sure that the disk is not mounted by any file system or 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 is full in the log directory.

User Action

1. **Become root.**
2. **Copy the following files in** `/var/opt/SUNWesm/mc/log` **to another directory:**
   - `Logging.log`
   - `Trace.log`
3. **Remove the log files from** `/var/opt/SUNWesm/mc/log`**.**
4. **Stop any currently running management class and managed object stations:**

```
# /usr/opt/SUNWesm/sbin/esm_mcboot stop
# /usr/opt/SUNWesm/sbin/esm_moboot stop
```

5. **Start the managed object station:**

```
# /usr/opt/SUNWesm/sbin/esm_moboot -v start
```

   Wait until you see the following message before proceeding to the next step:

```
“MOBoot: INFO: realm “StoreX” on station “MOStation” - booted”
```

6. **Start the management class station:**

```
# /usr/opt/SUNWesm/sbin/esm_mcboot -v start
```

   Wait until you see the following message before proceeding to the next step:

```
“MCBoot: INFO: realm “StoreX” on station “MCStation” - booted”
```

7. **Type the following commands:**

```
# /usr/opt/SUNWesm/sbin/esm_em_moboot start
```

```
# /usr/opt/SUNWesm/sbin/esm_em_mcboot start
```

8. **Start the Sun StorEdge Management Console:**

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

Sun StorEdge Management Console Does Not Launch

When attempting to start the Sun StorEdge Management Console, only the following error dialogue pops up:

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

User Action

Stop and restart the management stations:

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

```
# /usr/opt/SUNWesm/sbin/esm_mcboot stop
# /usr/opt/SUNWesm/sbin/esm_moboot stop
```

3. **Start the managed object station:**

```
# /usr/opt/SUNWesm/sbin/esm_moboot -v start
```

Wait until you see the following message before proceeding to the next step:

```
“MOBoot: INFO: realm “StoreX” on station “MOStation” - booted”
```

4. **Start the management class station:**

```
# /usr/opt/SUNWesm/sbin/esm_mcboot -v start
```

Wait until you see the following message before proceeding to the next step:

```
“MCBoot: INFO: realm “StoreX” on station “MCStation” - booted”
```

5. **Type the following commands:**

```
# /usr/opt/SUNWesm/sbin/esm_em_moboot start
```

```
# /usr/opt/SUNWesm/sbin/esm_em_mcboot start
```

6. **Start the Sun StorEdge Management Console:**

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

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