MC300 Prism Management Card

User's Guide

6473040-03

Ver. 3, Rel. 0

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Contents

Chapter 3   ALERT E-mail   19

Chapter 4   ALERT Library Management   29

Contents

Figures

Tables

Tables

MC300 Prism Management Card User's Guide

Preface

Audience

This document is intended for use by customers who have purchased a Sun StorEdge™ L25 Tape Library or a Sun StorEdge™ L100 Tape Library and an MC300 Prism Management Card (PMC). Hereafter in this document, these libraries are referred to as L25 and L100, respectively.

This document assumes that the reader has a moderate level of general computer knowledge and server systems administration experience. This experience should include the installation of expansion cards as well as the administration of operating systems, Ethernet, and TCP/IP networks.

Purpose

This document provides information about PMC options available, including:

- PMC Server Management

- ALERT E-mail

- ALERT Library Management

- Fibre Channel Management

Document Organization

This document is organized as follows:

- Chapter 1, Prism Management Console, explains how to access the Prism Management Console Web pages introduces the Prism Management Console interface and **Home** page.

- Chapter 2, PMC Server Management, explains how to use the **PMC Server Management** Web pages: **Network Configuration**, **Date and Time Configuration**, **User Management**, and **Utilities**.

- Chapter 3, ALERT E-mail, explains how to use the **ALERT E-mail** Web pages: **Contact Configuration**, **Message Configuration**, and **E-mail Configuration**.

- Chapter 4, ALERT Library Management, explains how to use the **ALERT Library Management** Web pages: **Library Status**, **Library Configuration**, **Library Statistics**, **Service Operations**, **Monitoring Configuration**, and **Event History**.

- Chapter 5, Fibre Channel Management, explains how to use the **Fibre Channel Management** Web pages: **Route Status**, **Bridge Status**, and **Bridge Administration**.

- Chapter 6, Getting Help, explains how to access the online help for the Prism Management Console Web pages.

- Appendix A, Event Details Listing, provides FSC codes and descriptions for **Information**, **Warning**, and **Failure** events.

- Appendix B, Regulatory Statements, provides regulatory statements for the MC300 PMC.

This document concludes with a glossary and a detailed index.

Document Illustrations

An L100 multiple library stack configuration was used for the illustrations in this document. The Prism Management Console screens that display on your system may vary from those shown in this document.

System Requirements

The following minimum library firmware versions are required:

- Boot block version 3.00

- System code version 3.00

In addition, a network connection and browser software are required to manage the library from a remote location.

Browser Support

Internet browser software is not supplied with the PMC. You must obtain and install a browser independently. The PMC supports the following Internet browsers:

- Netscape™ Communicator™ 4.78 and 6.2 or later

  You can download this software from
  `http://www.netscape.com`

- Microsoft® Internet Explorer® (IE) 5.5 or 6.0

  You can download this software from
  `http://www.microsoft.com`

Other versions of these products may be supported in future releases of the PMC software.

Notational Conventions

This document uses the following conventions:

Note: Notes emphasize important information related to the main topic.

Caution: Cautions indicate potential hazards to equipment and are included to prevent damage to equipment.

Warning: Warnings indicate potential hazards to personal safety and are included to prevent injury.

Related Documents

Documents related to the MC300 Prism Management Card, the L25, and the L100 are shown below.

MC300 Prism Management Card, L25, and L100 Documentation

Document No.	Document Title	Description
6473042	*MC300 Prism Management Card Quick Reference Guide*	This document provides easy, step-by-step instructions for installation of the MC300 PMC in an L25 or L100 library.
6421029	*Sun StorEdge™ L25 Tape Library Unpacking Instructions*	This document explains how to remove the L25 library from the shipping carton.
6423014	*Sun StorEdge™ L100 Tape Library Unpacking Instructions*	This document explains how to remove the L100 library from the shipping carton.
6423015	*Sun StorEdge™ L25 Tape Library™ and Sun StorEdge L100 Tape Library Installation Guide*	This document explains how to install an L25 or L100 library.
6423016	*Sun StorEdge™ L25 Tape Library and Sun StorEdge™ L100 Tape Library User's Guide*	This document explains how to operate an L25 or L100 library.
6421031	*Sun StorEdge™ L25 Tape Library Regulatory Statements*	This document provides regulatory information for the L25 library.
6423018	*Sun StorEdge™ L100 Tape Library Regulatory Statements*	This document provides regulatory information for the L100 library.

Refer to the appropriate product manuals for information about your tape drive and cartridges. Use Adobe® Acrobat® Reader® 4 or higher to view the appropriate Portable Document Format (PDF) file.

SCSI-2 Specification

The SCSI-2 communications specification is the proposed American National Standard for information systems, dated March 9, 1990. Copies may be obtained from:

Global Engineering Documents
15 Inverness Way, East
Englewood, CO 80112
(800) 854-7179 or (303) 397-2740

Preface

Chapter 1
Prism Management Console

The MC300 Prism Management Card (PMC) is an intelligent server card that plugs directly into L25 and L100 libraries and is the enabling element for a variety of Prism options. The PMC consists of a single-board server powered by high-performance, industry-standard technology.

Included with the PMC is an easy-to-use yet powerful Web-based interface known as the Prism Management Console. It allows authorized personnel to configure and manage all Prism storage options from behind a firewall or remotely from anywhere on the Internet.

Determining the IP Address of the Library

Before you can access the Prism Management Console Web pages, you must determine the IP address of the library.

By default, the PMC uses Dynamic Host Configuration Protocol (DHCP) to received its IP address; however, you can assign a static IP address manually if desired.

DHCP assigns the IP address based on the address range allowed by your network administrator. To determine the IP address assigned, go to the **DHCP Manager** window on the DHCP server. You can also obtain this information from the library graphical user interface (GUI) by selecting **Main** > **QuickView** > **Library** > **Network**.

If DHCP is not available on your network, the DHCP request times out after 30 seconds. The PMC then assigns itself the static IP address of 192.168.1.1.

> **Note:** If the IP address 192.168.x.x is already used in the network, the PMC assigns itself the static IP address 10.0.0.x instead.

The **Subnet Mask** default is 255.255.255.0. If your subnet mask is different, you need to set up an isolated network, access the PMC, modify the PMC network configuration using the Prism Management Console Web pages, and add the PMC to the appropriate network.

> **Note:** In some cases, you may need to temporarily configure a host computer's network configuration to the IP address 192.168.1.x, where x is some number between 2 and 254. Enter the subnet mask 255.255.255.0.
>
> Using your browser, enter the IP address 192.168.1.1 to access the Prism Management Console Web pages. At this point, change the PMC network configuration to an appropriate IP address and subnet mask for your network.

If you still have problems accessing the IP address, contact your local system administrator for information on including the PMC in your network.

Accessing the Prism Management Console Web Pages

To access the Prism Management Console Web pages:

1 On the host computer, open the Internet browser software.

> **Note:** Internet browser software is not supplied with the PMC. You must obtain and install this software independently. See <u>Browser Support</u> on page xiii for a list of supported Internet browsers.

<u>Table 1</u> lists the default network settings for the PMC.

Table 1 PMC Default Network Settings

Field	Description
Use DHCP	Enabled
Hostname	PMC300-[MAC address]
Domain	[local domain]
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	[default or blank]

2 In the **Address** field of your browser, type the IP address for the PMC.

When the correct IP address for the PMC has been entered, the Internet browser displays the Prism Management Console **Home** page (see <u>figure 1</u>).

Figure 1 Prism
Management Console
Home Page

Banner and link to
the Sun web site

Navigation frame

Status message

Status icon
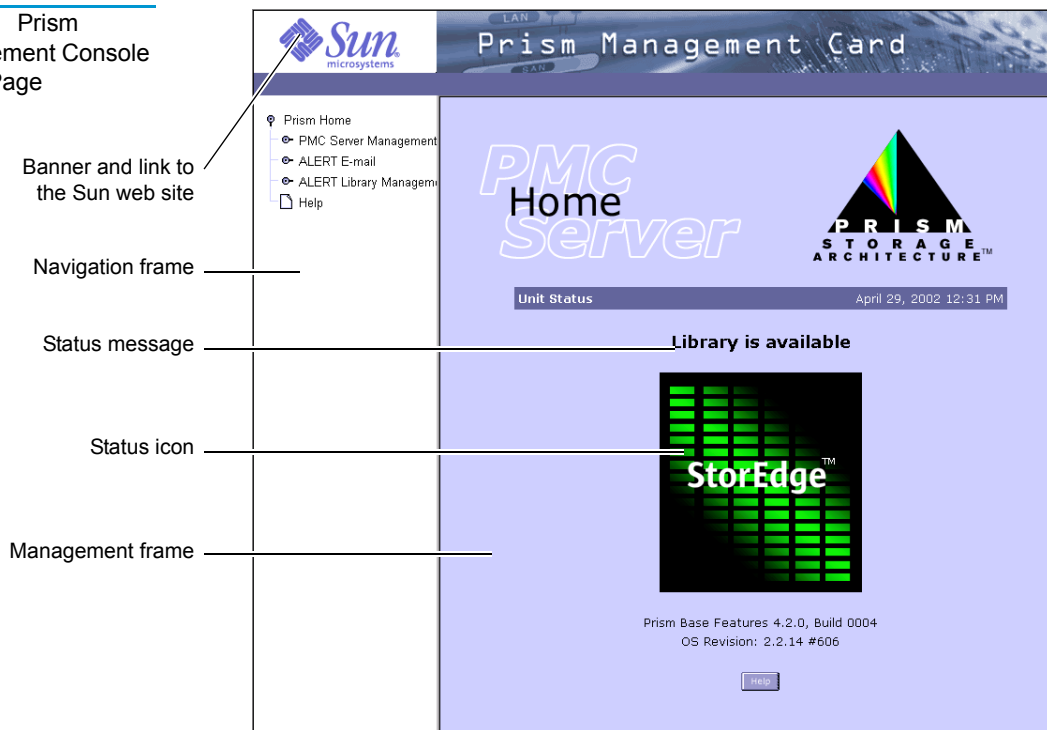
Management frame

Using the Prism Management Console Interface

The Prism Management Console interface (see figure 1) is divided
into three sections:

- The Banner frame displays the Sun logo and software name.
  Clicking the Sun logo links you to the Sun web site.

- The Navigation frame lists the Prism Management Console
  web pages. To view a page, select its corresponding link.

- The Management frame displays the currently selected page.
  To return to a previous Prism Management Console page, click
  the Internet browser's **Back** button.

Home Page

The Home page (see figure 1) indicates whether the library is ready for use. Table 2 explains the significance of the status messages and status icon colors that may appear on the **Home** page.

Table 2   Status
Messages

Status Message	Status Icon Color	Description
Library is available	Green	The library is ready for normal operation.
Unable to communicate with library	Red	A communication problem exists between the PMC and the library. Possible causes include a bad serial connection from the PMC to the library, or a conflicting baud rate[*] between the library and the PMC.
Library is unavailable **— initializing** **— demo running** **— diagnostic running**	Red	The library is not available to the host system for backup operations for one of the following reasons: • It is in Standby mode • It is in Stop mode • It is initializing • It is in Demo mode • Diagnostics are in progress • SCSI communication is disabled

* The PMC communicates with the library at the library's default baud rate of 38400. To check or set the library baud rate, use the graphic user interface (GUI) on the library front panel.

First Time User Account Setup

The first time you access another page from the **Home** page, you will be required to enter a user name and password.

> **Note:** A default user name (**admin**) and password (**admin**) is assigned when you install the PMC.

> **Caution:** To protect the integrity of your network and PMC access, it is recommended that you set up a new administration account when you begin using the PMC with your library. *After* this is accomplished, delete the existing admin account. Refer to <u>Adding User Accounts</u> on page 12 and <u>Deleting User Accounts</u> on page 14 for more information.

Accessing Online Help

The Prism Management Console Web pages provide extensive online help files defining actions and terms for every function, feature, and field. To access these help files:

• Click the **Help** link at the bottom of the Navigation frame.

A new Internet browser window opens and displays the first page of the online help files.

• Click the **Help** button at the bottom of the current Web page.

A new Internet browser window opens and displays online help for the current Web page.

Accessing the Sun Web Site

To access the Sun web site, click the Sun logo in the Banner frame of the **Home** page (see <u>figure 1</u>). A new Internet browser window opens and displays the Sun web site.

To return to the Prism Management Console Web pages, click the browser's **Back** button.

Chapter 2
PMC Server Management

PMC Server Management is managed through the following Prism Management Console Web pages.

- The **Network Configuration** page (see) allows you to configure the hostname, domain, IP address, subnet mask, and gateway addresses.

- The **Date and Time Configuration** page (see) allows you to set or adjust the date and time shown on the library.

- The **User Management** page (see) allows you to set up users that are permitted access to the PMC and define their passwords.

- The **Utilities** page (see) allows you to performance maintenance functions on the PMC, including software upgrades and rebooting the PMC system.

Network Configuration Page

The **Network Configuration** page allows you to view or change the PMC network settings.

Accessing the Network Configuration Page

To access the **Network Configuration** page, click **Network Configuration** in the Navigation frame, under **PMC Server Management**.

The Management frame displays the **Network Configuration** page (see figure 2).

> **Note:** If the Internet browser displays a dialog box prompting you for your user name and password, type the information in the dialog box and click **OK**.

Figure 2 Network Configuration Page

The **Network Configuration** page displays the current network configuration for the PMC. The fields are described in table 3.

Table 3   Network
Configuration Page
Field Descriptions

Field	Description
Use DHCP	Enable **Use DHCP** if your network uses DHCP for dynamic IP addressing. If a DHCP server is unavailable, the other fields will apply. The default value is Enabled.
Hostname	This field displays the hostname for the PMC (for example, the DNS name). When entering a hostname, no spaces are allowed. Underscores are acceptable. The default value is PMC300-[MAC address].
Domain	This field displays the domain for the PC. The default value is [local domain].
IP Address	This field displays the IP address for the PMC. The default value is 192.168.1.1.
Subnet Mask	This field displays the subnet mask for the PMC. The default value is 255.255.255.0.
Default Gateway	This field displays the default gateway for the PMC. Change the value only as required by your network. The default value is [default or blank].

**Changing the PMC
Network
Configuration**

To change the PMC network configuration:

1 Access the **Network Configuration** page (see Accessing the Network Configuration Page).

2 Edit the configuration information as desired.

3 Click **Apply**.

The PMC will not use the new basic configuration until it is rebooted. For more information, see Rebooting the PMC and Library on page 17.

Date and Time Configuration Page

The **Date and Time Configuration** page allows you to set the date and time displayed by the library.

Accessing the Date and Time Configuration Page

To access the **Date and Time Configuration** page, click **Date and Time Configuration** in the Navigation frame, under **PMC Server Management**.

The Management frame displays the **Date and Time Configuration** page (see figure 3).

Figure 3 Date and Time Configuration Page
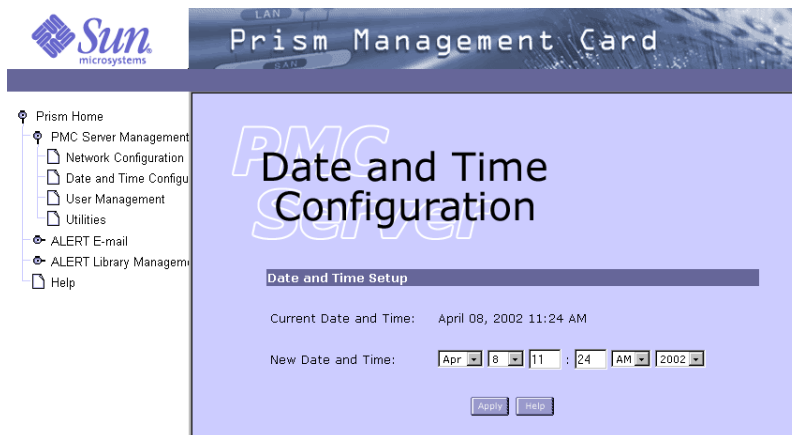
This page displays the current date and time.

Changing the Date and Time Information

To change the date and time information:

1   Access the **Date and Time Configuration** page (see <u>Accessing the Date and Time Configuration Page</u>).

2   Select the desired values from the **New Date and Time** list boxes.

> **Note:**   When entering information into the **Date and Time Configuration** fields, do not use decimals. If a decimal number is entered, only the whole number before the decimal is recorded.

3   Click **Apply**.

User Management Page

The **User Management** page allows you to view, add, or delete user accounts. These accounts are used to control access to the Prism Management Console. Only users with accounts are allowed access to the Prism Management Console Web pages.

Accessing the User Management Page

To access the **User Management** page, click **User Management** in the Navigation frame, under **PMC Server Management**.

The Management frame displays the **User Management** page (see <u>figure 4</u>).

Figure 4 User
Management Page

The **User Name** section of the page lists the configured user accounts.

Adding User Accounts

To add a user account:

1 Access the User Management page (see <u>Accessing the User Management Page</u>).

2 Under **Edit Users**, click **Edit**.

The Management frame displays the **Edit Users** page (see <u>figure 5</u>).

Figure 5 Edit Users
Page
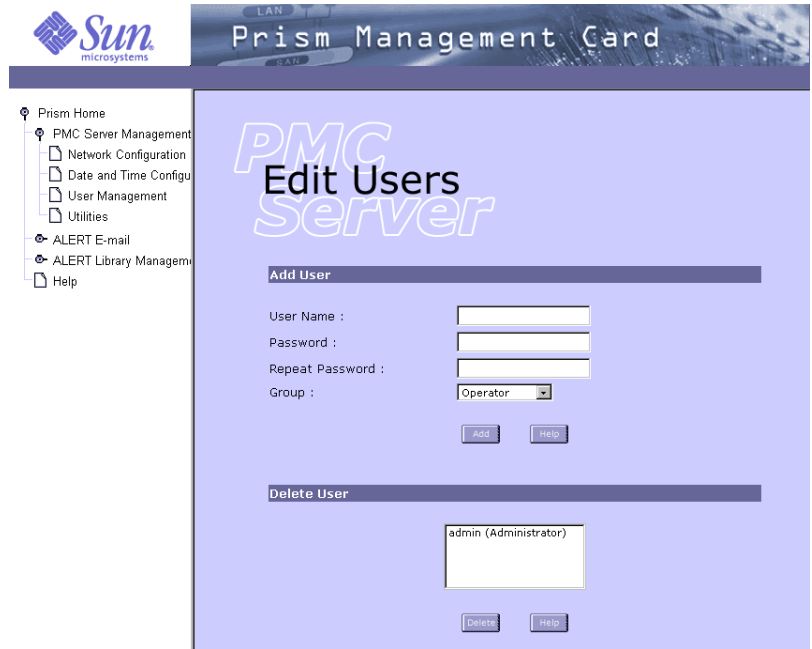
3 Under **Add User**, enter the new user account information:

    a In the **User Name** field, type a unique user name.

    b In the **Password** field, type the desired password.

    c In the **Repeat Password** field, retype the desired password.

> **Note:** Passwords are case sensitive.

    d Select the appropriate group from the **Group** list.

       The default groups are Administrator and Operator:

       • Administrator allows access to all functions of the PMC

       • Operator allows read-only access to the PMC

4 Click **Add**.

    A **Results** page indicates that the account has been added.

5 Click **OK** to return to the **Edit Users** page.

Deleting User Accounts

To delete a user account:

1 Access the User Management page (see <u>Accessing the User Management Page</u>).

2 Under **Edit Users**, click **Edit**.

The Management frame displays the **Edit Users** page (see <u>figure 5</u>).

3 Under **Delete User**, highlight the user account you wish to delete.

4 Click **Delete**.

A **Results** page indicates that the account was deleted.

5 Click **OK** to return to the **Edit Users** page.

> **Note:** The system does not allow you to delete the last existing administrator account. If the account needs to be deleted, create a new administrator account with the correct information *before* deleting the existing one.

Utilities Page

The **Utilities** page allows you to perform maintenance functions on the PMC, including uploading and activating software images. The **Utilities** page also allows you to reboot the PMC.

Accessing the Utilities Page

To access the **Utilities** page, click **Utilities** in the Navigation frame, under **PMC Server Management**.

The Management frame displays the **Utilities** page (see figure 6).

Figure 6 Utilities Page
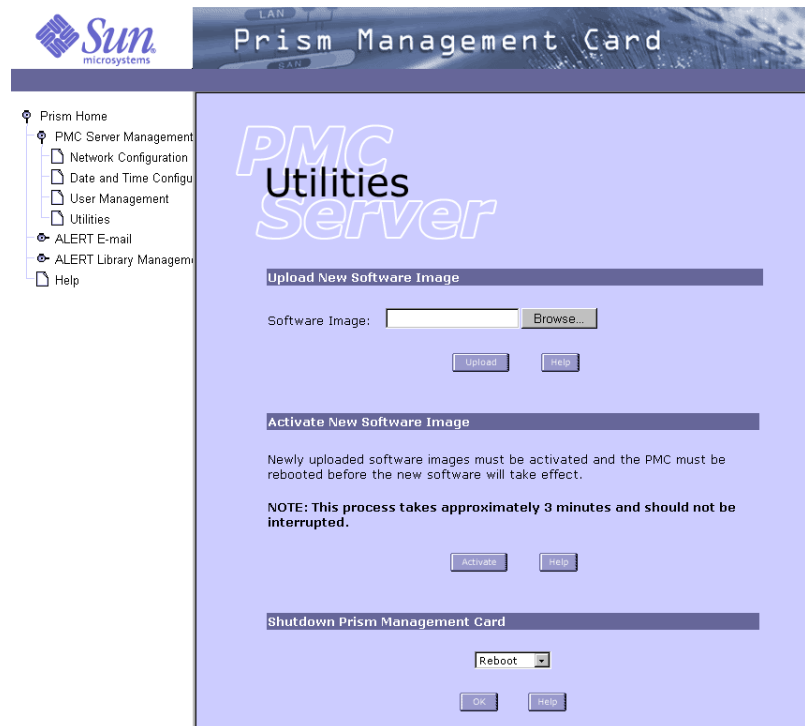
**Uploading a New
Software Image**

To upload a new software image:

1 Access the **Utilities** page (see <u>Accessing the Utilities Page</u>).

2 Under **Upload New Software Image**, type the location and filename of the new software image.

> **Note:** Click the **Browse** button to browse the system and locate the new software image. The file name for the new software image should begin with PMC300 and end with .image. An example of a valid image file name would be PMC300.[version].[build].image.
>
> If the PMC does not recognize the new software image file as a valid software image, the transfer aborts.

3 Click **Upload** to place the new software image in a temporary area of the system.

A **Results** page indicates that the software has been uploaded.

4 Click **OK** to return to the **Utilities** page.

> **Note:** If you reboot the library before activating the uploaded software image, the image file is erased and the upload process must be performed again.

The PMC will use the new software image after it is activated and the PMC is rebooted (see <u>Activating the New Software Image</u> and <u>Rebooting the PMC and Library</u>).

Activating the New Software Image

To move the uploaded software image from the temporary area, replace the current software image, and activate the new software image:

1 Access the **Utilities** page (see <u>Accessing the Utilities Page</u>).

2 Under **Activate New Software Image**, click **Activate**.

A progress bar indicates the progress of the software activation process.

> **Caution:** The activation process takes several minutes. Do not interrupt the process; doing so may result in library failure and damage to the PMC.

3 When the progress bar indicates the activation process is complete, click **OK** to return to the **Utilities** page.

The PMC will use the new software image the next time it is rebooted (see <u>Rebooting the PMC and Library</u>).

Rebooting the PMC and Library

To utilize updated configuration information, the PMC and library must be rebooted. To reboot the PMC and library:

1 Access the **Utilities** page (see <u>Accessing the Utilities Page</u>).

2 Under **Reboot PMC**, select **Reboot**, then click **OK**.

The PMC reboots itself, including restarting and initializing the library. If the library is part of a multiple library stack, all libraries in the stack will be restarted and initialized.

> **Note:** Rebooting the PMC and library may take up to 15 minutes, during which time the library is unavailable. Before rebooting the PMC and library, ensure there are no active or pending jobs being processed by the library. It should not be necessary to reboot the PMC and library during normal operation.

Shutting Down the PMC

Shutting down an L25 or L100 library while the MC300 PMC is in operation may cause the PMC image and/or configuration file to be corrupted. To prevent this from happening, follow this procedure whenever you must shut down a library with a PMC installed:

1 Access the **Utilities** page (see on page 15).

2 Under **Reboot PMC**, select **Shutdown**, then click **OK**.

> **Note:** Allow at least 3 to 4 minutes for the PMC to shut down.

3 Follow the standard procedure to shut down the library (see the *Sun StorEdge L25 Tape Library and Sun StorEdge L100 Tape Library User's Guide*, PN 6423016).

Chapter 3
ALERT E-mail

Prism ALERT E-mail is managed through the following Prism Management Console Web pages:

- The **Contact Configuration** page (see page 20) allows you to set up information about the company that owns the library and the primary and secondary contacts.

- The **Message Configuration** page (see page 23) allows you to set up the mailing lists for e-mail notification of various errors, failures, and activities.

- The **E-mail Configuration** page (see page 26) allows you to set up e-mail service information.

Contact Configuration Page

Accessing the Contact Configuration Page

To access the **Contact Configuration** page, click **Contact Configuration** in the Navigation frame, under **ALERT E-mail**.

The Management frame displays the **Contact Configuration** page (see figure 7).

Figure 7 Contact Configuration Page

This page displays the contact information for the company and the primary and secondary library administrators.

The fields are described in table 4 and table 5.

Table 4   Company Information

Field	Description
Company Name	The name of the company for the installed library
Street	Street address where the library is installed
City	City for the above street address
State	State or territory for the above street address
Postal Code	Postal or zip code for the above street address
Country	Country for the above street address
Library Location	Location of the installed library within the facility
Support Contract	Support contract number for the library

Table 5   Library Administrator Information

Field	Description
Administrator	Person responsible for library administration
E-mail Address	E-mail address for the library administrator
Phone	Daytime telephone number for the library administrator, including area code
Fax	Business fax number for the library administrator, including area code

Field	Description
Pager	Pager number for the library administrator, including area code
Street	Business street address for the library administrator
City	City for the above street address
State	State or territory for the above street address
Postal Code	Postal or zip code for the above street address
Country	Country for the above street address

Changing the Contact Configuration Information

To change the information shown on the **Contact Configuration** page:

1 Access the **Contact Configuration** page (see <u>Accessing the Contact Configuration Page</u>).

2 Insert or change the configuration information as desired.

> **Note:** No spaces are quotation marks (") are allowed when entering telephone numbers or e-mail addresses. If spaces are entered, a message indicating Illegal Phone Number appears. Alphabetical characters, parentheses, and dashes are acceptable. An example of a correct telephone entry is (949)555-1212.

3 Click **Apply**.

A **Results** page indicates the contact information has been saved.

4 Click **OK** to return to the **Contact Configuration** page.

Message Configuration Page

The **Message Configuration** page allows you to control who receives message notifications. The message types are:

- Hardware Failure
- Configuration Change
- Operator Access
- Soft Errors
- Administrative

Accessing the Message Configuration Page

To access the **Message Configuration** page, click **Message Configuration** in the Navigation frame, under **ALERT E-mail**.

The Management frame displays the **Message Configuration** page (see figure 8).

Figure 8 Message Configuration Page

Table 6 describes the fields on this page.

	Field	Description
Table 6 Message Configuration Page Field Descriptions	**Hardware Failure**	Errors or failures requiring onsite assistance or follow up, such as: • Tape drive failure detection • Library control card failure
	Configuration Changes	Change to the library or the PMC, such as: • Addition of new tape drive • Changing the BUS ID of a tape drive
	Operator Access	Operator access of the library, such as: • Accessing the magazine • Opening a library door
	Soft Errors	Errors or failures that do not require onsite assistance, but may lead to future problems, such as: • High temperature warnings • Excessive positioning retries
	Administrative	Regularly scheduled status reports, such as: • General status reports • Test messages

Viewing E-mail Recipients

To view e-mail recipients for a specific message type:

1 Access the **Message Configuration** page (see <u>Accessing the Message Configuration Page</u>).

2 If **SelectRecipient** is visible in the **Delete Recipient** field for the desired message type, click the down arrow.

The field displays a list of existing e-mail recipients for that message type.

> **Note:** If **SelectRecipient** is not visible in the **Delete Recipient** field for the desired message type, there are no e-mail recipients configured for that message type.

Adding E-mail Recipients

To add e-mail recipients:

1 Access the **Message Configuration** page (see Accessing the Message Configuration Page).

2 In the **Add Recipient** column next to the desired message type, enter the desired e-mail address.

To add multiple recipients, separate each e-mail address with a comma.

3 Click **Apply**.

A **Results** page indicates the e-mail recipient has been added.

4 Click **OK** to return to the **Message Configuration** page.

Deleting E-mail Recipients

To delete e-mail recipients:

1 Access the **Message Configuration** page (see Accessing the Message Configuration Page).

2 Click the down arrow next to the **Delete Recipient** column of the desired message type.

3 Highlight the e-mail address you wish to delete.

> **Note:** Only one e-mail recipient may be deleted at a time.

4 Click **Apply**.

A **Results** page indicates the e-mail recipient has been deleted.

5 Click **OK** to return to the **Message Configuration** page.

E-mail Configuration Page

The **E-mail Configuration** page allows you to define the e-mail server information for the ALERT E-mail feature, and to send test messages. The information must be entered before any ALERT E-mail options will work.

Accessing the E-mail Configuration Page

To access the **E-mail Configuration** page, click **E-mail Configuration** in the Navigation frame, under **ALERT E-mail**.

The Management frame displays the **E-mail Configuration** page (see figure 9).

Figure 9 E-mail Configuration Page
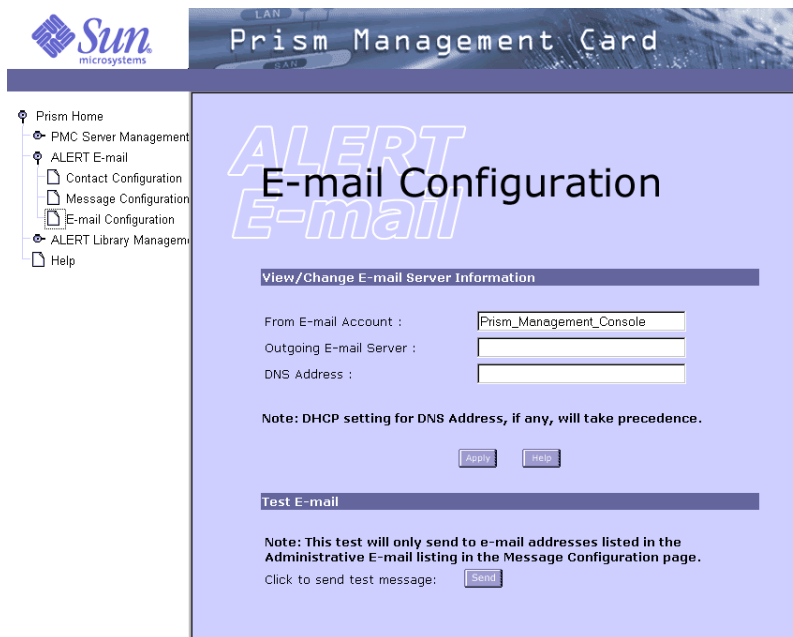
Table 7 describes the fields on this page.

Table 7   E-mail
Configuration Page
Field Descriptions

Field	Description
From E-mail Account	This field should contain a valid address on the e-mail server specified in the **Outgoing E-mail Server** field. The default account is Prism_Management_Console. *Do not* add the domain name (@xxx) in this field. Not all e-mail server types require an account to be created. If you have problems, see your network administrator.
Outgoing E-mail Server	This field should contain the name of the server designated for outgoing e-mail, such as mail2.com
DNS Address	This field should contain the domain name server address, for example, 123.123.22.12. This is the IP address of your server providing DNS name resolution services.

Editing the E-mail Configuration

To edit the information displayed on the **E-mail Configuration** page:

1 Access the **E-mail Configuration** page (see <u>Accessing the E-mail Configuration Page</u>).

2 Edit the configuration as desired.

3 Click **Apply**.

   A **Results** page indicates the e-mail configuration has been saved.

4 Click **OK** to return to the **E-mail Configuration** page.

Sending a Test E-mail

The **Test E-mail** option allows you to send a test message to verify that the e-mail configuration has been completed successfully. To send a test message:

1 Access the **E-mail Configuration** page (see <u>Accessing the E-mail Configuration Page</u>).

2 Under **Test E-mail**, click **Send**.

> **Note:** The test message is sent to e-mail addresses in the Administrative E-mail list specified on the **Message Configuration** page.

Chapter 4
ALERT Library Management

The ALERT Library Management option is managed through the following Prism Management Console Web pages:

- The **Library Status** page (see page 30) allows you to view the general status of the library. It also allows you to move cartridges to various locations in the library or multiple library stack.

- The **Library Configuration** page (see page 35) allows you to view and set the BUS ID configuration of the library and drives.

- The **Library Statistics** page (see page 38) allows you to view specific information about the library and the number of times specific functions have been performed.

- The **Service Operations** page (see page 40) allows you to perform various service and status tests on the library and view the results.

- The **Monitoring Configuration** page (see page 43) allows you to set the monitoring and status report interval.

Library Status Page

The **Library Status** page allows you to:

- View the status of the library
- Move cartridges within the library

**Accessing the
Library Status
Page**

You can access the **Library Status** page in two ways:

- Click **Library Status** in the Navigation frame, under **ALERT
  Library Management**
- Click the status icon on the Prism Management Console **Home**
  page

The Management frame displays the read-only **Library Status** page
(see figure 10).

Note:	This page remains blank while the PMC queries the library for status. The page will go blank periodically while the information refreshes.

Figure 10 Library
Status Page

This page is divided into two sections: **Cartridge Movement** and
Library Physical View.

Cartridge Movement

To move a cartridge within the library:

1 Select the source element for the cartridge to be moved:

    a Open the **From** list and select the element type that contains the cartridge to be moved: `Drive`, `Bin`, `Port`, `Fixed Slot`, `Hand`, or `Elevator` (shuttle).

    b In the **Position** field immediately to the right of the **From** field, type the number of the element that contains the cartridge to be moved.

2 Select the destination element for the cartridge:

    a Open the **To** list and select the element type for the destination element: `Drive`, `Bin`, `Port`, `Fixed Slot`, `Hand`, or `Elevator` (shuttle).

    b In the **Position** field immediately to the right of the **To** field, type the number of the source element.

3 Click **Apply**.

A **Results** page indicates that the cartridge has been moved.

4 Click **OK** to return to the **Library Status** page.

Library Physical View

The **Library Physical View** section of the **Library Status** page provides detailed status for each library module, drive, fixed slot, bin, and elevator (shuttle). Bins designated as import/export elements are shaded.

> **Note:** The Prism Management Console Web pages refer to each library module as a "frame." Each library module is divided into levels. An L25 library module has one level, and an L100 library module has four levels, which are numbered from top to bottom. For more information about library levels, refer to the *Sun StorEdge™ L25 Tape Library and Sun StorEdge™ L100 Tape Library User's Guide* (6423016).

Viewing Drive Status

To view the status of a particular drive:

1 Access the **Library Status** page (see <u>Accessing the Library Status Page</u>).

2 In the **Library Physical View** section of the page, click the number of the drive for which you wish to view status information.

The Management frame displays the **Element Information** page (see <u>figure 11</u>), which displays status information for the selected drive.

Figure 11 Element Information Page
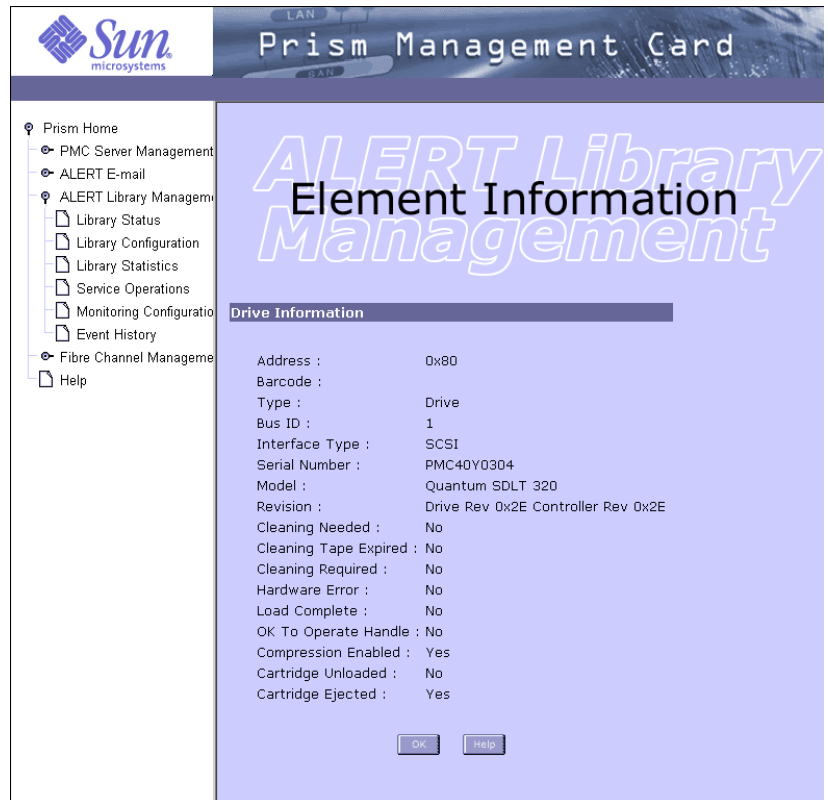
Table 8   Element
Information Page Field
Descriptions

Field	Description
Address	This field displays the hexadecimal address of the element.
Barcode	This field displays the barcode of the cartridge, if a cartridge with a barcode is in the drive. If a cartridge is present but does not have a barcode, **(Barcode?)** appears. If no cartridge is present, the field is blank.
Type	This field displays the element type being viewed.
Bus ID	This field displays the Bus ID of the element being viewed. (For SCSI devices, the Bus ID is the unique target of the device. For Fibre Channel devices, the Bus ID is the unique Loop ID of the device or "Soft" to indicate soft addressing mode.)
Interface Type	This field displays the element connection type (whether SCSI or Fibre Channel).
Serial Number	This field displays the serial number for the selected tape drive.
Model	This field displays the tape drive type, such as **DLT8000**.
Revision	This field displays the firmware revision number of the selected tape drive.
Cleaning Needed	If the tape drive is in need of cleaning, this field displays **Yes**. This is an informational message, permitting you to schedule the drive cleaning. If the condition is allowed to persist, the drive eventually moves to the **Cleaning Required** state and will not function until cleaning is performed.

Field	Description
Cleaning Tape Expired	If the cleaning cartridge in the drive has expired, this field displays **Yes**.
Cleaning Required	If drive cleaning is required, this field displays **Yes**. The drive will not function until cleaning is performed.
Hardware Error	If a hardware error is detected, this field displays **Yes**.
Load Complete	If the tape load is complete, this field displays **Yes**.
OK to Operate Handle	This field displays status and whether the handle is available for operation.
Compression Enabled	If compression is enabled, this field displays **Yes**.
Cartridge Unloaded	If the cartridge is unloaded but not ejected, this field displays **Yes**.
Cartridge Ejected	If the cartridge is ejected, this field displays **Yes**.

Library Configuration Page

The **Library Configuration** page allows you to view or change the BUS ID settings for the library and drives.

Accessing the Library Configuration Page

To access the **Library Configuration** page, click **Library Configuration** in the Navigation frame, under **ALERT Library Management**.

The Management frame displays the **Library Configuration** page (see figure 12).

Figure 12 Library
Configuration Page
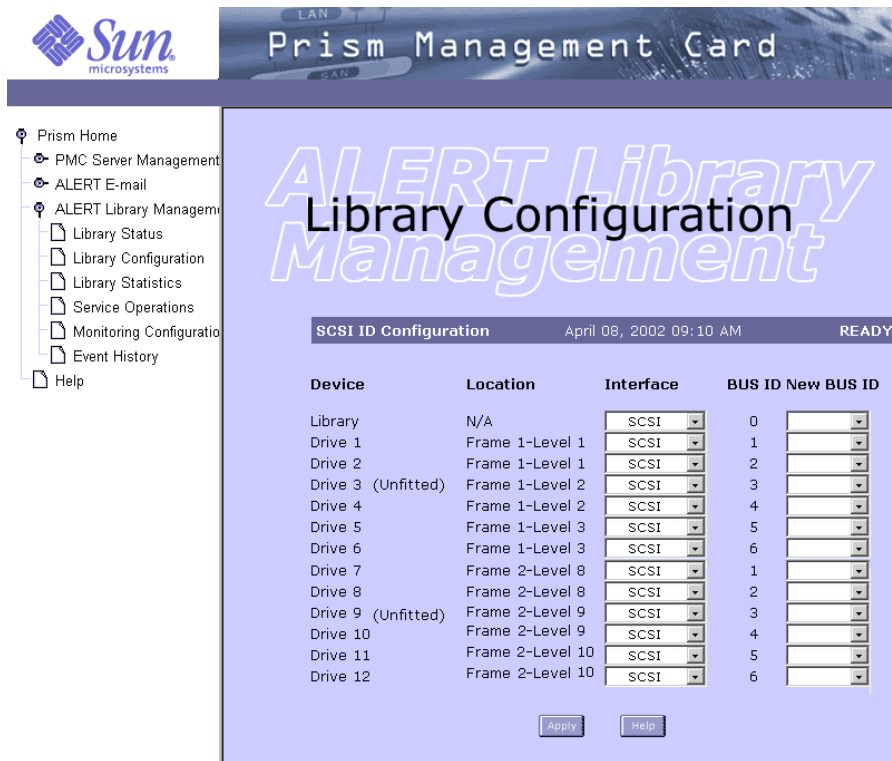
Table 9 Library
Configuration Page
Field Descriptions

Field	Description
Device	This field lists the SCSI or Fibre Channel devices within the library, including the robotic controller and the drives. The library robotic controller is indicated by the device name **Library**. Drives may appear with **(Unfitted)** after their number indicating the drive is not present. BUS IDs can be set without the drive present.
Location	This field indicates the location of the device within the library module or multiple library stack. In a multiple library stack, the library module (frame) number is indicated.

Field	Description
Location (continued)	Frame and level numbers are assigned from the top to bottom. For example, Frame 2-Level 5 indicates that the device is in the second library module and the fifth library level from the top of the multiple library stack.
Interface	Using the pull-down menu, the interface type can be selected. The two choices are SCSI and Fibre. **Note:** The interface is obtained automatically for current fitted devices and can be set for future drives.
BUS ID	This field indicates the BUS ID of the device. For SCSI devices BUS ID is the unique target of the device. For Fibre Channel devices BUS ID is the unique Loop ID of the device or "Soft" to indicate soft addressing mode. **Note:** N/A will be displayed for unfitted devices.
New BUS ID	Using the pull-down menu, the BUS ID can be modified for either the library or the drives. Each device must have a separate and unique BUS ID for that topology. Each drive also displays its current BUS ID and allows you to assign a new BUS ID.

Changing BUS ID Settings

To change the BUS ID of a device:

1 Access the **Library Configuration** page (see Accessing the Library Configuration Page).

2 Open the **New BUS ID** list box next to the device whose BUS ID you wish to change.

3 Select the desired **BUS ID** from the list.

4 Click **Apply**.

A **Results** page displays indicating the BUS ID was changed.

> **Note:** BUS ID changes do not take effect until you click **Apply** and confirm the pop-up warning message.

> **Caution:**   Changing a BUS ID once your configuration has already been used by a backup software application or Fibre Channel bridge could render the configuration invalid.

Library Statistics Page

The read-only **Library Statistics** page allows you to view specific information about the library and the number of times specific functions have been performed.

To view library statistics, click **Library Statistics** in the Navigation frame, under **ALERT Library Management**.

The Management frame displays the **Library Statistics** page (see figure 13).

Figure 13 Library
Statistics Page

The **Library Statistics** page displays the following statistical information for each magazine, drive, fixed slot, and shuttle (elevator) in the library or multiple library stack:

- Power On Hours (does not reset upon initialization)

- Good Fetches

- Fetch Retry 1

- Fetch Retry 2

- Fetch Retry 3

- Good Stows

- Stow Retry 1

- Stow Retry 2

- Stow Retry 3

- Scan Retries

- Scan Count

Service Operations Page

The **Service Operations** page allows you to perform tests and view the results.

Accessing the Service Operations Page

To access the **Service Operations** page, click **Service Operations** in the Navigation frame, under **ALERT Library Management**.

The Management frame displays the **Service Operations** page (see).

Figure 14 Service Operations Page
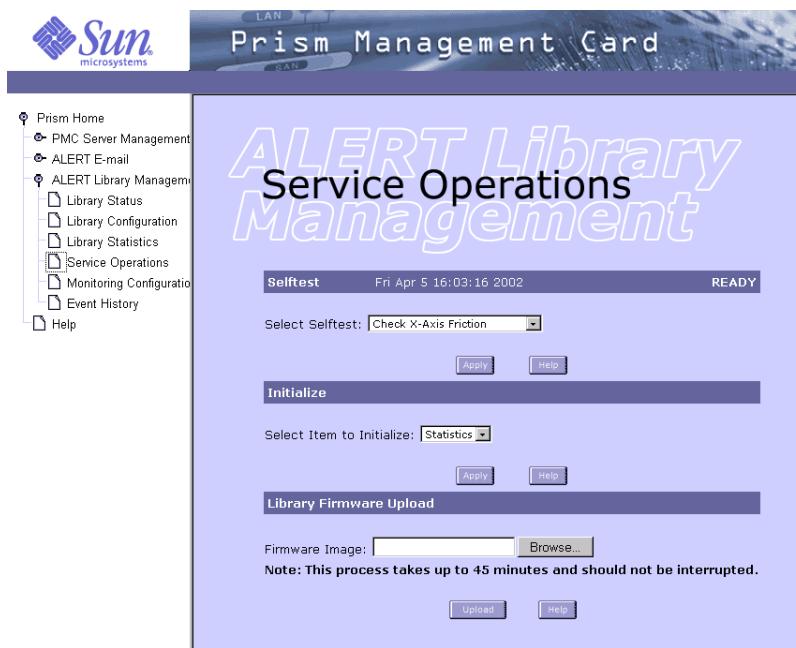
**Performing a
Library Self-test**

To perform a self-test on the library:

1 Access the **Service Operations** page (see <u>Accessing the Service Operations Page</u>).

2 In the **Selftest** section of the page, select the test to be performed.

The available tests are:

- **Check X-Axis Friction**

- **Check Y-Axis Friction**

- **Check Z-Axis Friction**

- **Check Picker-Axis Friction**

- **Check Theta-Axis Friction**

- **Check Elevator-Axis Friction**

- **Check X-Axis Sensor**

- **Check Y-Axis Sensor**

- **Check Picker-Axis Sensor**

- **Check Theta-Axis Sensor 1**

- **Check Theta-Axis Sensor 2**

- **Check Elevator-Axis Sensor**

3 Click **Apply**.

A **Results** page indicates the self-test is complete.

4 Click **OK** to return to the **Service Operations** page.

**Initializing
Statistics**

To initialize the statistics functions of the library:

1 Access the **Service Operations** page (see <u>Accessing the Service Operations Page</u>).

2 In the **Initialize** section of the page, select **Statistics**.

3 Click **Apply**.

A **Results** page indicates the initialization, or reset, is complete.

4 Click **OK** to return to the **Service Operations** page.

Uploading Library Firmware

To upload library firmware:

1 Access the **Service Operations** page (see <u>Accessing the Service Operations Page</u>).

2 Click **Browse** to locate the appropriate image file on the host computer.

Caution:	Before you perform the upload, make sure there are no processes or applications accessing the library. If there are, shut down the process or application, or pause the operation, until the upload completes.

Warning:	Make sure the image file is valid; otherwise, you may render the library unusable after the upload.

3 Click **Upload** to begin the library firmware upload.

| **Caution:** | The entire upload process may take up to 45 minutes to complete. **Do not interrupt the process**. Wait for the upload to finish. At the end of the upload, the library automatically resets itself.

During the firmware upload process, a progress window displays, indicating the current operation being performed to complete the firmware upload process.

In a multiple library stack, the master library module is updated first, then the succeeding library modules. |
|---|---|

Monitoring Configuration Page

The **Monitoring Configuration** page allows you to set the monitoring and report interval.

Accessing the Monitoring Configuration Page

To access the **Monitoring Configuration** page, click **Monitoring Configuration** in the Navigation frame, under **ALERT Library Management**.

The Management frame displays the **Monitoring Configuration** page (see <u>figure 15</u>).

Figure 15 Monitoring Configuration Page
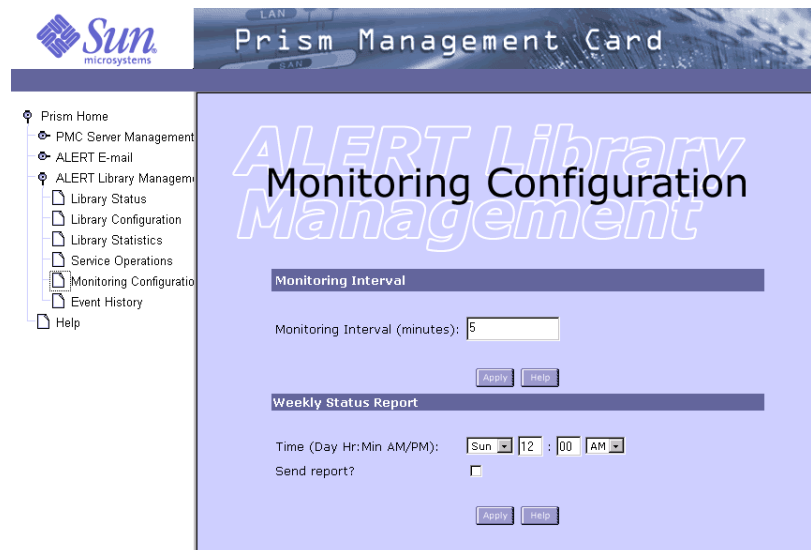
Setting the Monitoring Interval

To set the monitoring interval time in minutes:

1 Access the **Monitoring Configuration** page (see <u>Accessing the Monitoring Configuration Page</u>).

2 In the **Monitoring Interval** section of the page, type the desired number of minutes between monitoring.

The monitoring determines the polling frequency for library configuration changes. The interval entered must be between 0 and 60 minutes.

> **Note:** The default monitoring interval is 5 minutes. If the monitoring interval is changed to 0 (zero) minutes, no library configuration changes are reported, and no configuration change e-mails are sent.

3 Click **Apply**.

A **Results** page indicates the monitoring interval information has been saved.

4 Click **OK** to return to the **Monitoring Configuration** page.

Generating a Weekly Status Report

To specify when to generate a weekly status report for the library:

1 Access the **Monitoring Configuration** page (see Accessing the Monitoring Configuration Page).

2 In the Weekly Status Report section of the page, select the desired day, hour, minute, and AM or PM.

3 If the status report is to be sent automatically, select the **Send Report?** checkbox.

4 Click **Apply**.

A **Results** page indicates the weekly status report information has been saved.

5 Click **OK** to return to the **Monitoring Configuration** page.

Event History Page

The **Event History** page allows you to view a list of library events.

To view the **Event History** page, click **Event History** in the Navigation frame, under **ALERT Library Management**.

The Management frame displays the **Event History** page (see).

This page lists information about events, errors, or changes in the library and its operations by:

• **Title** - the specific trap code

- **Description** - a brief description of the code, including the Fault System Code Identifier

- **Originator** - the equipment returning the information, such as the library (frame) number

- **Time Stamp** - the time and date the error or event occurred

This information can be used as a log of the general service and usage of the library.

Chapter 5
Fibre Channel Management

Fibre Channel Management allows you to remotely manage and configure one or more FC420 Fibre Channel bridges that are installed in your library (or libraries).

> **Note:** Fibre Channel Management is only available when one or more FC420 bridges are installed in your library and are connected to the MC300 Prism Management Card (PMC) through a dedicated 100BaseT Ethernet connection (see Cabling the FC420s to the PMC).

Fibre Channel Management is controlled through the following Prism Management Console Web pages:

- Route Status - allows you to view and refresh the route maps related to the Fibre Channel bridges.

- Bridge Status - allows you to view the hardware and software status of the Fibre Channel bridges.

- Bridge Administration - allows you to configure the hardware and software settings for the Fibre Channel bridges, and reboot or upload new firmware to one or all FC420 bridges.

Cabling the FC420s to the PMC

Fibre Channel Management requires a physical Ethernet connection between the PMC and all installed FC420 bridges. The physical connection is not provided with your library.

Use these instructions to cable the FC420 bridge (or bridges) to the PMC.

Note:	These instructions call out specific Ethernet cables to be used with a 100 Mbit per second Ethernet hub/switch. Attach the hub/switch in a convenient location, based on cable lengths and routing. The hub/switch need not be located or mounted in the rack that contains the library (or libraries).
	These Ethernet cables and Ethernet hub/switch are not supplied with your library and must be obtained separately.

Cabling a Single FC420

To cable a single FC420 to the PMC:

1 Use a short Ethernet cross-over cable to connect the bottom Ethernet port on the PMC (ETH 1) to the Ethernet port on the FC420 bridge (see figure 17 and figure 18).

Note:	The 10-foot (3 meter) Ethernet cross-over cable supplied with the FC420 can be used if you are unable to obtain a short cable.

Figure 17 Cabling for a Single FC420 in an L25

Ethernet cross-over cable

Cross-over cable is not supplied, other standard cabling not shown for clarity

FC420   **MC300 PMC**
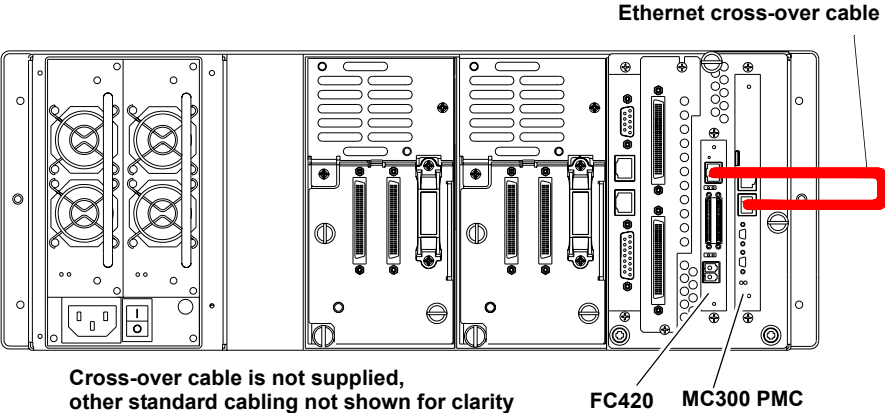
Figure 18 Cabling for a Single FC420 in an L100

Ethernet cross-over cable

MC300 PMC

FC420

Cross-over cable is not supplied, other standard cabling not shown for clarity
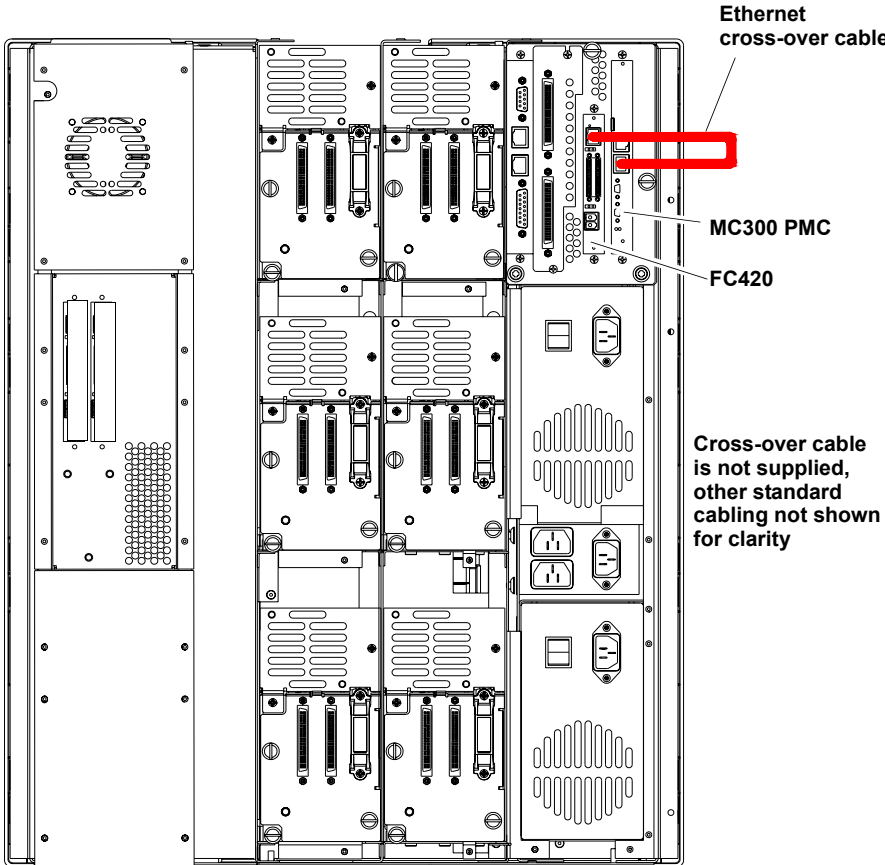
Cabling Two or More FC420s

To cable two or more FC420s to the PMC:

1 Connect the bottom Ethernet port on the PMC (ETH 1) to an available port on a 100 Mbit per second Ethernet hub/switch using a CAT-5 Ethernet cable.

> **Note:** If your Ethernet hub/switch includes an Uplink port, do not use it.

2 Connect the Ethernet port of each FC420 bridge to an available port on the Ethernet hub/switch using a CAT-5 Ethernet cable (see figure 19, figure 20, and figure 21).

The cabling procedure is complete.

Figure 19 Cabling for Three FC420s in an L100
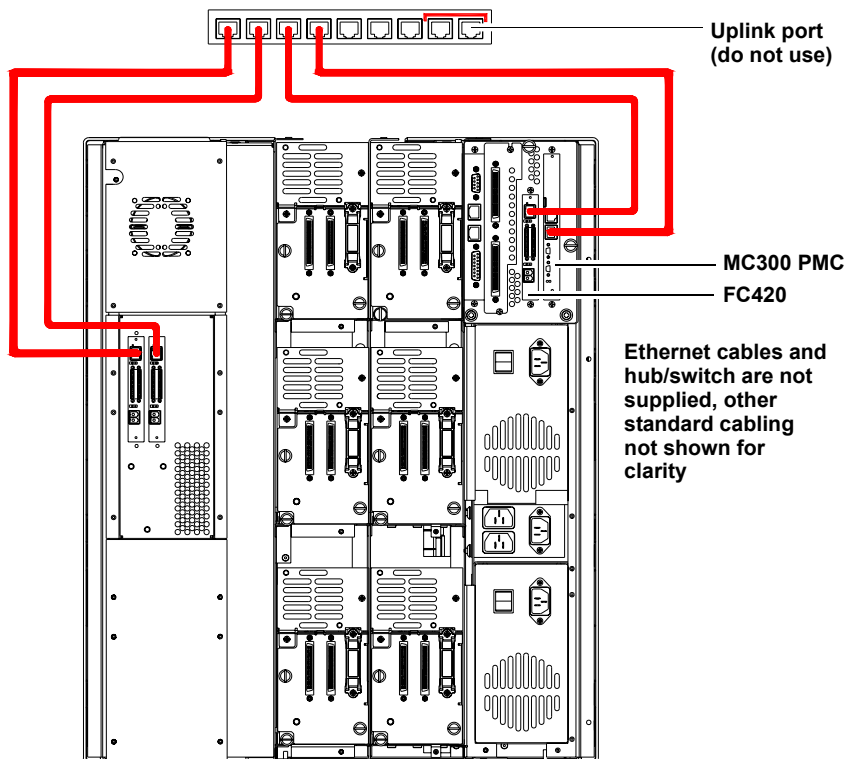
Figure 20 Cabling for
Two or More FC420s
in Two or More L25s

**FC420 (one
per library)**   **MC300 PMC**   **100Mbit/second
Ethernet hub/switch**   **Uplink port
(do not use)**
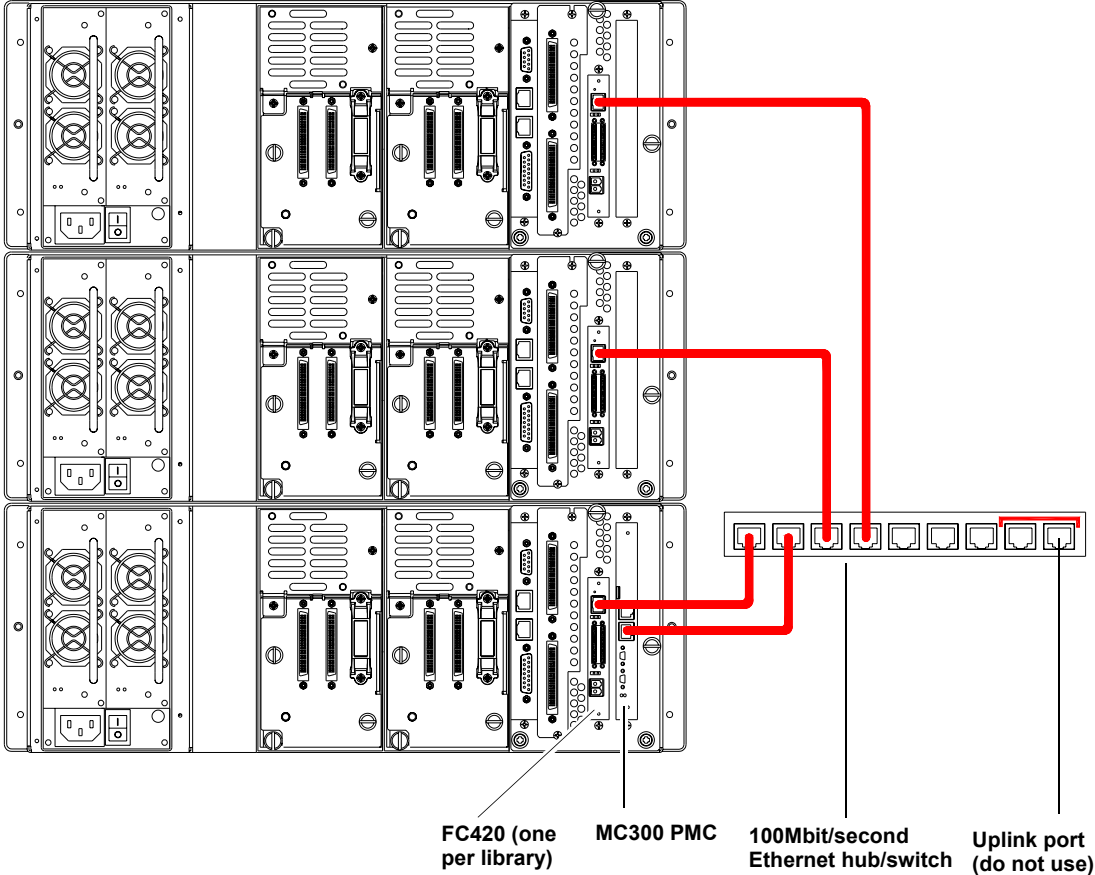
**Ethernet cables and hub/switch are not supplied,
other standard cabling not shown for clarity**

Figure 21 Cabling for
Two or More FC420s
in an L100

**100Mbit/second
Ethernet hub/switch**

**Ethernet cables and hub/switches are not
supplied, other standard cabling not shown
for clarity**

**For close-up of the MC300 PMC and the FC420
bridge, see the "Cabling for a Single FC420 in
an L100" illustration**
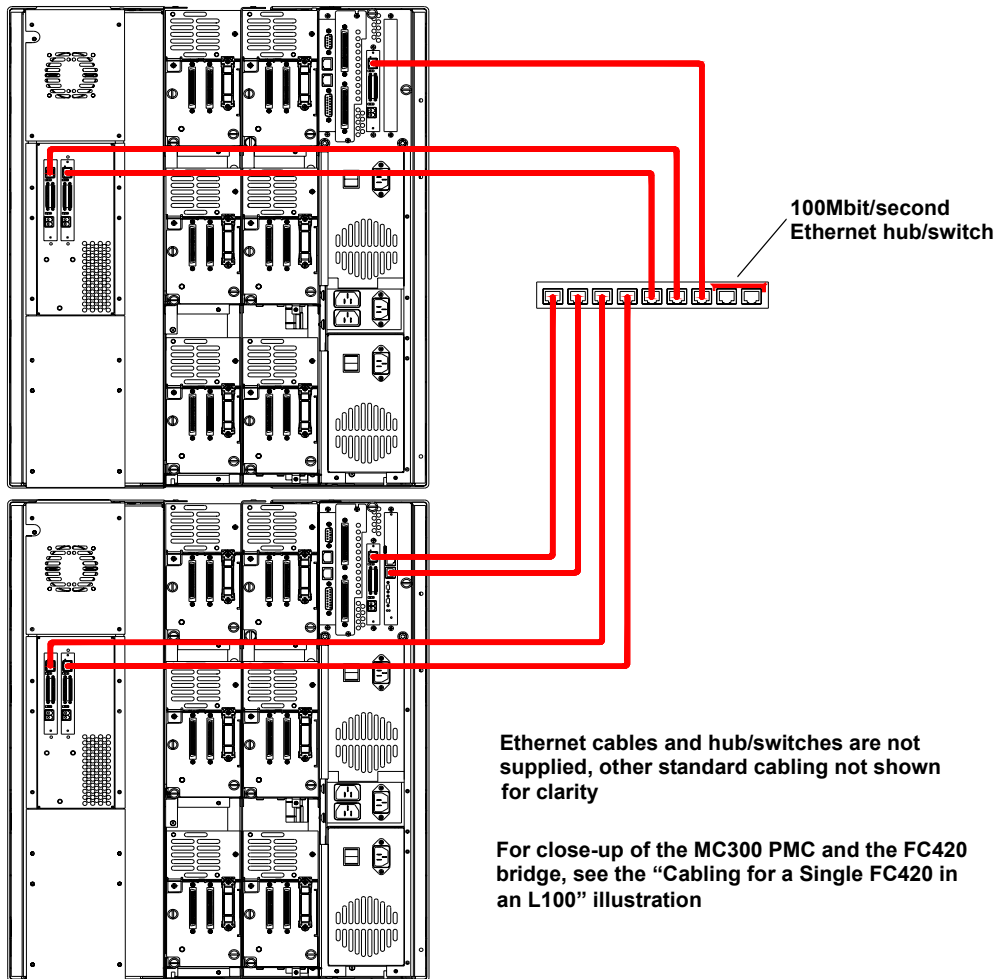
Note: You will need one hub/switch port for the MC300 and
one hub/switch port for each FC420 bridge. If your hub/
switch does not have enough ports, you can connect the
uplink port of a second hub/switch to one of the
standard ports on the primary hub/switch to provide
more ports.

Route Status

The **Route Status** page allows you to view and refresh the route maps related to the FC420 bridges. Access the **Route Status** page using the link provided in the Navigation frame. Under **Fibre Channel Management**, click **Route Status**. The Management frame displays the **Route Status** page (see).

> **Note:** If a dialog box appears requesting your user name and password, enter the information and click **OK**.

At the top of the **Route Status** page is a line of text that denotes the number of FC420 bridges that are installed and connected to the PMC.

Each bridge is separated by a title that contains the bridge number. Under each bridge title is the route map that denotes the Fibre Channel paths from the host to the FC420 bridge, including port, bus, target, and Logical Unit Number (LUN).

A **Refresh** button at the bottom of the **Route Status** page allows you to update the route maps. When clicked, a pop-up message appears with the following message: `Refreshing routes may affect current operations on the bridges. Do you want to continue?`

Click **Cancel** to cancel the refresh request or **OK** to proceed with refreshing the route status.

> **Caution:** Do not use the **Refresh** button when backup jobs are running. Wait until the library is idle.

Figure 22 Route
Status
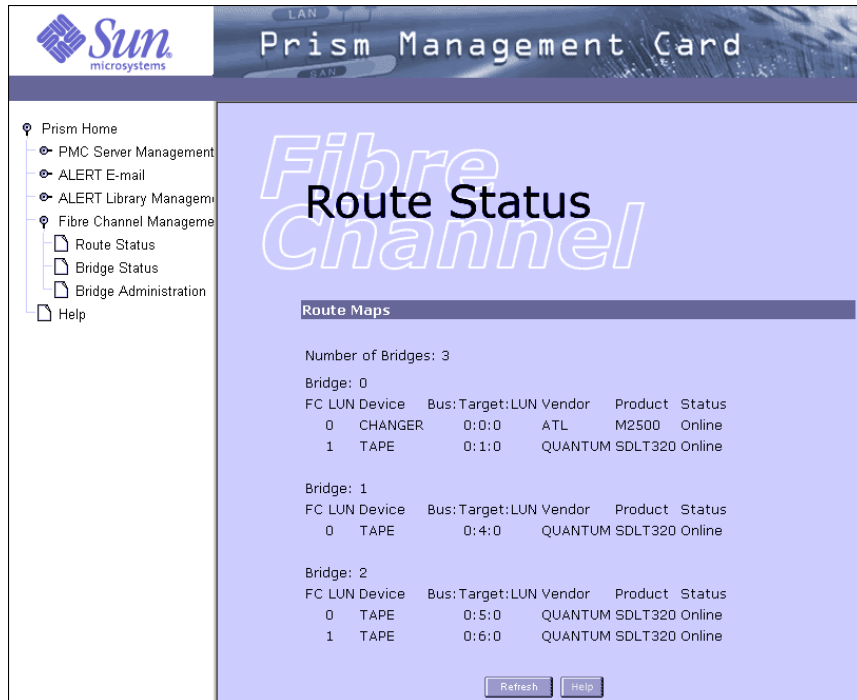
Each bridge is displayed with a table that describes the routes that
have been created (see table 10).

Table 10 Route
Status Descriptions

Field	Description
LUN	The LUN assigned to the Fibre Channel port
Device	The type of SCSI device that is using the LUN (the available types are **CHANGER** or **TAPE**)
Bus:Target:LUN	The bus, target ID, and LUN of the SCSI device
Vendor	The vendor ID for the SCSI device
Product	The product ID for the SCSI device
Status	Indicates whether the SCSI device is **Online** or **Offline**

Bridge Status

The **Bridge Status** page allows you to view the hardware and software status of the FC420 bridges. Access the **Bridge Status** page using the link provided in the Navigation frame. Under **Fibre Channel Management**, click **Bridge Status**. The Management frame displays the **Bridge Status** page (see figure 23).

Note:	If a dialog box appears requesting your user name and password, enter the information and click **OK**.

At the top of the **Bridge Status** page is a line of text that denotes the number of FC420 bridges that are installed and connected to the PMC.

Each bridge is separated by title that contains the bridge number. Under each bridge title is the table that lists a variety of hardware and software attributes. These attributes include hardware information, such as Loop ID, IP address, and bridge temperature; and software information such as firmware revision, connection mode, and NVRAM settings.

Figure 23 Bridge
Status

The hardware and software status information within the table is defined below (see table 11).

Table 11   Bridge Status Descriptions

Field	Description
Status	Displays the status of the Fibre Channel port
Loop ID	Displays the Loop ID entry for the Fibre Channel port
PRISM FC420	Displays the serial number and name of the Prism FC420 bridge, the xxx indicates the serial number of the bridge present in the library
IP Address	Displays the IP address for the bridge
Firmware Version	Displays the firmware version of the bridge
NVRAM Rev, CLI Rev, Firmware Rev	Displays the current revision levels for the NVRAM, Command Line Interface, and the Fibre Channel bridge firmware
WWName	Displays the World Wide Name (WWN) for the Fibre Channel port
SCSI Busses n = LVD	Displays the number and type of SCSI busses
Temperature	Indicates the temperature of the FC420 bridge in degrees Celsius (Fahrenheit)
Active Configuration	Displays the internal name of the active OEM configuration file (if one exists)
Fibre Connection Mode	Displays whether the Fibre Channel connection mode is Loop, Point-to-Point (PTP), Loop-PTP, or PTP-Loop
Data Rate	Displays the data rate of the Fibre Channel connection (1 or 2 gigabit per second)
Fibre Port transferring xxx MB/sec, xxx IOs/sec	Displays the transfer rate for the Fibre Channel port in MB/sec, IOs/sec

Bridge Administration

The **Bridge Administration** page allows you to configure the hardware and software settings for each FC420 bridge (listed in the tables on the **Bridge Status** page). Access the **Bridge Administration** page using the link provided in the Navigation frame. Under **Fibre Channel Management**, click **Bridge Administration**. The Management frame displays the **Bridge Administration** page (see figure 24).

Note:	If a dialog box appears requesting your user name and password, enter the information and click **OK**.

The hardware and software settings for each FC420 bridge are:

- **Set Fibre Channel Data Rate** - configures the data transfer rate at which the bridge will operate. The options are 1 Gb per second, 2 Gb per second, or Auto-negotiated (takes effect after a reboot).

- **Set Fibre Channel Loop ID** - configures a hard addressing (0 - 125) or soft addressing (255) for the Loop ID during initialization (takes effect after a reboot).

- **Reboot Bridge** - allows you to reboot one or all bridges. A bridge takes approximately 30 seconds to reboot.

- **Upload New Bridge Firmware** - installs new bridge firmware to one bridge or all bridges. It takes approximately 60 seconds to upload new bridge firmware. The bridge(s) are automatically rebooted. The new firmware becomes active after the reboot.

Figure 24 Bridge
Administration

Setting the Fibre Channel Data Rate

To configure the Fibre Channel data rate:

1 Access the **Bridge Administration** page.

In the Navigation frame, under **Fibre Channel Management**, click **Bridge Administration**.

2 Under **Set Fibre Channel Data Rate**, select a bridge from the **Bridge** pull-down list.

3 Select a data rate from the **Data Rate** pull-down list.

The data rate types include:

- **Auto Negotiate**
- **1 Gb**
- **2 Gb**

4 Click **Apply**.

A **Results** page displays indicating the data rate was configured.

> **Note:** Reboot the FC420 bridge to utilize the new connection mode (see Rebooting a Bridge).

Setting the Fibre Channel Loop ID

To configure the Fibre Channel loop ID:

1 Access the **Bridge Administration** page.

In the Navigation frame, under **Fibre Channel Management**, click **Bridge Administration**.

2 Under **Set Fibre Channel Loop ID**, select a bridge from the **Bridge** pull-down list.

3 Enter the desired **Loop ID** for the selected bridge.

> **Note:** Enter a number between 0 - 125 for hard addressing to the Fibre port. To disable hard addressing and use soft addressing to the Fibre port, enter 255.

4 Click **Apply**.

A **Results** page appears indicating the loop ID was configured.

> **Note:** Reboot the FC420 bridge to utilize the new connection mode.

Rebooting a Bridge

To reboot one or all bridges:

1 Access the **Bridge Administration** page.

In the Navigation frame, under **Fibre Channel Management**, click **Bridge Administration**.

2 Select a specific bridge or **All** from the **Bridge** pull-down list.

3 Click **OK**.

> **Note:** The bridge takes approximately 30 seconds to reboot.

Uploading Bridge Firmware

To upload bridge firmware:

1 Access the **Bridge Administration** page.

In the Navigation frame, under **Fibre Channel Management**, click **Bridge Administration**.

2 Select a specific bridge or **All** from the **Bridge** pull-down list.

3 Enter the name of the firmware image file or click the Browse button to select the firmware image file.

4 Click **OK**.

A **Results** page displays indicating the file was uploaded successfully.

Chapter 6
Getting Help

The Prism Management Console Web pages provide extensive online help files, which define actions and terms for all functions, features, and fields.

To access the **Help** pages:

- Click the **Help** link at the bottom of the Navigation frame.

  A new Internet browser window opens and displays the first page of the online help files.

- Click the **Help** button at the bottom of the current Web page.

  A new Internet browser window opens and displays online help for the current Web page. Figure 25 shows the Help page for the Prism Management Console Home page.

Figure 25 Home Page
Help
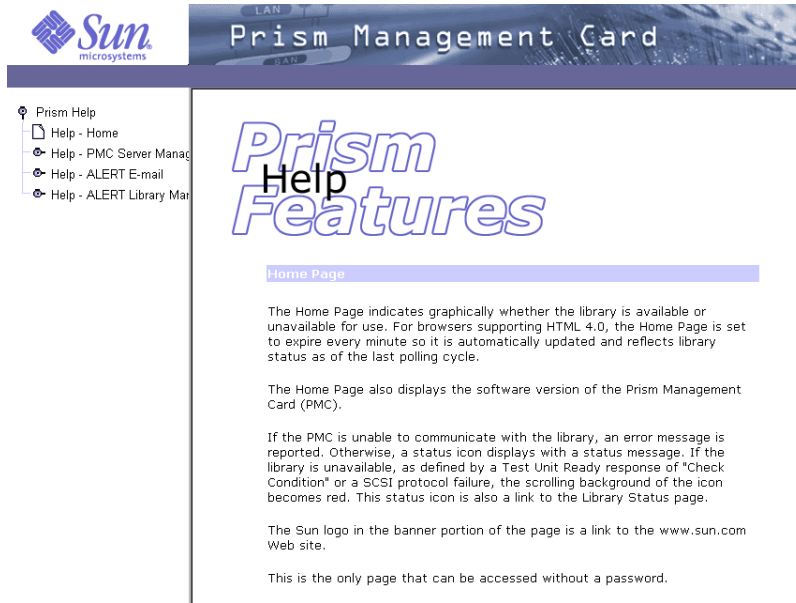
Event Details Listing

Table 12   Information
Events Detail

FSC Code	E-mail Message Error Type	Description
2403	No mail generated	Source is empty.
2404	No mail generated	Destination is full.
2405	No mail generated	Element address supplied is invalid.
2408	No mail generated	Destination slot not present. Magazine or drive removed.
2413	No mail generated	Source slot not present. Magazine or drive removed.
2415	No mail generated	Move medium attempted to drive that is being auto cleaned.
2418	Soft error	Requested action cannot be performed because robot is busy or in use.
2629	Hardware failure	A hand jam has been recovered.
2A00	Soft error	Shuttle queue is full.
4000	Soft error	SCSI command received for invalid LUN.

FSC Code	E-mail Message Error Type	Description
4001	Soft error	An ASC/ASCQ was used without updating error log logging.
4002	Soft error	Illegal SCSI command received.
4003	Soft error	Command received but library is busy.
4004	Soft error	Deferred error is pending.
4005	Soft error	Unit attention - due to reset.
4006	Soft error	Unit attention - due to mode parameters changed.
4007	Soft error	Unit attention - due to medium changed.
4008	Soft error	SCSI command had invalid field in CDB.
4009	Soft error	SCSI command had parameter list length error.
400A	Soft error	SCSI command had invalid field in parameter list.
400B	Soft error	SCSI command had invalid parameter value.
400C	Soft error	SCSI command failed due to servo problem.
400D	Soft error	No sense available.
400E	Soft error	Cleaner cartridge present.
400F	No mail generated	Move medium destination full.
4010	No mail generated	Move medium source empty.
4011	Soft error	Parameters not saved. Undefined.
4012	Soft error	Illegal element number.
4013	Soft error	Cannot complete command while cartridge is in hand.
4014	Soft error	Power-on configuration not yet finished.
4015	Soft error	Library will be ready soon, check back later.

FSC Code	E-mail Message Error Type	Description
4016	Soft error	Not ready - unknown reason.
4017	Operator access	Door is open.
4018	Operator access	Import/export is open.
4019	Configuration change	Operator panel is in menu mode.
401A	Operator access	Import/export has been accessed.
401B	Operator access	Command failed due to reservation conflict.
401C	Operator access	SCSI bus reset received.
401D	Operator access	SCSI bus device reset message received.
401E	Operator access	SCSI abort message received.
401F	Operator access	SCSI parity error received.
4020	Operator access	SCSI initiator detected error received.
4100	Configuration change	Time was set via serial port.
4101	Configuration change	Time set via synchronization command.
4102	Configuration change	Synchronize clock command issued.
4103	No mail generated	Library is rebooting.
4104	Configuration change	Library entering boot mode.
4105	No mail generated	Library has just started.
4106	Soft error	Time-out waiting for remote ACK.
4107	Soft error	Time-out waiting for remote response.
4108	Soft error	Remote machine sent time-out message.
4400	Operator access	Robot paused for operator safety (robotics accessible by operator).

FSC Code	E-mail Message Error Type	Description
4401	Operator access	Door 1 open (left door).
4402	Operator access	Door 2 open (right door).
4403	Operator access	Door 3 open.
4404	Operator access	Door 4 open.
4405	Operator access	Door 1 closed (left door).
4406	Operator access	Door 2 closed (right door).
4407	Operator access	Door 3 closed.
4408	Operator access	Door 4 closed.
4409	No mail generated	Magazine 1 has been removed (left magazine).
440A	No mail generated	Magazine 2 has been removed (right magazine).
440B	No mail generated	Magazine 3 has been removed (left magazine).
440C	No mail generated	Magazine 4 has been removed (right magazine).
440D	No mail generated	Magazine 5 has been removed (left magazine).
440E	No mail generated	Magazine 6 has been removed (right magazine).
440F	No mail generated	Magazine 7 has been removed (left magazine).
4410	No mail generated	Magazine 8 has been removed (right magazine).
4411	No mail generated	Magazine 9 has been removed (left magazine).
4412	No mail generated	Magazine 10 has been removed (right magazine).
4413	No mail generated	Magazine 1 has been inserted (left magazine).
4414	No mail generated	Magazine 2 has been inserted (right magazine).
4415	No mail generated	Magazine 3 has been inserted (left magazine).
4416	No mail generated	Magazine 4 has been inserted (right magazine).

FSC Code	E-mail Message Error Type	Description
4417	No mail generated	Magazine 5 has been inserted (left magazine).
4418	No mail generated	Magazine 6 has been inserted (right magazine).
4419	No mail generated	Magazine 7 has been inserted (left magazine).
441A	No mail generated	Magazine 8 has been inserted (right magazine).
441B	No mail generated	Magazine 9 has been inserted (left magazine).
441C	No mail generated	Magazine 10 has been inserted (right magazine).
441D	No mail generated	Magazine 1 absent at power-up (left magazine).
441E	No mail generated	Magazine 2 absent at power-up (right magazine).
441F	No mail generated	Magazine 3 absent at power-up (left magazine).
4420	No mail generated	Magazine 4 absent at power-up (right magazine).
4421	No mail generated	Magazine 5 absent at power-up (left magazine).
4422	No mail generated	Magazine 6 absent at power-up (right magazine).
4423	No mail generated	Magazine 7 absent at power-up (left magazine).
4424	No mail generated	Magazine 8 absent at power-up (right magazine).
4425	No mail generated	Magazine 9 absent at power-up (left magazine).
4426	No mail generated	Magazine 10 absent at power-up (right magazine).
4427	No mail generated	Library ready.
4428	No mail generated	Library not ready.
4429	No mail generated	Drive 1 in this library module removed.
442A	No mail generated	Drive 2 in this library module removed.
442B	No mail generated	Drive 3 in this library module removed.
442C	No mail generated	Drive 4 in this library module removed.

FSC Code	E-mail Message Error Type	Description
442D	No mail generated	Drive 5 in this library module removed.
442E	No mail generated	Drive 6 in this library module removed.
4434	No mail generated	Drive 1 in this library module inserted.
4435	No mail generated	Drive 2 in this library module inserted.
4436	No mail generated	Drive 3 in this library module inserted.
4437	No mail generated	Drive 4 in this library module inserted.
4438	No mail generated	Drive 5 in this library module inserted.
4439	No mail generated	Drive 6 in this library module inserted.
443E	No mail generated	Drive 1 in this library module absent at power-on.
443F	No mail generated	Drive 2 in this library module absent at power-on.
4440	No mail generated	Drive 3 in this library module absent at power-on.
4441	No mail generated	Drive 4 in this library module absent at power-on.
4442	No mail generated	Drive 5 in this library module absent at power-on.
4443	No mail generated	Drive 6 in this library module absent at power-on.
4448	No mail generated	Drive 1 in this library module has powered up.
4449	No mail generated	Drive 2 in this library module has powered up.
444A	No mail generated	Drive 3 in this library module has powered up.
444B	No mail generated	Drive 4 in this library module has powered up.
444C	No mail generated	Drive 5 in this library module has powered up.
444D	No mail generated	Drive 6 in this library module has powered up.
4452	No mail generated	Drive 1 in this library module has powered down.
4453	No mail generated	Drive 2 in this library module has powered down.

FSC Code	E-mail Message Error Type	Description
4454	No mail generated	Drive 3 in this library module has powered down.
4455	No mail generated	Drive 4 in this library module has powered down.
4456	No mail generated	Drive 5 in this library module has powered down.
4457	No mail generated	Drive 6 in this library module has powered down.
445C	Soft error	Drive 1 in this library module requesting auto clean.
445D	Soft error	Drive 2 in this library module requesting auto clean.
445E	Soft error	Drive 3 in this library module requesting auto clean.
445F	Soft error	Drive 4 in this library module requesting auto clean.
4460	Soft error	Drive 5 in this library module requesting auto clean.
4461	Soft error	Drive 6 in this library module requesting auto clean.
4466	Soft error	Cleaning cycle started on Drive 1 in this library module.
4467	Soft error	Cleaning cycle started on Drive 2 in this library module.
4468	Soft error	Cleaning cycle started on Drive 3 in this library module.
4469	Soft error	Cleaning cycle started on Drive 4 in this library module.
446A	Soft error	Cleaning cycle started on Drive 5 in this library module.
446B	Soft error	Cleaning cycle started on Drive 6 in this library module.
4470	Soft error	Cleaning tape expired.
4471	Soft error	Drive clean attempted with a noncleaning tape.
4472	Soft error	Drive 1 in this library module has been cleaned successfully.
4473	Soft error	Drive 2 in this library module has been cleaned successfully.
4474	Soft error	Drive 3 in this library module has been cleaned successfully.
4475	Soft error	Drive 4 in this library module has been cleaned successfully.

FSC Code	E-mail Message Error Type	Description
4476	Soft error	Drive 5 in this library module has been cleaned successfully.
4477	Soft error	Drive 6 in this library module has been cleaned successfully.
447C	Soft error	Drive 1 in this library module is still requesting cleaning after being cleaned.
447D	Soft error	Drive 2 in this library module is still requesting cleaning after being cleaned.
447E	Soft error	Drive 3 in this library module is still requesting cleaning after being cleaned.
447F	Soft error	Drive 4 in this library module is still requesting cleaning after being cleaned.
4480	Soft error	Drive 5 in this library module is still requesting cleaning after being cleaned.
4481	Soft error	Drive 6 in this library module is still requesting cleaning after being cleaned.
4486	No mail generated	Module at level 1 in stack has been powered down/ disconnected.
4487	No mail generated	Module at level 2 in stack has been powered down/ disconnected.
4488	No mail generated	Module at level 3 in stack has been powered down/ disconnected.
4489	No mail generated	Module at level 4 in stack has been powered down/ disconnected.
448A	No mail generated	Module at level 5 in stack has been powered down/ disconnected.
448B	No mail generated	Module at level 6 in stack has been powered down/ disconnected.

FSC Code	E-mail Message Error Type	Description
448C	No mail generated	Module at level 7 in stack has been powered down/disconnected.
448D	No mail generated	Module at level 8 in stack has been powered down/disconnected.
448E	No mail generated	Module at level 9 in stack has been powered down/disconnected.
448F	No mail generated	Module at level 10 in stack has been powered down/disconnected.
4490	No mail generated	Module at level 11 in stack has been powered down/disconnected.
4491	No mail generated	Module at level 12 in stack has been powered down/disconnected.
4492	No mail generated	New module has joined stack.
4493	No mail generated	Level 1 installed in stack.
4494	No mail generated	Level 2 installed in stack.
4495	No mail generated	Level 3 installed in stack.
4496	No mail generated	Level 4 installed in stack.
4497	No mail generated	Level 5 installed in stack.
4498	No mail generated	Level 6 installed in stack.
4499	No mail generated	Level 7 installed in stack.
449A	No mail generated	Level 8 installed in stack.
449B	No mail generated	Level 9 installed in stack.
449C	No mail generated	Level 10 installed in stack.
449D	No mail generated	Level 11 installed in stack.

FSC Code	E-mail Message Error Type	Description
449E	No mail generated	Level 12 installed in stack.
449F	No mail generated	Level 1 not installed in stack.
44A0	No mail generated	Level 2 not installed in stack.
44A1	No mail generated	Level 3 not installed in stack.
44A2	No mail generated	Level 4 not installed in stack.
44A3	No mail generated	Level 5 not installed in stack.
44A4	No mail generated	Level 6 not installed in stack.
44A5	No mail generated	Level 7 not installed in stack.
44A6	No mail generated	Level 8 not installed in stack.
44A7	No mail generated	Level 9 not installed in stack.
44A8	No mail generated	Level 10 not installed in stack.
44A9	No mail generated	Level 11 not installed in stack.
44AA	No mail generated	Level 12 not installed in stack.
4600	No mail generated	The library's power-on initialization sequence has completed.
4680	Soft error	Drive 1 in this library module has rejected the cartridge. A reload is underway.
4681	Soft error	Drive 2 in this library module has rejected the cartridge. A reload is underway.
4682	Soft error	Drive 3 in this library module has rejected the cartridge. A reload is underway.
4683	Soft error	Drive 4 in this library module has rejected the cartridge. A reload is underway.
4684	Soft error	Drive 5 in this library module has rejected the cartridge. A reload is underway.

FSC Code	E-mail Message Error Type	Description
4685	Soft error	Drive 6 in this library module has rejected the cartridge. A reload is underway.
4900	Configuration change	This unit has become the stack-master (elevator controller).
4901	Configuration change	This unit has changed from stack-master to slave module.
4902	Soft error	The stack-master is no longer polling this unit.

Tape Alert Flag	E-mail Message Type	Description
10	Soft error	Manual or software unload attempted while prevent media removal on.
11	Soft error	Cleaning tape encountered during backup or restore.
12	Soft error	Attempted load of unsupported tape format.
17	Soft error	Media loaded that is read-only format.
19	Soft error	The tape cartridge is nearing the end of its calculated life.

Table 13   Warning Events Detail

FSC Code	E-mail Message Error Type	Description
000A	Hardware failure	Hand CV check found hand disconnected.
000B	Hardware failure	Servo CV check found servo board disconnected.
000C	Hardware failure	X axis CV check found X axis disconnected.
000D	Hardware failure	Y axis CV check found Y axis disconnected.

FSC Code	E-mail Message Error Type	Description
000E	Hardware failure	Z axis CV check found Z axis disconnected.
000F	Hardware failure	FP CV check found front panel disconnected.
0020	Soft error	OS timer interrupt has not occurred, but should have.
200A	Hardware failure	Drive caddy not present (drive 1 in this library module).
200B	Hardware failure	Drive caddy not present (drive 2 in this library module).
200C	Hardware failure	Drive caddy not present (drive 3 in this library module).
200D	Hardware failure	Drive caddy not present (drive 4 in this library module).
200E	Hardware failure	Drive caddy not present (drive 5 in this library module).
200F	Hardware failure	Drive caddy not present (drive 6 in this library module).
2022	Hardware failure	The requested function is not implemented in the drive type.
202C	Hardware failure	Response packet received from drive 1 in this library module indicates command failed.
202D	Hardware failure	Response packet received from drive 2 in this library module indicates command failed.
202E	Hardware failure	Response packet received from drive 3 in this library module indicates command failed.
202F	Hardware failure	Response packet received from drive 4 in this library module indicates command failed.
2030	Hardware failure	Response packet received from drive 5 in this library module indicates command failed.
2031	Hardware failure	Response packet received from drive 6 in this library module indicates command failed.
2034	Hardware failure	Response received from drive 1 in this library module indicates drive busy.

FSC Code	E-mail Message Error Type	Description
2035	Hardware failure	Response received from drive 2 in this library module indicates drive busy.
2036	Hardware failure	Response received from drive 3 in this library module indicates drive busy.
2037	Hardware failure	Response received from drive 4 in this library module indicates drive busy.
2038	Hardware failure	Response received from drive 5 in this library module indicates drive busy.
2039	Hardware failure	Response received from drive 6 in this library module indicates drive busy.
2104	Hardware failure	Expected response from hardware was not received.
2303	Hardware failure	Barcode reader did not find a barcode.
2409	Hardware failure	Magazine removed when door was shut.
240A	Hardware failure	Magazine inserted without proper access.
240B	Soft error	Demo stopped; no slot available for cartridge destination.
240C	Soft error	Sequence stopped; no cartridge available to perform requested action.
240D	Soft error	Librarian uncertain of cartridge origin.
240E	Hardware failure	Manual intervention required to remove cartridge from the elevator.
240F	Hardware failure	The requested move cannot be performed.
2410	Hardware failure	The requested move cannot be performed.
2411	Hardware failure	Auto clean cannot be performed as there are no cleaning tapes.
2412	Hardware failure	Auto clean cannot be performed as all the cleaning tapes are in use.

FSC Code	E-mail Message Error Type	Description
2414	Soft error	Demo unable to select random start slot. Try rerunning demo.
2417	Soft error	Fixed slot reserved for dedicated cleaner; not for general use.
2419	Soft error	Illegal magazine configuration. Recheck.
241A	Soft error	Stack contains modules configured for different media to stack-master.
241B	Soft error	Fixed slot detected when library configured for 6 drive operation.
241C	Soft error	No fixed slot detected when library configured for 5 drive operation.
241D	Soft error	Magazine 5 detected when library configured for 6 drive operation.
241E	Soft error	Drive 3 in this library module detected when library configured for 5 drive operation.
2504	Soft error	Bad page code in send diagnostic.
2612	Soft error	Requested action cannot be carried out with a cartridge in the hand.
2613	Soft error	Requested action cannot be carried out without a cartridge in the hand.
261A	Hardware failure	The hand action 'completed' with no cartridge detected in the source.
2624	Hardware failure	The (nvr spec'd) xy build does not provide access to the cleaner slot.
2625	Hardware failure	The elevator vertical position is still unknown.
2634	Hardware failure	The inserted magazine has not been pushed fully home.
2636	Hardware failure	The elevator X axis offset is too great; likely build error.

FSC Code	E-mail Message Error Type	Description
2637	Hardware failure	The elevator is set too far back on the hand axis; likely build error.
263B	Soft error	The cleaning tape in use has expired.
263C	Soft error	The auto clean cycle has loaded a noncleaning or invalid tape.
263E	Hardware failure	The cartridge is not fully in the elevator; manual intervention required.
263F	Hardware failure	Manual intervention and power cycle are required.
2640	Hardware failure	Detail is not known, but manual intervention and power cycle required.
2641	Hardware failure	The fixed slot check has detected a fixed slot.
26B8	Soft error	Drive 1 in this library module has no cartridge to unload.
26B9	Soft error	Drive 2 in this library module has no cartridge to unload.
26BA	Soft error	Drive 3 in this library module has no cartridge to unload.
26BB	Soft error	Drive 4 in this library module has no cartridge to unload.
26BC	Soft error	Drive 5 in this library module has no cartridge to unload.
26BD	Soft error	Drive 6 in this library module has no cartridge to unload.
26D8	Hardware failure	Attempt to initialize Drive 1 in this library module before it has become available.
26D9	Hardware failure	Attempt to initialize Drive 2 in this library module before it has become available.
26DA	Hardware failure	Attempt to initialize Drive 3 in this library module before it has become available.
26DB	Hardware failure	Attempt to initialize Drive 4 in this library module before it has become available.

FSC Code	E-mail Message Error Type	Description
26DC	Hardware failure	Attempt to initialize Drive 5 in this library module before it has become available.
26DD	Hardware failure	Attempt to initialize Drive 6 in this library module before it has become available.
4200	Soft error	NVR CRC invalid and contents probably corrupt.

Tape Alert Flag	E-mail Message Error Type	Description
1	Soft error	The drive is having severe trouble reading the media.
2	Soft error	The drive is having severe trouble reading the media.
3	Hardware failure	The drive had a hard read or write error.
7	Soft error	The media has exceeded its specified life.
8	Soft error	The drive has not been able to read the MRS stripes.
15	Soft error	Memory chip failed in cartridge.
16	Soft error	Manual or forced eject while drive actively writing or reading.
18	Soft error	Directory data stored on tape has been corrupted.
21	Soft error	The drive is ready for a periodic cleaning.
23	Soft error	Invalid cleaning tape type used.
29	Soft error	The drive requires preventive maintenance other than cleaning.
32	Hardware failure	The drive has identified an interfacing fault.
34	Soft error	Firmware download failed.

MC300 Prism Management Card User's Guide

Tape Alert Flag	E-mail Message Error Type	Description
35	Soft error	Drive humidity limits exceeded.
36	Soft error	Drive temperature limits exceeded.
37	Soft error	Drive voltage limits exceeded.
38	Soft error	Predictive failure of drive hardware.
39	Soft error	The drive may have a hardware fault that extended diagnostics may help identify.
42	Hardware failure	Library mechanism has a hardware fault.
46	Soft error	Predictive failure of loader mechanism hardware.
65	Soft error	Unknown tape alert flag.
69	Soft error	Unknown tape alert flag.

Table 14   Failure
Events Detail

FSC Code	E-mail Message Error Type	Description
0001	Hardware failure	A divide by zero exception has occurred.
0002	Hardware failure	A parity error has been detected on the address/data bus.
0003	Hardware failure	Out of memory.
0004	Soft error	_flsbuf was called.
0005	Soft error	_getbuf was called.
0006	Hardware failure	Stack was exhausted.
0007	Hardware failure	Floating point trap.

FSC Code	E-mail Message Error Type	Description
0008	Hardware failure	Free( ) called on bad memory block.
0009	Hardware failure	Realloc( ) found corrupted memory block.
0010	Hardware failure	Free( ) found corrupted memory block trailer.
0011	Hardware failure	Realloc( ) found corrupted memory block trailer.
0012	Hardware failure	NVR capacity exceeded.
0013	Hardware failure	Heap consistency check found corruption.
0014	Hardware failure	Heap consistency check found corruption.
0015	Hardware failure	Watchdog has interrupted processor.
0016	Hardware failure	Size passed to malloc too large.
0017	Hardware failure	Size passed to calloc too large.
0018	Hardware failure	Size passed to realloc too large.
0019	Hardware failure	Breakpoint instruction executed.
001A	Hardware failure	Debug exception occurred.
001B	Hardware failure	Code attempted to write to address 0.
001C	Hardware failure	Code attempted to execute at address 0.
001D	Hardware failure	Code attempted to write to address 0.
001E	Hardware failure	Code attempted to execute at address 0.
001F	Hardware failure	Old system boards are no longer supported.
1000	Hardware failure	FPGA INIT pin was detected as being high when it should have been low.
1001	Hardware failure	FPGA INIT pin was detected as being low when it should have been high.

FSC Code	E-mail Message Error Type	Description
1002	Hardware failure	FPGA DONE pin was detected as being high when it should have been low.
1003	Hardware failure	FPGA DONE pin was detected as being low when it should have been high.
2000	Hardware failure	DLT initialization failed.
2001	Hardware failure	Drive time-out waiting for status (drive 1 in this library module).
2002	Hardware failure	Drive time-out waiting for status (drive 2 in this library module).
2003	Hardware failure	Drive time-out waiting for status (drive 3 in this library module).
2004	Hardware failure	Drive time-out waiting for status (drive 4 in this library module).
2005	Hardware failure	Drive time-out waiting for status (drive 5 in this library module).
2006	Hardware failure	Drive time-out waiting for status (drive 6 in this library module).
2009	Hardware failure	Requires newer version of system board.
2012	Hardware failure	Invalid byte received from drive 1 in this library module.
2013	Hardware failure	Invalid byte received from drive 2 in this library module.
2014	Hardware failure	Invalid byte received from drive 3 in this library module.
2015	Hardware failure	Invalid byte received from drive 4 in this library module.
2016	Hardware failure	Invalid byte received from drive 5 in this library module.
2017	Hardware failure	Invalid byte received from drive 6 in this library module.
201A	Soft error	Invalid packet received from drive 1 in this library module.

FSC Code	E-mail Message Error Type	Description
201B	Soft error	Invalid packet received from drive 2 in this library module.
201C	Soft error	Invalid packet received from drive 3 in this library module.
201D	Soft error	Invalid packet received from drive 4 in this library module.
201E	Soft error	Invalid packet received from drive 5 in this library module.
201F	Soft error	Invalid packet received from drive 6 in this library module.
2023	Hardware failure	Could not get a semaphore from OS.
2024	Hardware failure	Response packet received from drive 1 in this library module indicates command failed.
2025	Hardware failure	Response packet received from drive 2 in this library module indicates command failed.
2026	Hardware failure	Response packet received from drive 3 in this library module indicates command failed.
2027	Hardware failure	Response packet received from drive 4 in this library module indicates command failed.
2028	Hardware failure	Response packet received from drive 5 in this library module indicates command failed.
2029	Hardware failure	Response packet received from drive 6 in this library module indicates command failed.
2100	Hardware failure	I2C interface failed to initialize.
2101	Hardware failure	Timed out waiting for I2C bus to go not busy.
2102	Hardware failure	No acknowledge received from slave.
2103	Hardware failure	Exceeded retry limit while trying to send message.
2105	Hardware failure	Message received from I2C bus but destination is unknown.
2106	Hardware failure	Message to send over I2C bus is too large (see path).

FSC Code	E-mail Message Error Type	Description
2107	Hardware failure	Message received over I2C bus is too large.
2108	Hardware failure	I2C mailbox is full.
2109	Hardware failure	Receiver address in I2C message incorrect.
210A	Hardware failure	Pending interrupt status not reset.
2200	Hardware failure	UI task initialization failed.
2201	Hardware failure	UI queue full.
2202	Hardware failure	The UI is not in the correct state to perform the requested action.
2301	Hardware failure	Timed out waiting for data from barcode reader.
2302	Hardware failure	Did not detect barcode reader.
2400	Hardware failure	Librarian task initialization failed.
2401	Hardware failure	Librarian task received an unknown or unexpected message.
2402	Hardware failure	Librarian queue full.
2406	Hardware failure	Servo initialization not complete. Librarian unsure of servo status.
2407	Hardware failure	Servo turned off due to failure. Librarian unsure of servo status.
2416	Hardware failure	Bad parameter in Librarian message.
2500	Hardware failure	SCSI task initialization failed.
2501	Soft error	SCSI task received a bad message.
2502	Hardware failure	SCSI queue full.
2503	Hardware failure	FAS366 not detected.
2600	Hardware failure	Servo task initialization failed.

FSC Code	E-mail Message Error Type	Description
2601	Hardware failure	Servo queue full.
2602	Hardware failure	The X axis failed to get to its target position.
2603	Hardware failure	The Y axis failed to get to its target position.
2604	Hardware failure	The Theta axis failed to get to its target position.
2605	Hardware failure	The hand axis failed to get to its target position.
2606	Hardware failure	The elevator axis failed to get to its target position.
2607	Hardware failure	The Z axis failed to get to its target location.
2608	Hardware failure	The X axis tacho counter failed to clear at power-on.
2609	Hardware failure	The Y axis tacho counter failed to clear at power-on.
260A	Hardware failure	The Theta axis tacho counter failed to clear at power-on.
260B	Hardware failure	The hand axis tacho counter failed to clear at power-on.
260C	Hardware failure	The elevator axis tacho counter failed to clear at power-on.
260D	Hardware failure	The Z axis tacho counter failed to clear at power-on.
260E	Hardware failure	The hand could not be returned to the XY center during power-on.
260F	Hardware failure	The servo task has received an invalid command code.
2610	Hardware failure	The hand action 'completed' with no cartridge detected in the hand.
2611	Soft error	The put action 'completed' with the cartridge still in the hand.
2614	Soft error	Command cannot be executed without first initializing the axis.
2615	Hardware failure	Theta nvr data has been corrupted, or not yet initialized.

FSC Code	E-mail Message Error Type	Description
2616	Hardware failure	Axis friction nvr data has been corrupted, or not yet initialized.
2617	Hardware failure	Axis offset nvr data has been corrupted.
2618	Hardware failure	The build nvr data has been corrupted, or not initialized.
2619	Hardware failure	An error has been detected in the servo nvr.
261B	Hardware failure	The hand action 'completed' but there was a hand sensor failure.
261C	Hardware failure	The hand action 'completed' but was unable to engage.
261D	Hardware failure	The hand will not move in either direction.
261E	Hardware failure	The hand could not get the cartridge to its required position.
261F	Hardware failure	The elevator sensor of the box was not detected during elevator calibration.
2620	Hardware failure	Elevator nvr data has been corrupted or not yet initialized.
2621	Hardware failure	The X axis cannot be moved properly in either direction.
2622	Hardware failure	The servo failed to raise the drive hub.
2623	Hardware failure	The cartridge is still being retained by the drive.
2626	Hardware failure	The Theta angles are out of specification after calibration attempt.
2627	Hardware failure	The X axis did not travel the minimum distance when calibrating.
2628	Hardware failure	The Y axis did not travel the minimum distance when calibrating.
262A	Hardware failure	The Theta sensor closest to the right magazine failed to switch.
262B	Hardware failure	The Theta sensor closest to the left magazine failed to switch.

FSC Code	E-mail Message Error Type	Description
262C	Hardware failure	The X axis sensor could not be detected changing state.
262D	Hardware failure	The Y axis sensor could not be detected changing state.
262E	Hardware failure	The hand axis did not travel the minimum distance when calibrating.
262F	Hardware failure	The X axis friction is too high for normal operation.
2630	Hardware failure	The Y axis friction is too high for normal operation.
2631	Hardware failure	The Theta axis friction is too high for normal operation.
2632	Hardware failure	The hand axis friction is too high for normal operation.
2633	Hardware failure	The Z axis did not travel the minimum distance when calibrating.
2635	Hardware failure	The Z axis friction is too high for normal operation.
2638	Hardware failure	One of the axis has suffered a gross position error.
2639	Hardware failure	The cartridge position error detected on the Y axis is too great.
263A	Hardware failure	The cartridge position error detected on the X axis is too great.
263D	Hardware failure	The elevator has not been detected opposite the hand during calibration.
2680	Hardware failure	Drive 1 in this library module has reported a hardware error.
2681	Hardware failure	Drive 2 in this library module has reported a hardware error.
2682	Hardware failure	Drive 3 in this library module has reported a hardware error.
2683	Hardware failure	Drive 4 in this library module has reported a hardware error.
2684	Hardware failure	Drive 5 in this library module has reported a hardware error.
2685	Hardware failure	Drive 6 in this library module has reported a hardware error.

FSC Code	E-mail Message Error Type	Description
2688	Hardware failure	Drive 1 in this library module will not allow the hand to be operated as required.
2689	Hardware failure	Drive 2 in this library module will not allow the hand to be operated as required.
268A	Hardware failure	Drive 3 in this library module will not allow the hand to be operated as required.
268B	Hardware failure	Drive 4 in this library module will not allow the hand to be operated as required.
268C	Hardware failure	Drive 5 in this library module will not allow the hand to be operated as required.
268D	Hardware failure	Drive 6 in this library module will not allow the hand to be operated as required.
2690	Hardware failure	Drive 1 in this library module hand failed to close.
2691	Hardware failure	Drive 2 in this library module hand failed to close.
2692	Hardware failure	Drive 3 in this library module hand failed to close.
2693	Hardware failure	Drive 4 in this library module hand failed to close.
2694	Hardware failure	Drive 5 in this library module hand failed to close.
2695	Hardware failure	Drive 6 in this library module hand failed to close.
2698	Hardware failure	Drive 1 in this library module hand failed to open.
2699	Hardware failure	Drive 2 in this library module hand failed to open.
269A	Hardware failure	Drive 3 in this library module hand failed to open.
269B	Hardware failure	Drive 4 in this library module hand failed to open.
269C	Hardware failure	Drive 5 in this library module hand failed to open.
269D	Hardware failure	Drive 6 in this library module hand failed to open.

FSC Code	E-mail Message Error Type	Description
26A0	Hardware failure	Drive 1 in this library module is indicating 'in flux,' not ready for commands.
26A1	Hardware failure	Drive 2 in this library module is indicating 'in flux,' not ready for commands.
26A2	Hardware failure	Drive 3 in this library module is indicating 'in flux,' not ready for commands.
26A3	Hardware failure	Drive 4 in this library module is indicating 'in flux,' not ready for commands.
26A4	Hardware failure	Drive 5 in this library module is indicating 'in flux,' not ready for commands.
26A5	Hardware failure	Drive 6 in this library module is indicating 'in flux,' not ready for commands.
26A8	Hardware failure	Drive 1 in this library module is indicating its hand is closed and should be open.
26A9	Hardware failure	Drive 2 in this library module is indicating its hand is closed and should be open.
26AA	Hardware failure	Drive 3 in this library module is indicating its hand is closed and should be open.
26AB	Hardware failure	Drive 4 in this library module is indicating its hand is closed and should be open.
26AC	Hardware failure	Drive 5 in this library module is indicating its hand is closed and should be open.
26AD	Hardware failure	Drive 6 in this library module is indicating its hand is closed and should be open.
26B0	Hardware failure	Drive 1 in this library module is indicating its hand is open and should have been closed.
26B1	Hardware failure	Drive 2 in this library module is indicating its hand is open and should have been closed.

FSC Code	E-mail Message Error Type	Description
26B2	Hardware failure	Drive 3 in this library module is indicating its hand is open and should have been closed.
26B3	Hardware failure	Drive 4 in this library module is indicating its hand is open and should have been closed.
26B4	Hardware failure	Drive 5 in this library module is indicating its hand is open and should have been closed.
26B5	Hardware failure	Drive 6 in this library module is indicating its hand is open and should have been closed.
26C0	Hardware failure	Drive 1 in this library module has not responded to multiple requests to unload.
26C1	Hardware failure	Drive 2 in this library module has not responded to multiple requests to unload.
26C2	Hardware failure	Drive 3 in this library module has not responded to multiple requests to unload.
26C3	Hardware failure	Drive 4 in this library module has not responded to multiple requests to unload.
26C4	Hardware failure	Drive 5 in this library module has not responded to multiple requests to unload.
26C5	Hardware failure	Drive 6 in this library module has not responded to multiple requests to unload.
26C8	Hardware failure	Drive 1 in this library module has rejected the cartridge; cannot be loaded.
26C9	Hardware failure	Drive 2 in this library module has rejected the cartridge; cannot be loaded.
26CA	Hardware failure	Drive 3 in this library module has rejected the cartridge; cannot be loaded.
26CB	Hardware failure	Drive 4 in this library module has rejected the cartridge; cannot be loaded.

FSC Code	E-mail Message Error Type	Description
26CC	Hardware failure	Drive 5 in this library module has rejected the cartridge; cannot be loaded.
26CD	Hardware failure	Drive 6 in this library module has rejected the cartridge; cannot be loaded.
26D0	Hardware failure	Drive 1 in this library module has failed to load the tape successfully.
26D1	Hardware failure	Drive 2 in this library module has failed to load the tape successfully.
26D2	Hardware failure	Drive 3 in this library module has failed to load the tape successfully.
26D3	Hardware failure	Drive 4 in this library module has failed to load the tape successfully.
26D4	Hardware failure	Drive 5 in this library module has failed to load the tape successfully.
26D5	Hardware failure	Drive 6 in this library module has failed to load the tape successfully.
2700	Hardware failure	PCDIAG task initialization failed.
2701	Soft error	Unknown or bad diagnostic message.
2702	Soft error	Current diagnostic stack has terminated.
2703	Soft error	PCDIAG queue full.
2704	Soft error	Diagnostic command failure; initiator task unknown.
2800	Soft error	Event Log task initialization failed.
2801	Soft error	NVR space allocated to event log is too small. See path for required space and change in system.h.
2802	Soft error	Event logger received bad retry level definition.
2803	Soft error	Number in event log is bad (log corrupted?).

FSC Code	E-mail Message Error Type	Description
2900	Hardware failure	Stack Controller task initialization failed.
2901	Hardware failure	Stack Controller queue is full.
2902	Hardware failure	Stack Controller task received an unknown or unexpected message.

Tape Alert Flag	E-mail Message Error Type	Description
4	Soft error	Media can no longer be written or read, or performance is severely degraded.
5	Hardware failure	The drive can no longer read data from the tape.
6	Hardware failure	The drive can no longer write data to the tape.
9	Hardware failure	Write command attempted to a write-protected tape.
13	Hardware failure	Tape snapped or cut in the drive where media can be ejected.
14	Hardware failure	Tape snapped or cut in the drive where media cannot be ejected.
20	Soft error	The drive has a head clog or needs cleaning.
22	Soft error	The cleaning tape has expired.
30	Hardware failure	The drive has a hardware fault that requires a reset to recover.
31	Hardware failure	The drive has a hardware fault that requires a power cycle to continue.
33	Soft error	Error recovery action.
40	Hardware failure	Library mechanism is having trouble communicating with the tape drive.

Tape Alert Flag	E-mail Message Error Type	Description
41	Soft error	Stray tape left in library after previous error recovery.
43	Operator access	Library door open.
44	Hardware failure	The library mechanism hard a hardware fault that is not mechanically related.
45	Hardware failure	Library magazine not present.

Appendix B
Regulatory Statements

Battery Statement

Caution

The PMC contains a lithium battery that is replaceable only by qualified service personnel. If replacement is required, return the PMC to Sun or to an authorized Sun service center.

There is danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

Additional Battery Statement

Caution

This product contains a Lithium battery. Lithium may be considered a hazardous material. Dispose of this battery in accordance with local, state, and federal laws.

Glossary

A **Apply button**   An on-screen button that allows changes to be made to the properties and attributes of a page or dialog box without closing it.

B **Banner frame**   The browser frame that extends across the top of the screen which displays the corporate logo and software name.

C **community name**   The administratively-assigned name of a logical management domain on a network as assigned by the system administrator. The community name is used as a selector by the agent to specify the access to local or remote management information and the context of the management information. The names "public" and "private" are common community names.

D **default gateway**   The default gateway is the address through which IP packets will be routed if the system at the source address cannot communicate directly with the system at the destination address. Like the IP address, this is a 32-bit binary numeric address written as four decimal numbers separated by periods.

DHCP   Dynamic Host Configuration Protocol. A protocol for assigning dynamic IP addresses on a network. With dynamic addressing, a device can have a different IP address each time it connects to the network.

domain   In the Internet, a part of the naming hierarchy identifying a network or subnet. Syntactically, a domain name consists of a sequence of names (labels) separated by periods (dots).

F

frame   A distinct and separate section of a Web page, commonly divided into a Banner frame, a Navigation frame, and a Management frame – each section acting as an independent browser window. The Banner frame commonly displays title information. The Navigation frame commonly displays headings which are linked to informational pages that display in the Management frame.

Frame   Separate library modules connected through a common robot or elevator are considered frames. Each individual frame will have a unique identifier.

FSE   Field Service Engineer. A representative of Sun Microsystems, Inc. trained and authorized to repair Sun products.

H

hostname   The name of the server computer to which the library is attached.

HyperTerminal   A 32-bit communications application, standard with Microsoft Windows, which provides asynchronous connectivity to host computers, such as online services or other PCs.

I

IP address   The IP (Internet Protocol) address for the system. This is a 32-bit binary numeric address written as four decimal numbers separated by periods. For example, the binary address 11001111.11010011.11100000.00111011 is written as 207.211.224.59.

K

key   A field used to sort data in database management systems.

L   **LAN**   Local area network. A network that connects computers that are close to each other, usually in the same building, linked by a cable.

LUN   Logical unit number.

M   **Management frame**   The browser frame on the right of the screen which displays the active page.

N   **Navigation frame**   The browser frame on the left of the screen which displays a list of the Prism Management Console Web pages.

O   **offline**   A condition of the library in which the library is ready for communication with a diagnostic computer.

OK button   Commits changes made to a dialog box and closes it.

online   A condition of the library in which the library is ready for communications with a host.

P   **page properties**   The display and configuration attributes of a page.

physical view   A graphical representation of the library that shows the tape drives, storage bins, and load ports together with their partition owners.

PMC   Prism Management Card

R   **reboot**   The process of restarting a computer so the operating system is reloaded.

Reset button   Returns the values in a dialog box to the default, or previously saved, values.

restart   The process of restarting a computer without reloading the operating system.

router   A device that governs the flow of traffic between networks or network segments and forwards packets between them, and converting between interfaces, such as SCSI, if necessary.

S

SCSI   Small Computer System Interface. A parallel interface standard used by many systems for attaching peripheral devices to computers.

SCSI ID   A unique device identifier in the range of 0 to the maximum bus width that specifies a particular device on a given SCSI bus. If the bus width is 8, the range of SCSI IDs would be 0 to 7. Host computers typically reside at SCSI ID 7.

SMTP   Simple Mail Transfer Protocol. A protocol used to transfer e-mail messages between computers.

subnet mask   The subnet mask determines the subnet to which the IP address belongs. Like the IP address, this is a 32-bit binary numeric address written as four decimal numbers separated by periods.

T

trap   A program interrupt, usually caused by some exceptional situation in the user program. In most cases, the user performs some action, then returns control to the program.

U

URL   Uniform resource locator. A server address used by clients, such as Web browsers, to access information over the network using HTTP and other protocols.

W

Web browser   A client application that renders HTML code in a Graphical User Interface (GUI) and uses HTTP and other Internet protocols to communicate with Web servers. For example, Netscape Communicator and Internet Explorer are Web browsers.

Index