

Quantum ATL P4000 and ATL P7000 Prism FC470 User's Guide Addendum

Introduction	3
Fibre Channel Description	3
Prism FC470 Router Operation	3
Supported Fibre Channel Host Bus Adapters and Switches	3
Supported Backup Applications	4
Quantum Customer Support	5
FC470 Overview	5
FC470 Web Interface	7
FC470 Menu Items	8
Accessing the FC470 Web Pages	8
Home Page	9
System Page	10
Ports Page	16
Discovery Page	21
Mapping Page	22
Statistics Page	25
Utilities Page	26
Trace Settings Configuration	28
Current, Previous, and Last Assert Trace Displays	29
Clear Current and Assert Traces	30

Event Log Configuration	31
Event Log Display.....	32
Clear Event Log.....	32
Report Menu	33
Reboot Option	33
<hr/>	
Troubleshooting	34
LED Indicators.....	34
Basic Troubleshooting	35

Introduction

The Quantum ATL P4000/P7000 Series automated tape libraries are controlled by a host computer via a SCSI differential bus using the SCSI-2 medium changer command set. There is also an RS-232 diagnostic port interface.

The P4000/P7000 Prism Architecture™ allows for easy conversion from the SCSI host interface to a Fibre Channel host interface. This document describes upgrading a standard P4000/P7000 equipped with a SCSI host interface to a Fibre Channel host interface using a Prism FC470 Upgrade kit.

Fibre Channel Description

Fibre Channel is a serial data transfer architecture for use with computers and mass storage devices that is rapidly emerging to challenge SCSI as the interface of choice for host-to-storage applications.

Fibre Channel advantages include:

- Connection distances with the Quantum ATL FC470 option up to 500 meters
- 2 GB/Sec data transfer rates
- Supports up to 126 devices in a loop mode
- Supports 24-bit addressing for over 16 million devices in point-to-point mode or fabric, when using a Fibre Channel switch or multiple Fibre Channel switches.
- Operating system independence
- Interconnect flexibility

Prism FC470 Router Operation

Once a Prism FC470 Router option is installed and tested, the library operates exactly as a P4000/P7000 with a SCSI host interface. Operation of the library via the graphical user interface (GUI) is unchanged.

Supported Fibre Channel Host Bus Adapters and Switches

The following tables provide a list of supported Fibre Channel host bus adapters (HBAs) and switches that have been tested at the time of this printing. For an updated list of supported Fibre Channel HBAs and switches, please see www.quantum.com.

Table 1 Supported Fibre Channel HBAs

Manufacturer	Model #	Minimum Driver Level
Qlogic	2100, 2200, 23xx	Must have QLDriver installed on host computer. See manufacturer's website for latest driver information.
Emulex	LP8K, LP9K	See manufacturer's website for latest driver information.
JNI	1663, 6410, 65xx	See manufacturer's website for latest driver information.
Sun	x6749a, x6757a, x6767a, x6768a	See manufacturer's website for latest driver information.

Table 2 Supported Fibre Channel Switches

Manufacturer	Model Name/Number
Brocade	Silkworm
McData	Connectrix
SANbox and SANbox II	8/16

Supported Backup Applications

The following table lists the backup applications tested at the time of this printing. For an updated list of supported backup applications, please see www.quantum.com.

Table 3 Supported Backup Applications

Software Developer	Application	Version
Veritas	NetBackup	3.4.1, 4.5 and later
	Backup Exec	8.6 and later
Computer Associates	BrightStor Enterprise	10.0 and later
	ARCserve	6.61, 7.0 and later
Legato	Networker	5.5, 6.x, 7.0 and later
HP Data Protector	Omniback	4.x

Quantum Customer Support

The Quantum Customer Support Department provides a 24-hour help desk that can be reached at:

North/South America: (949) 725-2100 or
(800) 284-5101

Asia/Pacific Rim: (International Code)
+61 7 3862 4834

Europe/Middle East/Africa: (International Code)
+44 (0) 1256 848748

Send faxes for the Customer Support Department to:

North/South America: (949) 725-2176

Asia/Pacific Rim: (International Code)
+61 7 3862 4677

Europe/Middle East/Africa: (International Code)
+44 (0) 1256 848777

To contact the Customer Support Department use the following web/E-mail addresses:

North/South America: www.quantum.com/askaquestion

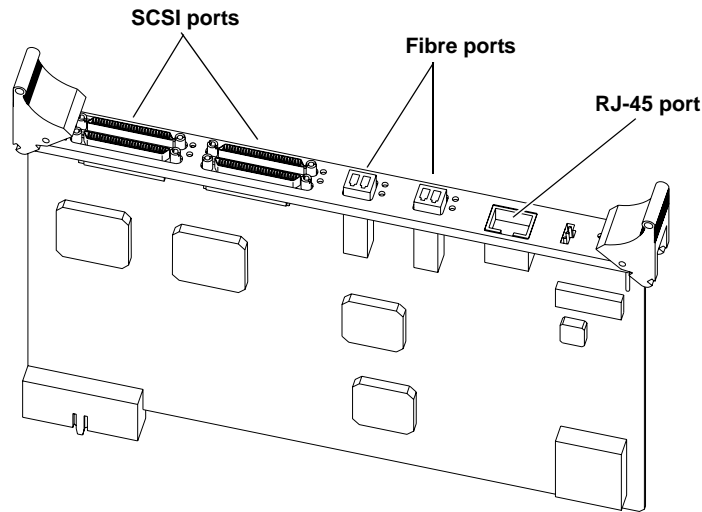
Asia/Pacific Rim: apachelp@quantum.com

Europe/Middle East/Africa: eurohelp@quantum.com

FC470 Overview

The FC470 provides a bridge between a Fibre Channel host and the SCSI tape drives within a library. [Figure 1](#) shows the FC470 Fibre Channel bridge and feature locations.

Figure 1 FC470 Overview



SCSI Ports

The FC470 contains four SCSI ports or buses (port 0, port 1, port 2, and port 3). When the SCSI port (bus) is connected to a tape drive, the corresponding LED is lit indicating activity on the SCSI bus.

Fibre Channel Ports

The FC470 contains two Fibre Channel ports (port 0 and port 1). Each port has two corresponding LEDs. The top LED indicates activity on the Fibre Channel port and the bottom LED indicates a valid Fibre Channel link on the port.

Ethernet Port

The FC470 contains one Ethernet port which is used for remote configuration and bridge management. The port has two corresponding LEDs. The top LED indicates activity on the port and the bottom LED indicates a valid Ethernet link.

Serial Port

The FC470 contains one serial port which is used to access the serial interface and locally manage or configure the bridge.

Power Indicator

The FC470 contains one power LED which indicates two power states on the bridge. If the LED is green, the bridge is powered on. If the LED is yellow, the bridge is in the process of performing a "Power-On-Self-Test" or a the bridge has a processor problem.

Reset Button

The FC470 contains a reset button that is used to force a manual reboot of the bridge. A pen or other small object must be used to access the reset button. You can also reboot the FC470 from the web interface.

Caution: Resetting the FC470 during a backup/restore job can result in a disruption of that process and loss of data. Ensure all data transfer jobs have completed before resetting the FC470.

FC470 Web Interface

The FC470 utilizes a web-based interface which allows you to configure and manage the bridge from a remote workstation on the same network. The FC470 is managed through the following web pages (accessible using Internet browser software installed on the host computer):

- [Home Page](#) contains status information, including a physical image of the FC470.
- [System Page](#) allows you to configure standard system components.
- [Ports Page](#) allows you to configure both the SCSI and Fibre Channel ports
- [Discovery Page](#) allows you to display connected devices and discover new devices
- [Mapping Page](#) allows you to display and configure route mapping
- [Statistics Page](#) displays the FC470 statistics
- [Utilities Page](#) allows you to access FTP utilities and trace information
- [Report Menu](#) displays the consolidated view of all FC470 systems
- [Reboot Option](#) allows you to remotely reboot the FC470

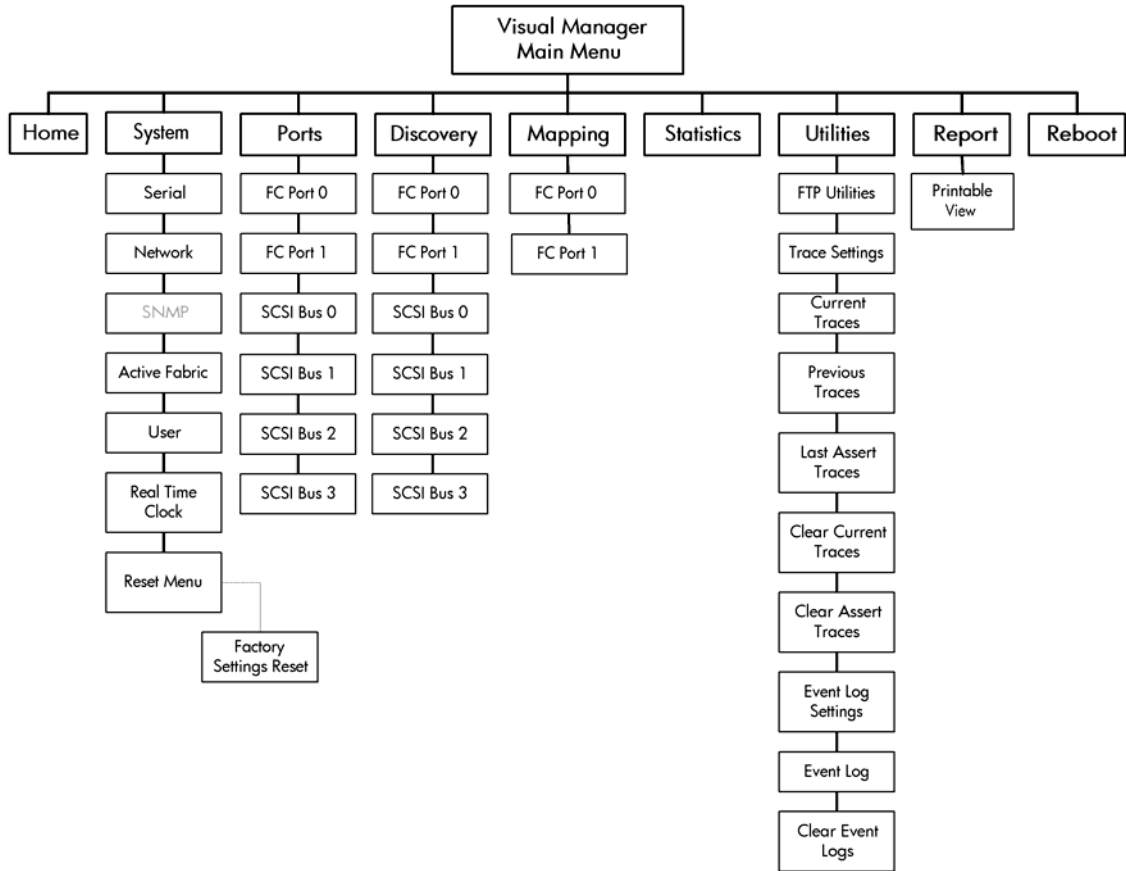
The FC470 supports the following web browsers:

- Microsoft Internet Explorer 5.5 or later
You can download this software from <http://www.microsoft.com>.
- Netscape Navigator 6.2 or later
You can download this software from <http://www.netscape.com>.

FC470 Menu Items

The following figure depicts the menu items available from the FC470 Web Pages.

Figure 2 FC470 Menu Tree



Accessing the FC470 Web Pages

To access the FC470 web pages:

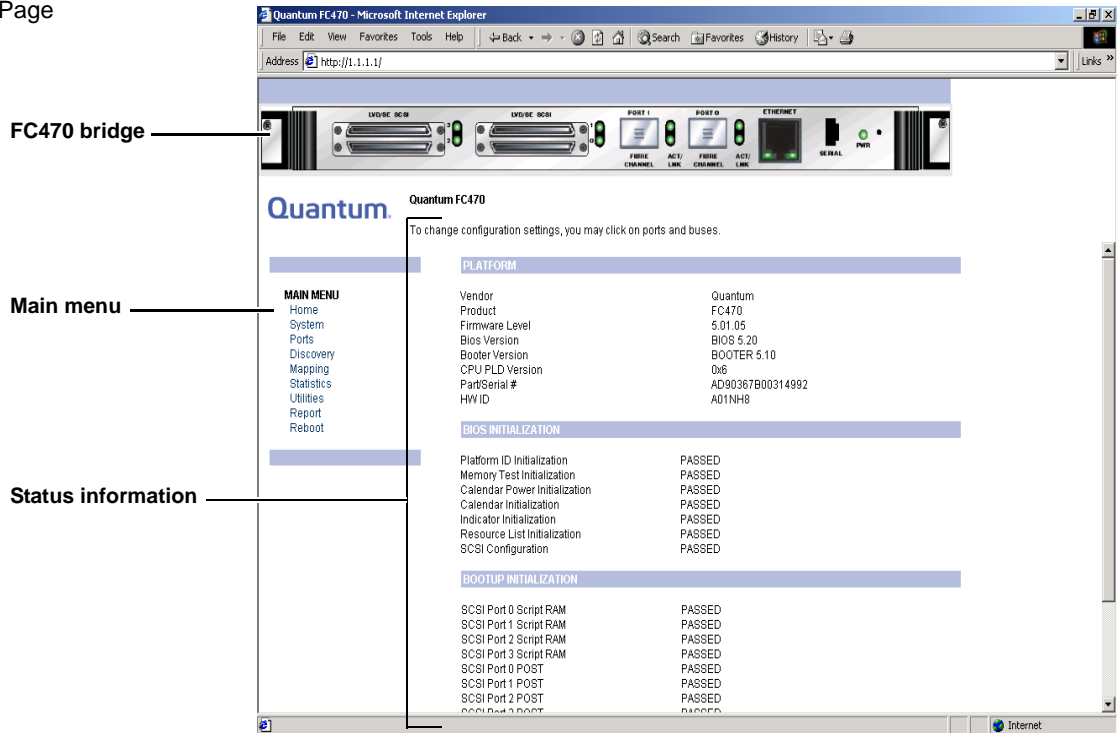
- 1 On the host computer, open the internet browser software.

In the **Address** field, type `http://IPaddress/` where IP address is the IP address for the FC470.

Note: The default IP address is 1.1.1.1

The FC470 **Home** page is displayed, showing FC470 status information (see [figure 3](#)). The home page is accessible to anyone who knows the IP address.

Figure 3 Home Page



- 2 Select a menu option to access menus and screens.
The **Password** dialog box is displayed (see [figure 4](#)).

Figure 4 Password Dialog



Home Page

The first page that displays when you access the FC470 web pages is the FC470 **Home** page (see [figure 3](#)). This page includes information on the FC470 status as follows:

- Current platform information
- Current bios initialization information

- Current bootstrap initialization information

The **Home** page is divided into three distinct sections:

- FC470 bridge - The FC470 image is interactive, allowing quick access to configuration menus:
 - To display current settings and status for a port, click the corresponding port shown on the FC470 image.
 - To open a menu for making changes to the configuration for that particular port or bus, click the desired Fibre Channel port or SCSI port.
 - To open the **Network Configuration** page, click the Ethernet port
- Main menu
- Bridge status information

The banner frame displays the corporate logo and product name. The main menu displays a list of the FC470 web pages. To view a page, click its corresponding link. The management frame displays the page you selected.

System Page

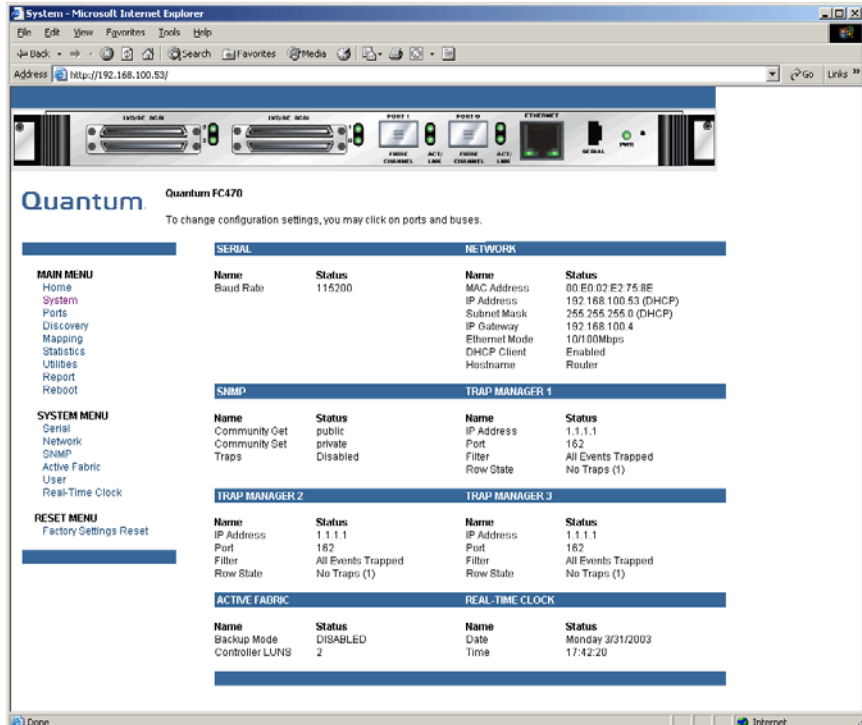
The **System** page is used to view and configure serial, network, trap, active fabric, clock, and power supply components.

To access the **System** page:

- 1 Click **System** from the Main menu on the **Home** page.

The **System** page displays (see [figure 5](#)):

Figure 5 System Page



The **System** page allows you to configure:

- Serial port (Quantum Field Service Only)
- [Network Information](#)
- SNMP (currently not supported)
- [Active Fabric](#)
- [User Information](#)
- [Real Time Clock](#)
- [Reset Page](#)

Network Information

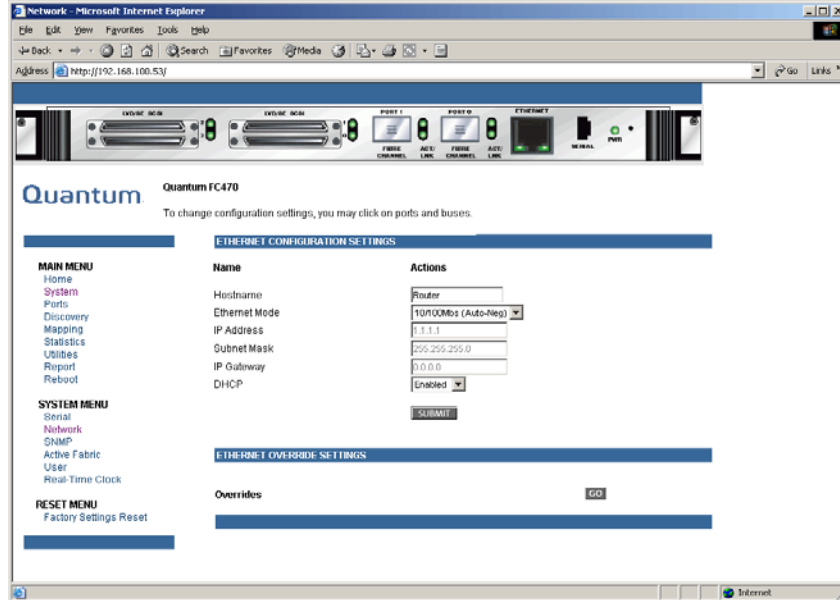
The **Network Information** page allows you to configure network settings for the FC470.

To access the **Network Information** page:

- 1 Click **Network** in the **System** menu.

The Network Information page displays (see [figure 6](#)):

Figure 6 Network Information Page



2 Edit the configuration information as desired (see [table 4](#) for a description of the fields) and click **Submit** to accept any new information.

Table 4 Network Configuration Fields

Field	Description
Hostname	View or set the hostname for the FC470 (for example, the DNS name)
Ethernet Mode	View or set the Ethernet port speed (10Mps, 100Mps half duplex, 100Mps full duplex, 10/100 auto negotiate)
IP Address	View or set the IP address for the FC470
Subnet Mask	View or set the subnet mask for the FC470
IP Gateway	View or set the IP gateway for the FC470
DHCP	Enable or disable DHCP support. When enabled, the FC470 requests a dynamic IP address form a DHCP server on the Ethernet network.

The FC470 will not use the new basic configuration until it has been rebooted.

Active Fabric

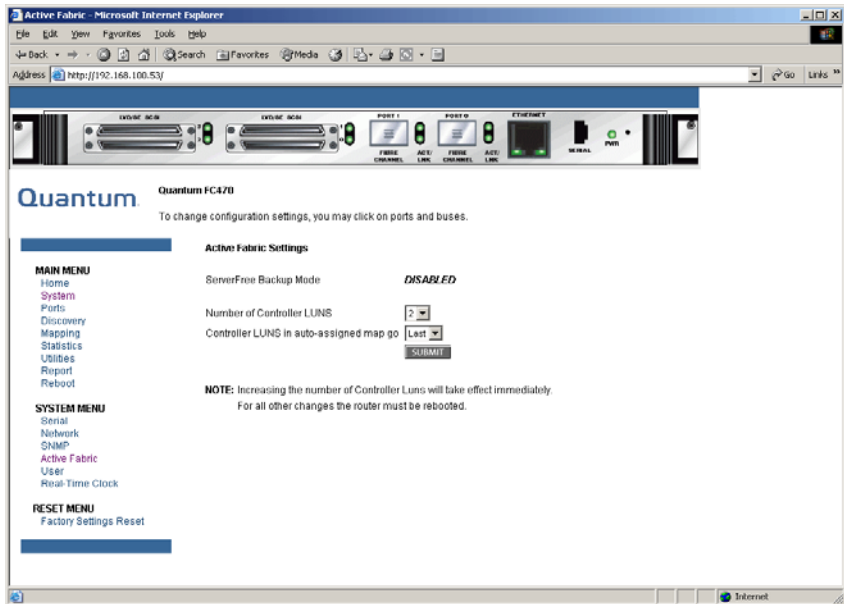
The **Active Fabric** page allows you to configure active fabric options on the FC470.

To access the **Active Fabric** page:

- 1 Click **Active Fabric** in the **System** menu.

The **Active Fabric** page displays (see [figure 7](#)):

Figure 7 Active Fabric Page



- 2 Edit the active fabric information as desired (see [table 5](#) for a description of the fields) and click **Submit** to accept any new information.

Table 5 Active Fabric Fields

Field	Description
Number of Controller LUNS	View or set the number of controller LUNS reported by the FC470. This number must be in the range of 0 through 4 (default=0)
Controller LUNS in Auto Assigned Map Go	View or set the location of LUNs in the Port 0 and Port 1 map. This setting can be toggled between first and last (default=last)

User Information

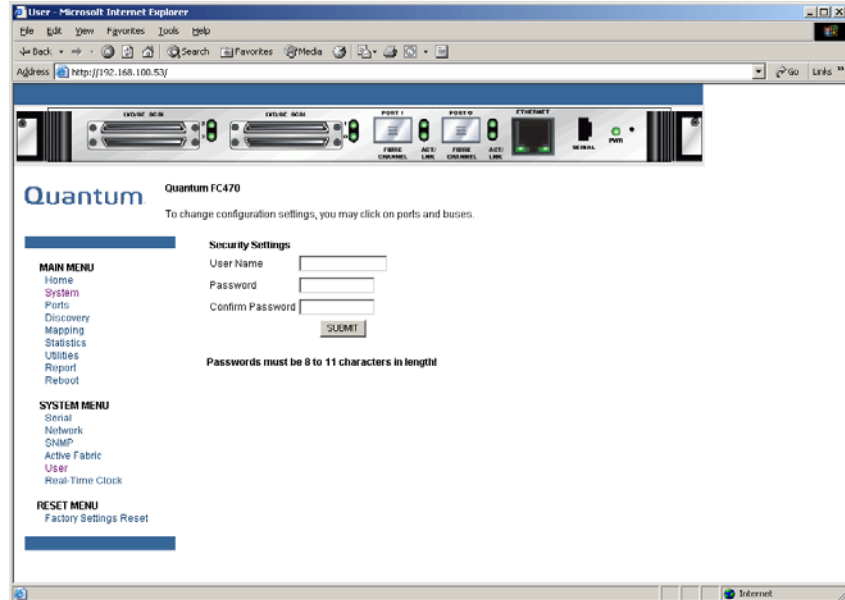
The **User Information** page allows you to configure FC470 security.

To access the **User Information** page:

- 1 Click **User Information** in the **System** menu.

The **User Information** page displays (see [figure 8](#)).

Figure 8 User Information Page



- 2 Edit the user information as desired (see [table 6](#) for a description of the fields) and click **Submit** to accept any new information.

Table 6 User Information Fields

Field	Description
User Name	View or set the user name. The user name can be any alphanumeric combination (default=root)
Password	View or set the password. The password can be any alphanumeric combination (default=password)

Note: The username and passwords should be unique and kept confidential. Using a combination of letters and numbers is recommended.

Real Time Clock

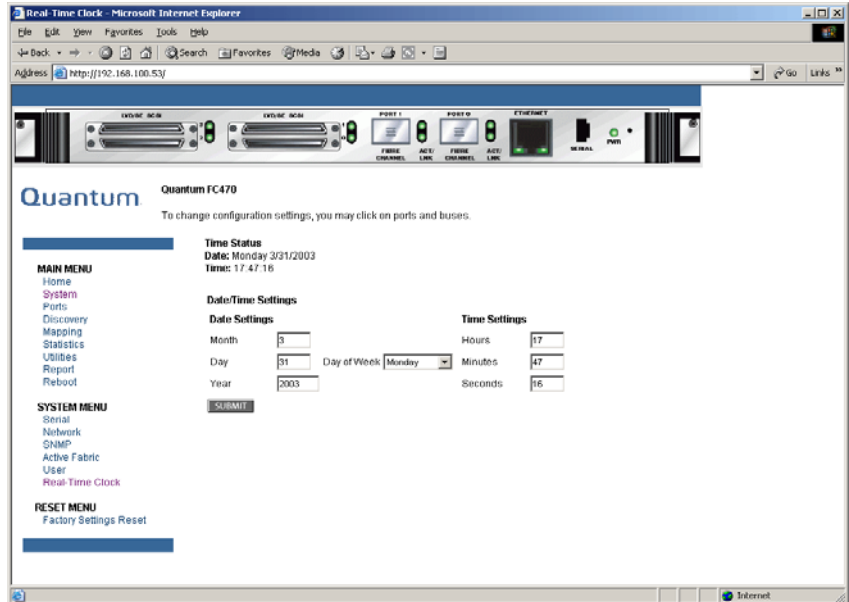
The **Real Time Clock** page allows you to set the system time and date.

To access the **Real Time Clock** page:

- 1 Click **Real Time Clock** in the **System** menu.

The **Real Time Clock** page displays (see [figure 9](#)):

Figure 9 Real Time Clock
 Page



- 2 Edit the real time clock information as desired (see [table 7](#) for a description of the fields) and click **Submit** to accept any new information.

Table 7 Real Time Clock
 Fields

Field	Description
Date Settings	View or set the month, date, and year. The year must have four digits.
Day of Week	View or set the day of the week.
Time Settings	View or set the hours, minutes, and seconds. The system clock is a 24-hour clock.

Reset Page

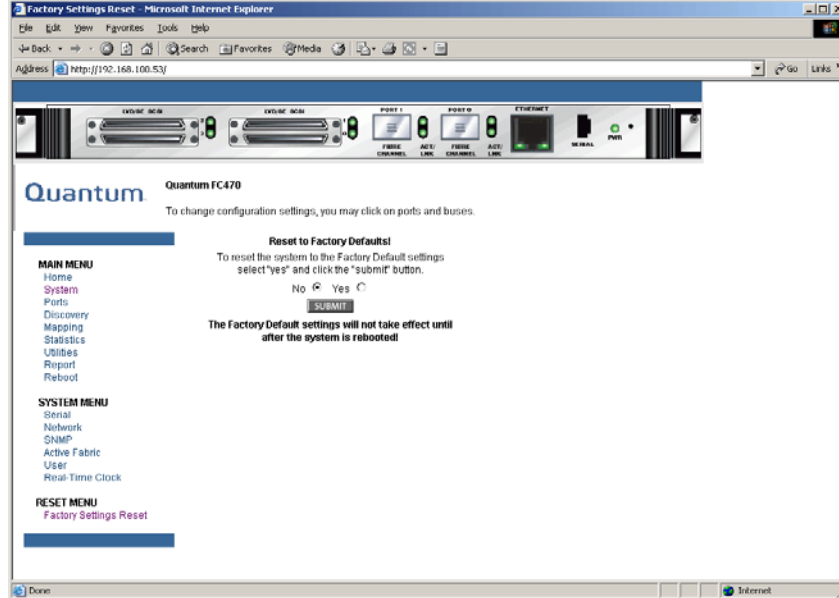
The Reset page allows you to reset the FC470 to it's factory default settings.

To access the **Reset** page:

- 1 Click **Reset** in the **System** menu.

The **Reset** page displays (see [figure 10](#)).

Figure 10 Reset Page



- 2 To reset the FC470 to its default factory configuration, select **Yes** and click **Submit**.

All bridge activities are disrupted while the unit resets the configuration to the factory configuration and saves those options to the FLASH memory. All configurable bridge options are reset except for:

- IP address
- Port maps

Ports Page

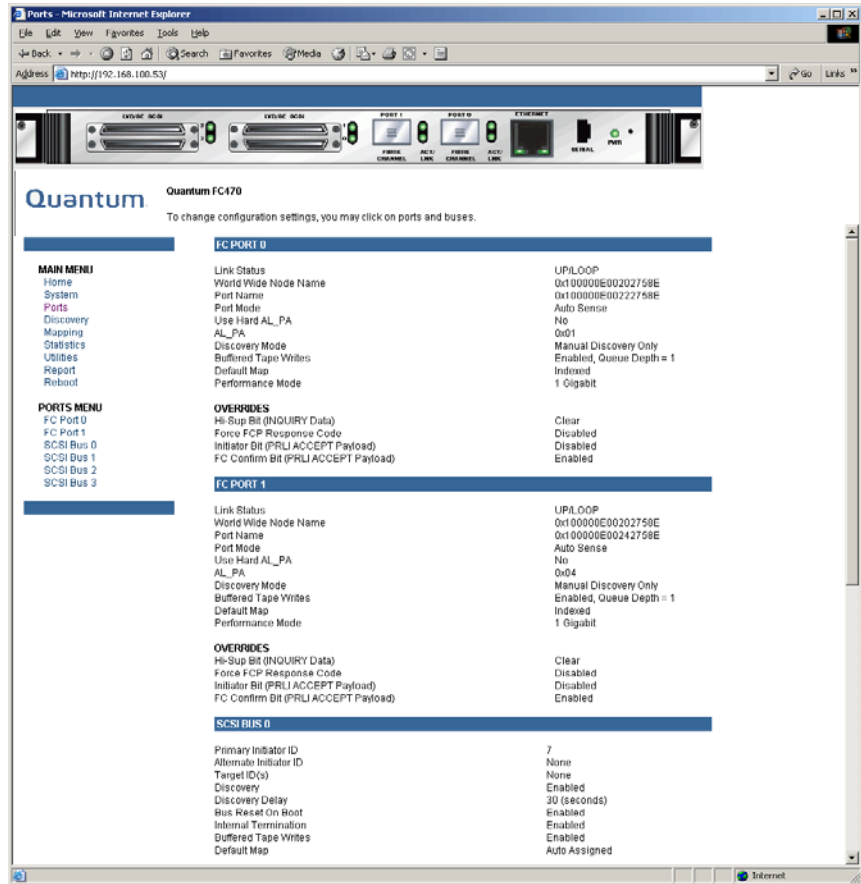
The **Ports** page is used to view and modify the configuration settings of both the Fibre Channel and SCSI ports on the FC470.

To access the **Ports** page:

- 1 Click on **Ports** from the Main menu on the **Home** page.

The **Ports** page displays (see [figure 11](#)).

Figure 11 Ports Page



The **Ports** page displays the current status of all connected Fibre Channel and SCSI ports on the FC470.

The **Ports** page allows you to configure:

- [Fibre Channel Ports](#)
- [SCSI Ports](#)

Fibre Channel Ports

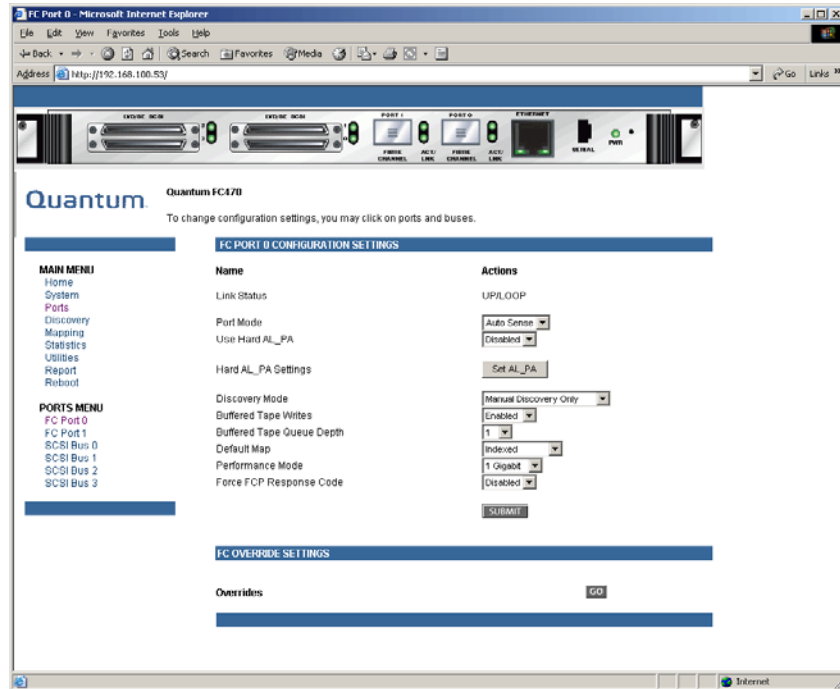
The **Fibre Channel Ports** pages allow you to configure the individual Fibre Channel ports on the FC470.

To access a **Fibre Channel Port** page:

- 1 Click on the Fibre Channel port you wish to view or configure from the Ports menu.

The Fibre Channel Port page displays (see [figure 12](#)).

Figure 12 Fibre Channel Port Page



2 Edit the Fibre Channel port information as desired (see [table 8](#) for a description of the fields) and click **Submit** to accept any new information.

Table 8 Fibre Channel Port Fields

Field	Description
Link Status	Indicates the port link status. The status is either Up or Down.
Port Mode	View or set the port mode. The port mode settings are: <ul style="list-style-type: none"> • Auto Sense - the port attempts to negotiate as a loop. If it is not successful, the port negotiates as a fabric. If the port negotiates as a loop, it then determines whether it is a private or public loop. • N_Port - (default setting) the port bypasses port negotiation and connects as fabric automatically. If N_Port is selected and the Fibre Channel network is on a loop, a communication error will occur.
Use Hard AL_PA	View or set Hard AL_PA usage. The settings are either enabled or disabled.
Hard AL_PA Settings	View the AL_PA table.

Field	Description
Discovery Mode	<p>View or set the FC470 discovery mode. The discovery settings are (default: Manual):</p> <ul style="list-style-type: none"> • Auto Discovery on Reboot Events - the FC470 automatically discovers all Fibre Channel devices when rebooted or when link-up events occur, such as connecting cables or rebooting network hubs/ switches. Both the Fibre Channel ports and the devices behind the ports are discovered on all subsequent link-up events. • Auto Discovery on Link Up Events - the FC470 automatically discovers all Fibre Channel devices when rebooted or when link-up events occur, such as connecting cables or rebooting network hubs/ switches. both the ports and the devices behind the ports are discovered for the first link-up event. Subsequent link-up events only discover the ports and not the devices behind the ports. • Manual Discovery - (default setting) when this setting is selected, the FC470 only discovers new devices when the Discovery option is selected from the Main menu or when a Registered State Change Notification (FSCN) is received from a fabric.
Buffered Tape Writes	<p>View or set the buffered tape writes setting (default: enabled). When enabled, buffered tape writes return status on consecutive write commands prior to the tape device receiving data.</p>
Buffered Tape Queue Depth	<p>View or set the buffered tape Queue depth. Select a setting of 0 through 10 from the drop down list.</p>
Default Map	<p>View or set the mapping mode for the selected port. The port mapping settings are (default: indexed):</p> <ul style="list-style-type: none"> • Port 0 or Port 1 Device Map • Indexed (default setting) - the indexed map should NOT be edited for security reasons. • Auto-assigned - contains all SCSI devices that are attached to the FC470 • SCC
Performance Mode	<p>View or edit the FC470 performance mode. The FC470 Fibre Channel port speed can be set to either 1GB/sec or 2GB/sec. Ensure that the FC470 and the fabric or loop are set for the same network speed. You may experience framing errors if the network and FC470 speeds are set differently.</p>

Field	Description
Force FCP Response Code	View or edit the force FCP response code. The setting can be toggled between off or on for support of HP-specific HBA #223180-B21 and #120186-001.
Override Settings	This option is reserved for Quantum Customer Support Only.

SCSI Ports

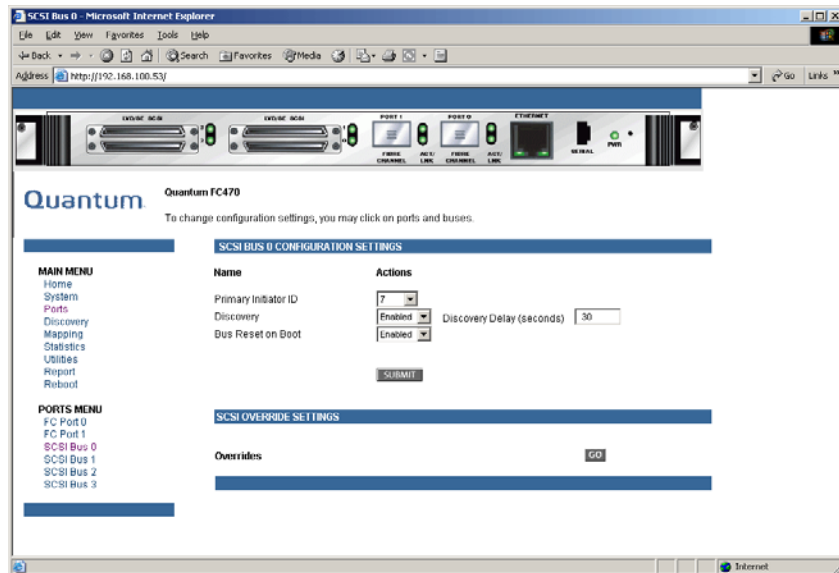
The **SCSI Ports** pages allow you to configure the individual SCSI ports/busses on the FC470.

To access a **SCSI Port** page:

- 1 Click on the SCSI port you wish to view or configure from the Ports menu.

The SCSI Port page displays (see [figure 13](#)).

Figure 13 SCSI Port Page



- 2 Edit the SCSI port information as desired (see [table 8](#) for a description of the fields) and click **Submit** to accept any new information.

Table 9 SCSI Port Fields

Field	Description
Primary Initiator ID	View or set the SCSI ID for this port (default: 7)
Discovery	View or edit the discovery mode. The settings are enabled or disabled.
Bus Reset on Boot	View or set bus reset on boot mode. When enabled, the FC470 automatically resets the SCSI busses during a power up or reboot. After the power-up or reboot is complete, there is an additional 30 second delay while host/devices are discovered.
Override Settings	This option is reserved for Quantum Customer Support Only.

Discovery Page

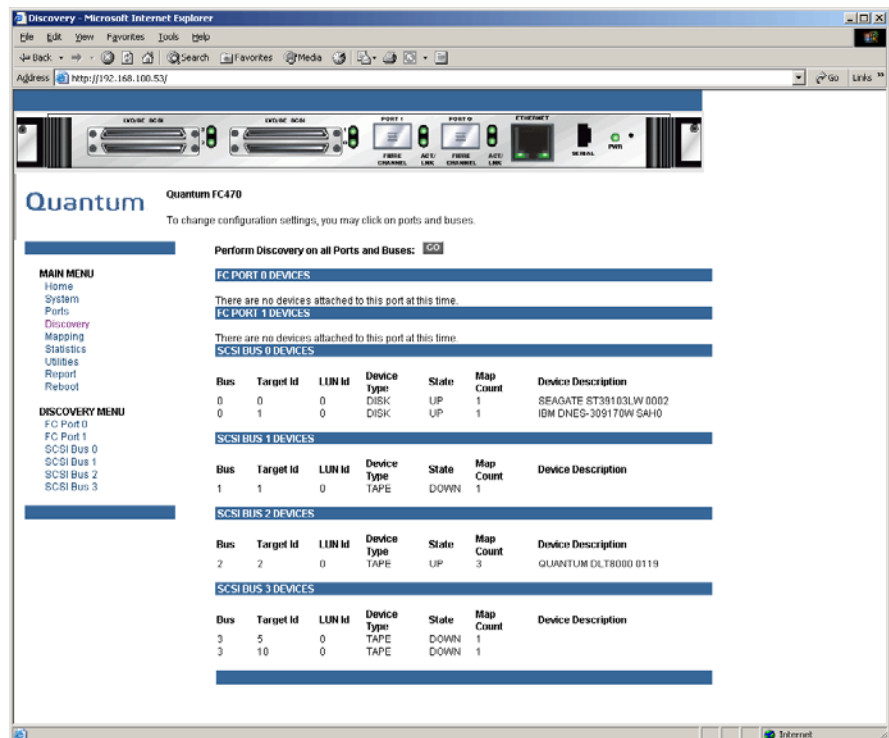
The **Discovery** page is used to view and discover new target devices such as tape drives and media changers.

To access the **Discovery** page:

- 1 Click on **Discovery** from the Main menu on the **Home** page.

The **Discovery** page displays (see [figure 14](#)).

Figure 14 Discovery Page



To perform a manual discovery of a specific Fibre Channel or SCSI port, select the port either from the Discovery menu or from the FC470 image and click **Go**.

Mapping Page

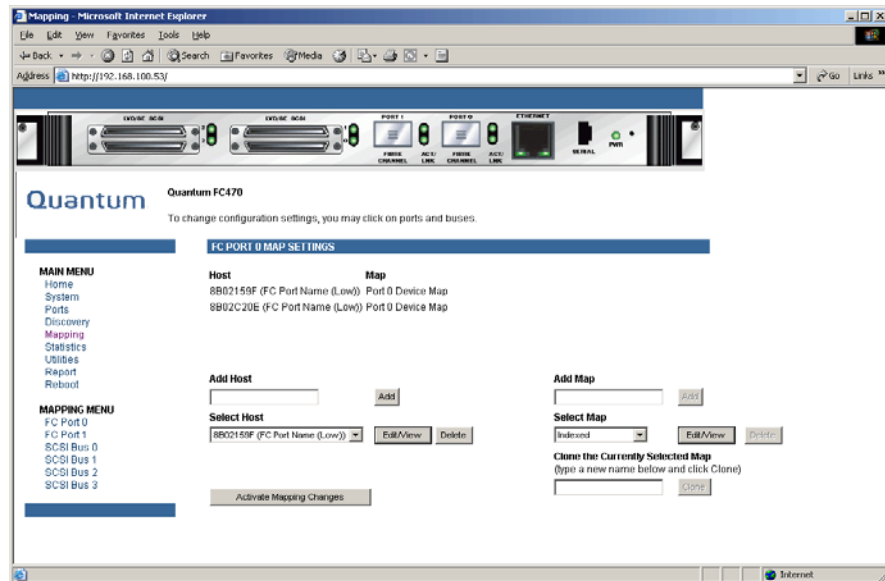
The Mapping page allows you to view or modify host and map information for a Fibre Channel port or SCSI port. Maps and hosts can be added, edited, or deleted.

To access the **Mapping** page:

- 1 Click on **Mapping** from the Main menu on the **Home** page.

The **Mapping** page displays (see [figure 15](#)).

Figure 15 Mapping Page



Each physical port/bus on the Interface Controller can have the following maps:

Table 10 Device Map Types

Map Type	System/User Generated	Fibre Channel or SCSI
Auto Assigned	System	Fibre Channel and SCSI
Indexed (default)	System	Fibre Channel and SCSI
Port <0,1> Device Map	System	Fibre Channel
SCC	System	Fibre Channel

Note: Port 0 or Port 1 Device Map is the recommended map to be used for editing and assigning oncoming hosts. The Indexed (default) map should not be used for editing, for security reasons, even though the user is able to edit this map.

To view or change map settings of a specific port or bus:

- 1 Select the port or bus from the menu bar on the left side of the screen or from the FC470 image at the top of the screen.

Specific mapping information is displayed, including the name of the port, the selected host, and the assigned map.

- 2 To make changes to the configuration, enter the new value and then select **Submit**.

Because some mapping configuration settings are the same for Fibre Channel and SCSI maps and some settings are unique, this mapping section is subdivided as follows:

- [Common Fibre Channel Mapping Tasks](#)
- [Fibre Channel Mapping Tasks](#)

Common Fibre Channel Mapping Tasks

Although the initial screen display for Fibre Channel and SCSI maps differ slightly, the available actions are the same.

Table 11 Mapping screen options

Field	Description
Select Host	Adds a known host. To add a previously configured host, select the host from the Select Host drop down box.
Edit/View Host	View or change the host information.
Delete Host	Deletes the current host.

Field	Description
Select Map	Adds a known map. To edit the port 0 or port 1 device map, expand the Select Map drop down box and select the appropriate map from the list.
Edit/View Map	View or change map information.
Delete Map	Deletes the current map

Note: Indexed, Auto Assigned, and ACC maps cannot be deleted or renamed.

Fibre Channel Mapping Tasks

Configuration tasks for Fibre Channel mapping include:

- [Viewing and Changing Fibre Channel Host Information](#)
- [Viewing and Changing Fibre Channel Map Information](#)

Viewing and Changing Fibre Channel Host Information

This section is reserved for Quantum Customer Support only.

Viewing and Changing Fibre Channel Map Information

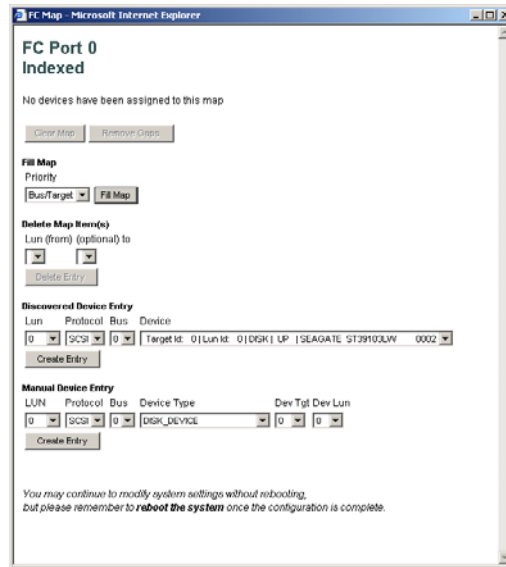
To view or change current Fibre Channel map information:

- 1 In the Mapping Menu screen, select the Fibre Channel port.
- 2 Select **Edit/View** in the Map section of the screen.

The Fibre Channel Map dialog box is displayed. Current map information is shown at the top of the dialog box.

- 3 Enter the new settings and then select the appropriate action button.

Figure 16 Fibre Channel Dialog Box



Note: Auto-assigned and SCC maps cannot be modified, cleared, filler, or have entries removed.

Table 12 Fibre Channel Map Settings

Clear Map	Clears all entries from the current map.
Remove Gaps	Removes any incremental gaps in the sequence of LUNs listed in the table. When the system removes gaps from the table, the LUNs are renumbered in sequential order, starting with LUN 0.
Fill Maps	Fills in the current map. To use the fill map option, expand the fill map priority drop down box, select the fill option, and then click Fill Map .
Discovered Device Entry	Adds a discovered device to the map. To add a discovered device to the map, use the drop down box to enter the settings, at the desired LUN number, and then click Create Entry in the discovered device entry section of the screen.
Manual Device Entry	Creates a map entry for a device that is not yet discovered or installed. To add a new device to the map, use the drop down boxes to enter the settings, and then click Create Entry in the manual device entry section of the screen.

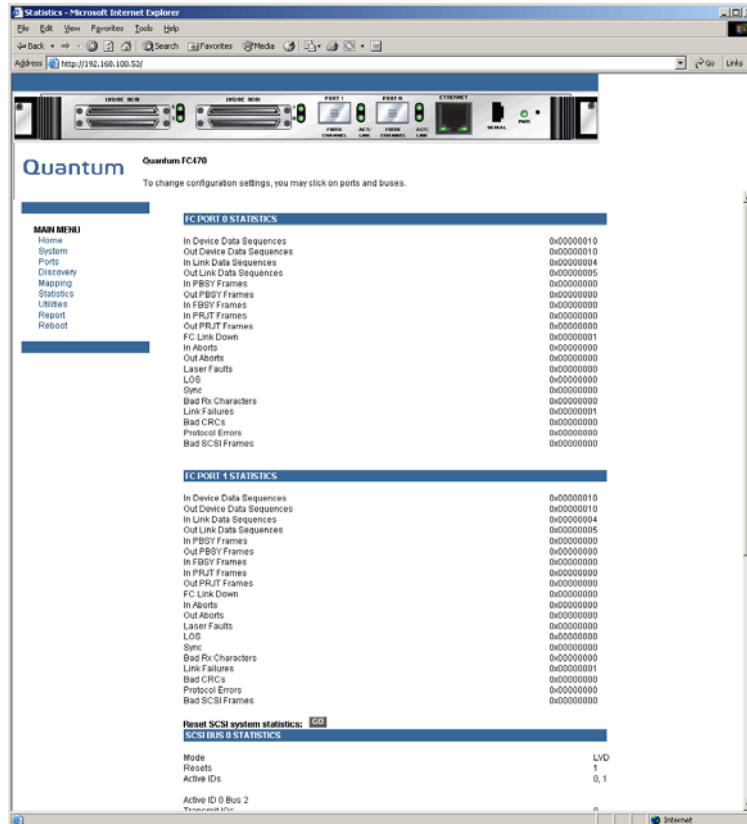
Statistics Page

The **Statistics** page allows you to view various FC470 statistics remotely.

To access the **Statistics** page:

- 1 Click on **Statistics** from the Main menu on the **Home** page.
The **Statistics** page displays (see [figure 17](#)).

Figure 17 Statistics Page



To view information for a specific port or us, click the component on the menu bar or the FC470 image. To refresh the display, click **Reset SCSI System Statistics**.

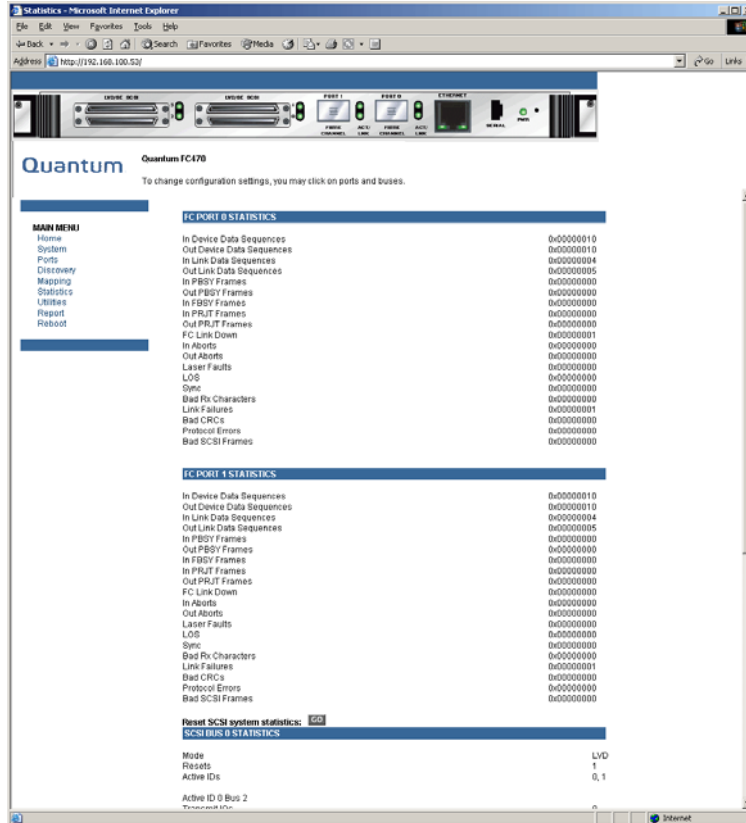
Utilities Page

The **Utilities** page allows you to access FTP utilities and various trace information.

To access the **Utilities** page:

- 1 Click on **Utilities** from the Main menu on the **Home** page.
The **Utilities** page displays (see [figure 18](#)).

Figure 18 Utilities Page



The FTP utility requires the use of a JAVA applet and prompts for permission to install the applet, if needed. If the prompt is displayed, follow the onscreen instructions to complete the installation. The FTP utility then prompts for permission to run the applet.

Note: Internet access is required to verify the signature for the FTP applet and to download the JAVA applet plug-in for your browser.

To open an FTP session:

- 1 Enter the User Name, Password, and the IP address of the Interface Controller and click **Connect**.
- 2 Select the local file to upload or download. If necessary, click **Browse** to scroll through a file list.

Note: The configuration file should be named <myconfigfile.cfg> when typing it into the FTP window.

The following file types can be uploaded to the Interface Controller:

- Configuration (.cfg)

- Firmware (*.dlx*)
- The following file types can be downloaded from the Interface Controller:
- Configuration (*.cfg*)
- Traces for the current boot cycle (*curtrace.txt*)
- Traces from the previous boot cycle (*protrace.txt*)

1 Click **Binary Transfer** mode.

2 Choose the desired task:

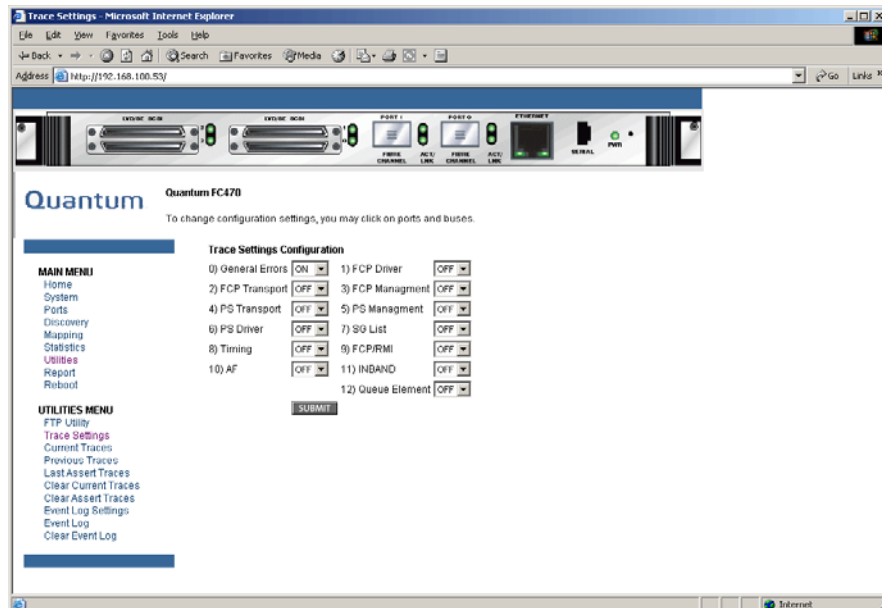
- To download a file, click **Get**.
- To upload a file, click **Put**.

Note: If a valid firmware or configuration file is uploaded to the Interface Controller, an automatic reboot will occur once the file has been received. The Interface Controller cannot be accessed from the Visual Manager UI during the time that the reboot is in process, which is approximately 30 seconds.

Trace Settings Configuration

The **Trace Settings** screen is used to configure the trace settings (see [figure 19](#)).

Figure 19 Trace Settings Screen



Current Trace settings are displayed. To change the settings, use the drop-down boxes and choose the desired setting. After all changes are completed, select **Submit**.

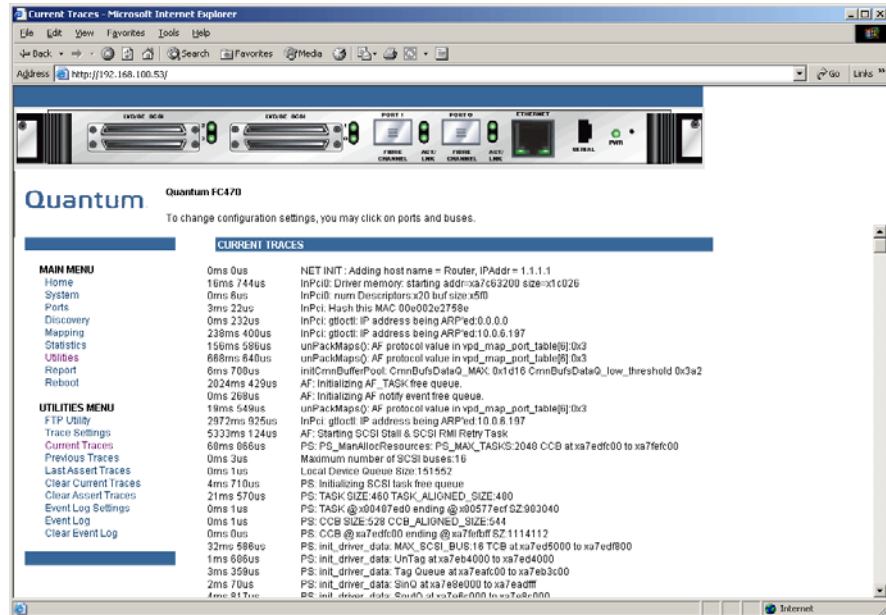
Table 13 Trace Settings

Settings	Description
General Errors	Displays the most serious errors and exception conditions.
FCP Transport	Fibre Channel Protocol transport functionality will be monitored and recorded.
PS Transport	Parallel SCSI transport functionality will be monitored and recorded.
PS Driver	Parallel SCSI driver functionality will be monitored and recorded.
Timing	Timer functions will be monitored and recorded.
AF	Active Fabric firmware will be monitored and recorded.
FCP Driver	Fibre Channel Protocol driver functionality will be monitored and recorded.
FCP Management	Fibre Channel Protocol management functionality will be monitored and recorded.
PS Management	Parallel SCSI functionality will be monitored and recorded.
SG List	Scatter/gather list will be monitored and recorded
FCP/RMI	Fibre Channel Protocol routing layer will be monitored and recorded.
INBAND	Controller management functionality will be monitored and recorded.

Current, Previous, and Last Assert Trace Displays

These three **Utilities** Menu screens show trace information. The **Current Traces** screen shows data since the Interface Controller was last booted. The **Previous Traces** screen shows data from the last boot cycle. The **Last Assert Traces** screen shows data since the last assertion.

Figure 20 Current Traces Screen

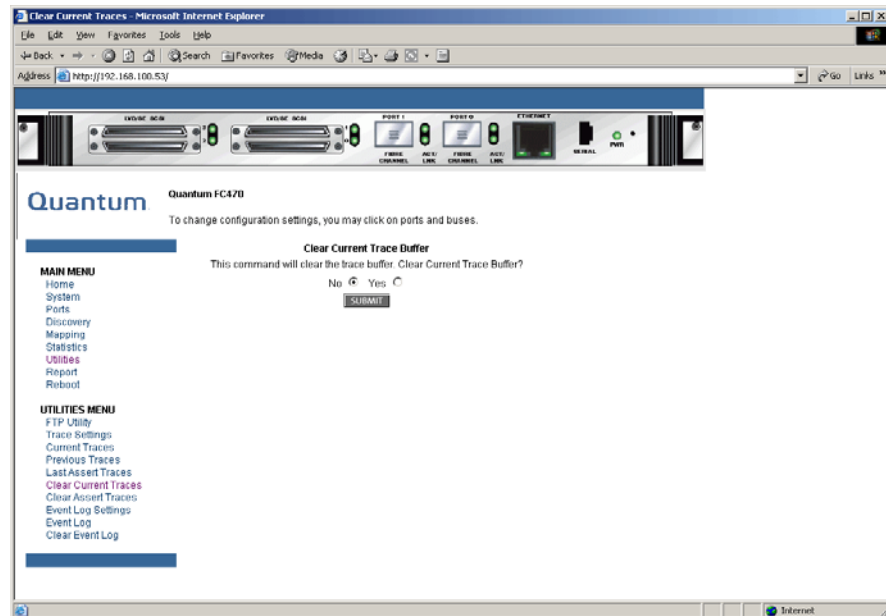


Clear Current and Assert Traces

These **Utilities** Menu screens are used to clear the current trace buffer or the assert trace buffer.

FC470 activities will not be disrupted while the buffer is cleared.

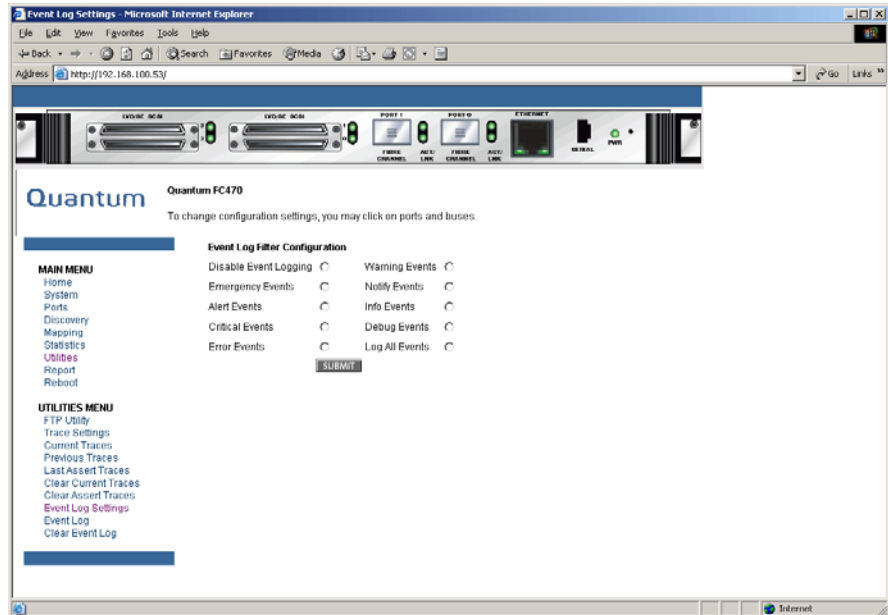
Figure 21 Clear Current Trace Buffer Screen



Event Log Configuration

Figure 22 Event Log Filter Configuration Screen

The **Event Log Setting** screen is used to configure Event Log filters.



Event Log settings:

- Disable Event Logging
- Emergency Events
- Alert Events
- Critical Events
- Error Events
- Warning Events
- Notify Events
- Info Events
- Debug Events
- Log All Events (Default)

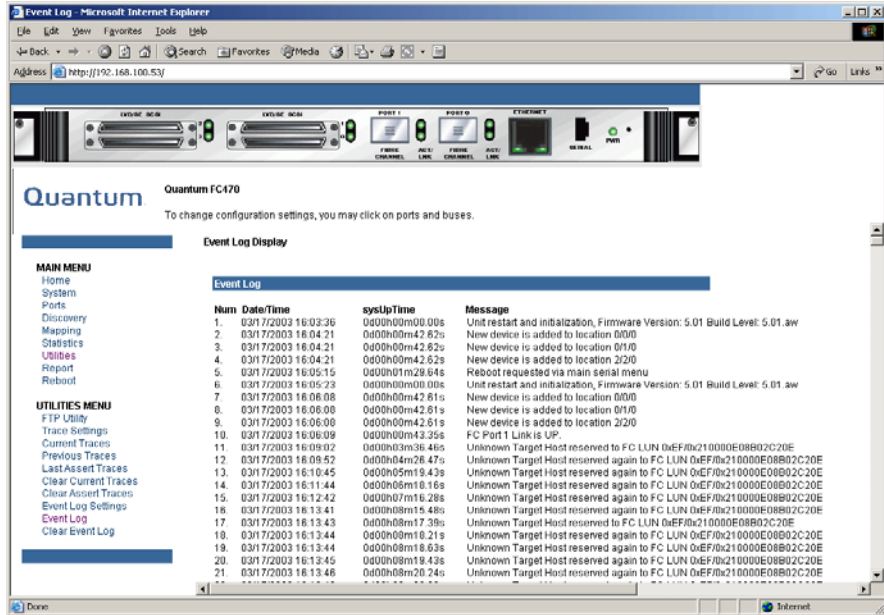
Event logging captures the last 215 events and then starts overwriting the log.

Note: To ensure accurate event logging, correctly set the clock and date in the Real Time Clock Configuration Menu.

Event Log Display

The **Event Log** screen is used to view the Event Log.

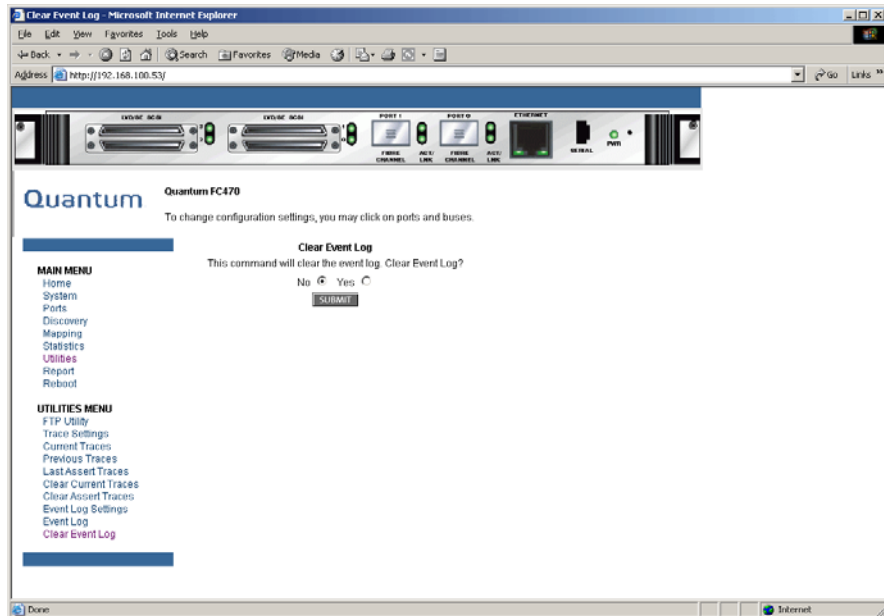
Figure 23 Event Log Display Screen



Clear Event Log

The **Clear Event Log** screen is used to clear the Event Log.

Figure 24 Clear Event Log Screen

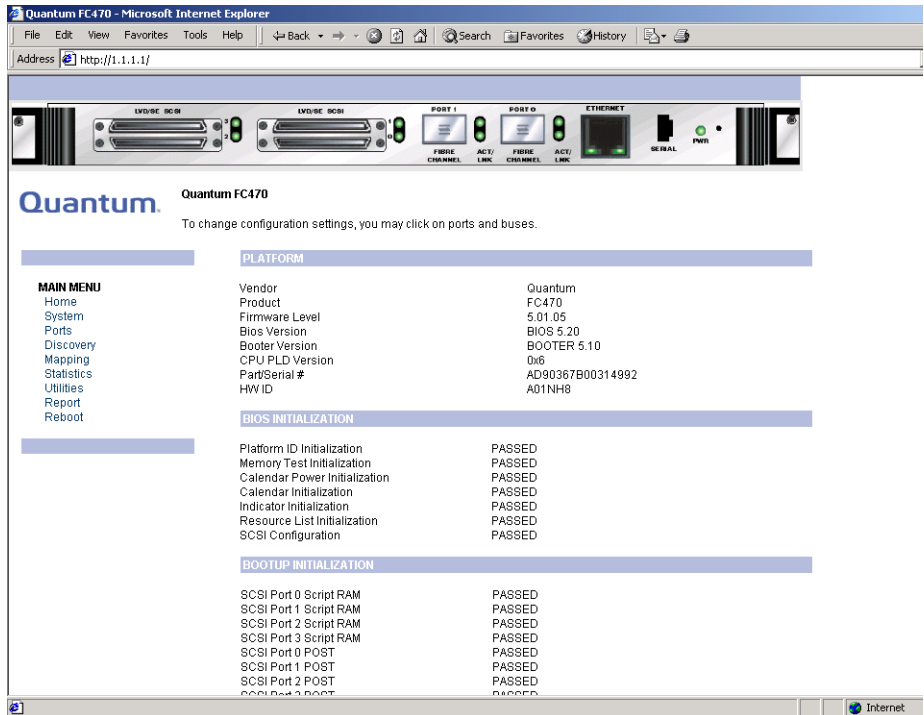


Current FC470 activities will not be disrupted.

Report Menu

Accessed from the Main Menu, the **Report** screen displays a consolidated view of all system information, including environmental conditions.

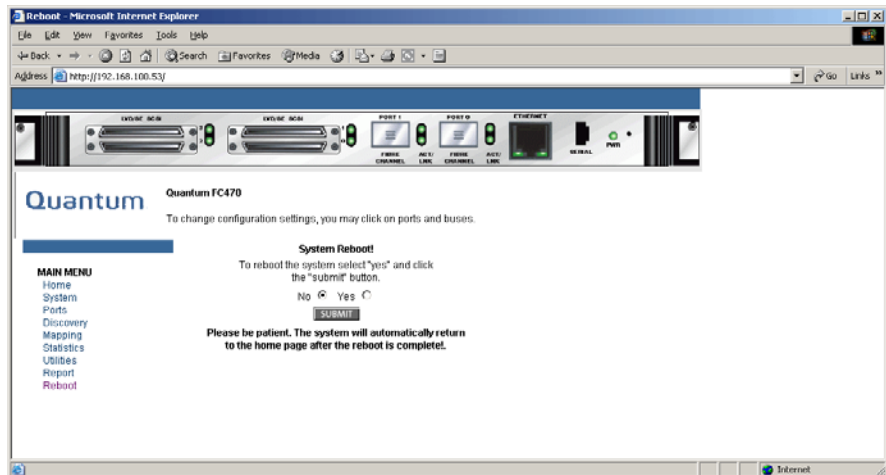
Figure 25 Report Screen



Reboot Option

FC470 reboots are executed using this FC470 Main Menu option.

Figure 26 Reboot Screen



When the Interface Controller is rebooted, current Interface Controller activities will be disrupted. All submitted configuration changes will be activated during the boot-up process.

Caution: Confirm there is no activity, such as a backup in progress, before initiating a reboot as the Interface Controller activities will be disrupted.

Troubleshooting

This section discusses basic methods of identifying problems in the setup and configuration of the Interface Controller.

Most problems occur during the initial installation of the Interface Controller. Before proceeding with advanced troubleshooting techniques, verify all connections and review the configuration.

The following topics are discussed in this section:

- [LED Indicators](#)
- [Basic Troubleshooting](#)

LED Indicators

The LED indicators on the Interface Controller are useful for diagnosing various problems:

- The **SCSI bus LEDs** indicate SCSI activity. These indicators are lit during power up, configuration, and when the unit is transferring data. If the SCSI indicator stays continually lit without any corresponding Fibre Channel LED activity, it may indicate a problem with the SCSI bus configuration. Verify the SCSI bus configuration.
- The **Fibre Channel port LEDs** indicate Fibre Channel activity (ACT) and link (LNK) status. If one of these indicators does not light or stays continually lit without any corresponding SCSI bus activity, it may indicate a problem with a Fibre Channel link. Verify the Fibre Channel port configuration.
- The **Ethernet LEDs** indicate activity and link status. If one of these indicators does not light or stays continuously lit, it may indicate a problem with the network connection. Verify the network connection. The port must be connected to a 10/100BaseT Ethernet network to function properly.

Figure 27 FC470 Features

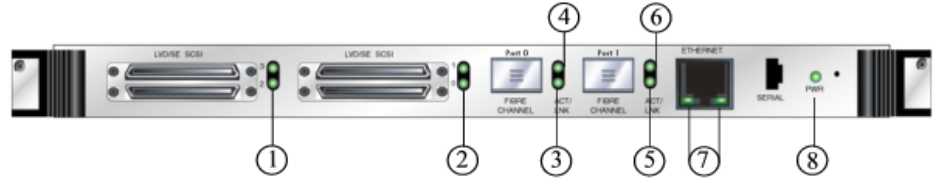


Table 14 FC470 Feature Descriptions

Item	Description
1	SCSI bus activity LEDs (on corresponding ports, 0, 1)
2	SCSI bus activity LEDs (on corresponding ports, 2, 3)
3	Fibre Channel Link LED on Port 0
4	Fibre Channel Activity on Port 0
5	Fibre Channel Link LED on Port 1
6	Fibre Channel Activity LED on Port 1
7	Ethernet Activity and Link LEDs
8	Power LED

Basic Troubleshooting

Simplify the installation by reducing it to the most basic configuration. Then, add elements one at a time, verifying the operation after each step.

Basic troubleshooting includes verifying the setup and the connections, including:

- [Verifying SCSI Bus Configuration](#)
- [Verifying Fibre Channel Port Connection](#)
- [Verifying SCSI Devices in Windows NT](#)
- [Verifying Windows 2000 Driver](#)
- [Verifying Mapping](#)
- [Verifying Devices](#)
- [Verifying the Host Configuration](#)
- [Verifying HBA Device Driver Information](#)

Each of these topics is discussed in the following sections.

Verifying SCSI Bus Configuration

- Items to check include:

- **Termination** – Problems with termination can cause intermittent or hard failures. A SCSI bus must be terminated on both ends. Termination problems are common when both narrow and wide devices are on the same bus.
- **Bus Type** – On an LVD SCSI bus, SE and LVD devices can be connected to the same bus. However, if one SE device is detected during power up, communication to all devices will convert to SE mode.
- **Device ID** – Each device on a SCSI bus must have a unique ID. Verify configured IDs are not in use by other devices on the same SCSI bus.
- **Cabling** – Check SCSI cables to verify they are functional. SCSI rules for total length, distance between devices, and stub length must be followed. Connections should also be checked and reseated if necessary.
- **SCSI Devices** – Verify that the SCSI devices on a particular SCSI bus can be seen in the Configuration Menu of the Interface Controller. If the Interface Controller cannot see the devices, verify SCSI configuration, cabling, and termination.

Verifying Fibre Channel Port Connection

If SCSI devices are recognized on the SCSI buses, but do not appear to the Fibre Channel host, it may be that the Fibre Channel link is not properly established. Most hubs and switches have link indicators showing link status. When the Interface Controller is connected and powered on, this link indicator should be solid. If it is not, check the cabling or connections.

One method of verifying link integrity when connected to a functional host, involves disconnecting and then reconnecting the Fibre Channel cable. This procedure should cause momentary activity of this indicator as the link reinitializes.

Additionally, verify that the cable type of the Interface Controller and the attached hub, HBA, or switch is of corresponding types. When using optical media, verify that the attached device is using non-OFC type optical devices.

Note: By default, the Fibre Channel port speed is set to 2 Gb/s. Changes to the Fibre Channel port speed must be manually set, such as for 1 Gb/s. If set incorrectly and the Interface Controller is plugged into a Loop or Fabric, the unit may receive framing errors, which can be found in the trace logs, and the fiber link light will be off because of the incorrect Fibre Channel link speed.

Verifying SCSI Devices in Windows NT

When mapping Fibre Channel and SCSI devices, verify the Fibre Channel and SCSI devices are recognized by the Interface Controller.

Windows NT may need to be rebooted with all SCSI devices and the Interface Controller powered up before recognizing the devices.

To verify the Fibre Channel and SCSI devices:

- 1 Navigate to the Windows NT Control Panel, and select SCSI Adapters.
- 2 Double-click the Fibre Channel HBA.

The SCSI devices should be listed.

If no devices are listed, verify the Interface Controller configuration, Fibre Channel HBA configuration, and cabling.

If devices are listed, verify the Fibre Channel HBA mapping mode or the AL_PA addresses.

Verifying Windows 2000 Driver

The Windows 2000 driver is the device driver installation file (called an INF file) needed by the MS Windows 2000 Operating System. The Interface Controller needs no driver in reality, as the HBA in the Host PC manages it. But this file lets the Windows 2000 Device Manager register a Interface Controller's Controller LUN as a "System" device, so that the Device Manager thereafter will not consider the controller LUN to be an unknown or "newly discovered" device with every reboot. Using this file, a User only has to "identify the Interface Controller to the Device Manager" once.

To install (register) the Interface Controller with a host Windows 2000 PC that has the FC HBA that will connect to the Interface Controller, use the included INF file (located on the user documentation CD). A controller LUN must also set up on the Interface Controller so that Windows 2000 can "discover" it.

When the Interface Controller FC link is "Up", the user can either reboot the PC, or run the "Scan for new Hardware" function of the Windows 2000 Device Manager. Either action should cause the HBA to issue a SCSI Inquiry command, to which the Interface Controller replies with its ASCII Inquiry string. Initially, the Windows 2000 Hardware Wizard will use this string to refer to the Interface Controller.

After this discovery interaction occurs, the Hardware Wizard will prompt the user to install a device driver. The user should then select the Wizard's "Search for a suitable driver" option, and specify the folder containing the Interface Controller INF file, in this case located on the user documentation CD.

The Hardware Wizard scans all the INF files in the specified folder, and selects the first INF file it finds with a device entry containing a matching hardware ID string. It then copies the selected INF file, renaming it to "oem<#>.inf", where the '#' is some integer, and places the copy into the "C:\WINNT\inf" folder. It "compiles" the INF file to a ".PNF" file with the same root filename, and uses its Interface Controller model entry information to install -- or register in the Interface Controller's case -- the newly discovered device.

The user must reboot the Host PC to complete the process, as prompted by the Wizard.

Verifying the Interface Controller Configuration

If you are in doubt about the configuration or about the location of the error, restore the Interface Controller to the factory default configuration and configure the unit one step at a time, verifying the functionality of the configuration after each change is made.

Caution: Restoring factory defaults overwrites user configurations. In the Serial/Telnet interface, use the save configuration option before resetting factory defaults to allow recovery of user configuration.

Verifying Mapping

If the Interface Controller is working in Fibre Channel-to-SCSI Initiator mode and is using Indexed or SCC mapping, try changing to Auto-assigned mapping.

Verifying Devices

Connecting the SCSI target devices directly to a SCSI interface (for example, a host SCSI bus) to verify that the devices are functional is recommended.

Verifying the Host Configuration

In some cases, the Fibre Channel HBA or host device driver may not be working properly. Check the configuration of these elements.

It may be useful to check the release notes for the device driver to see if there are any specific issues or a required configuration. It may also be useful to ensure that the current version of the HBA driver is being used.

Older applications can have expectations about what constitutes a valid SCSI ID, and thus may not correctly handle certain mappings. This is not an issue for the operating system or most applications.

However, some applications may exhibit difficulties addressing target IDs greater than 15 (16 and higher.) To resolve this situation, configure the Interface Controller to use hard addressing and set the AL_PA to a value that the HBA will be able to map with an ID less than 16.

Verifying HBA Device Driver Information

Review the HBA device driver *Readme.txt* file for configuration specifics. An HBA may require a different configuration. HBAs typically come with utility programs to view or change their configurations.