
Visual Manager User Interface

The *StorageWorks* Visual Manager user interface (UI) provides a graphical and intuitive format that is used to remotely view and change router configurations. Use the Microsoft Internet Explorer or Netscape (version 6.2 or greater) Web browsers to access Visual Manager.

Information is presented in HTML format in accordance with the W3C specification for HTML 3.2. Current W3C recommendations and other technical documents can be found at www.w3.org/TR/.

This chapter describes the menus and tasks of the Visual Manager UI and is organized using the same structure of the Visual Manager UI:

- Visual Manager access
- Visual Manager best practices
- Main Menu
- System Menu
 - Serial configuration
 - Network configuration
 - SNMP configuration
 - Active Fabric configuration
 - User Configuration
 - Real-Time clock configuration
 - Power Supply configuration

- Reset Menu
- Modules Menu
 - World Wide Node Name configuration
 - Fibre Channel Module configuration
 - SCSI Module configuration
- Discovery Menu
- Mapping Menu
 - Fibre Channel and SCSI common mapping tasks
 - Fibre Channel mapping tasks
 - SCSI mapping tasks
- Statistics Menu
- Utilities Menu
 - Beacon mode configuration
 - FTP utility access
 - Trace settings configuration
 - Current, previous, and last assert trace displays
 - Clear current traces and clear assert traces
 - Event log configuration
 - Event log display
- Report Menu
- Reboot Option

Visual Manager Access

Visual Manager (VM) can be accessed from any standard web browser:

1. Connect a 10/100BaseT Ethernet cable to the back of the router.

2. Apply power to the connected SCSI and/or Fibre Channel devices.
3. After all of the devices have completed their power up routines, apply power to the router.
4. Apply power to the host computer.
5. Enter the router IP address in the address field of the Web browser of the host computer.

NOTE: To access VM, the router must be assigned a valid IP address. The factory default setting for the IP address allows access on a local area network only. If the factory default for the IP address is already used by another device on the local network, the IP address must be changed.

The factory default for the IP address is `http://1.1.1.1/`

NOTE: If the IP address of the router is not known or needs to be changed, connect to the router using a serial connection. The current router IP address is displayed and can be changed in the serial Ethernet Configuration Menu.

6. In the Visual Manager home page, router status information is displayed. The home page is accessible to anyone who knows the router IP address.

To access any other menus and screens, the user must enter the authorized user name and password.

The default user name is `root` and the default password is `password`. This information is required only once per session.

NOTE: Compaq recommends changing the user name and password from the defaults.

NOTE: Username and password are not case sensitive.

7. After entering the user name and password, full access is gained to the VM menus.

NOTE: To end the current session of VM, it is necessary to close the browser window. Navigating the browser to another URL does not end the current session.

Visual Manager Best Practices

The following recommendations should be observed:

- A standard keyboard and mouse must be used to navigate in the VM.
- The router is shipped with a configuration of default settings that is acceptable for most system environments. Few changes to the configuration should be necessary.
- After any configuration changes are made, depending on the menu option, select **Submit** or **Configure** to send changes from the Web browser to the router.

Changes will take effect during the next router reboot cycle.

- If the configuration has been modified to meet company-specific needs, back up the company-specific configuration to an external file. If necessary, these settings can later be restored to the router.
- Fields are not case-sensitive, except for the username and password.
- Compaq recommends that you not bookmark VM pages with the Web browser.

Because configuration information is transmitted via URLs, it is possible that the router could be configured with information present at the time a page was bookmarked.

- Compaq recommends navigating only using the Web page links contained in VM itself.

Depending on the Web browser used, these links will often appear as highlighted text. By selecting these links, VM can be safely navigated.

Main Menu

The Main Menu home page is displayed whenever VM is accessed.

The home page contains status information, including a physical image of the back-side of the router.

Figure 4-1 is an example of the home page.

The screenshot shows the Visual Manager interface for a Compaq StorageWorks Modular Router. The browser window title is "Compaq StorageWorks Modular Router - Microsoft Internet Explorer" and the address bar shows "http://192.168.50.211/". The main content area features a physical image of the router with various modules (Fibre Channel, RVD SCSI) and a "MAIN MENU" sidebar with options like Home, System, Modules, Discovery, Mapping, Statistics, Utilities, Reboot, and Reboot. The status sections are as follows:

PLATFORM

Name	Description
Vendor	Compaq
Product	StorageWorks Modular Router
Firmware Level	fast
Bios Version	4.15
Booter Version	4.07
MCU PLD Version	0x2
CPU PLD Version	0x2
Part/Serial #	262653-B21_0574CXR6YZZZ
HW ID	A00VES

TEMPERATURE

Scale	Actual	Status
Fahrenheit	102.20	IN RANGE
Celsius	39	IN RANGE

VOLTAGE

Expected	Actual	Status
1.8	1.79070	IN RANGE
2.5	2.47300	IN RANGE
3.3	3.31574	IN RANGE
5.0	5.02572	IN RANGE
12.0	11.93750	IN RANGE
1.8	1.77660	IN RANGE

FAN

Name	RPM	Status
Fan 0	9246	IN RANGE
Fan 1	8437	IN RANGE
Fan 2	9183	IN RANGE

POWER SUPPLY

Name	Status
Module 0	FUNCTIONAL
Module 1	NOT FUNCTIONAL

Figure 4-1: Visual Manager home page

Home page information includes:

- The Compaq logo is located in the upper left corner of the page. Figure 4-2 is an example of this portion of the home page screen. If the Internet is accessible to the host, click the Compaq logo to open the router company Web site.



Figure 4-2: Compaq logo

- A back-side view of the router is located near the top of the home page. Figure 4-3 is an example of this portion of the home page screen.



Figure 4-3: Back-side router image

The router image is interactive, allowing quick access to configuration menus:

- To display current settings and status for a module, click the corresponding module shown in the router 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 bus.
- To open the Power Supply Configuration menu, click the power connector image.
- To open the Network Configuration menu, click the Ethernet port.
- To open the Beacon settings menu, click the System Status LED indicator.
- Router status information is located in the body of the home page and includes:
 - Platform information
 - Temperature measurements

The home page monitors the temperature of the router, checking once every 60 seconds. If the detected temperature is outside the operating range, a pop-up notification message indicates that the unit is about to shut down.

NOTE: The temperature warning message appears only on the home page.

- Voltage measurements
- Fan measurements
- Power supply functionality
- The Main Menu option bar is located at the left-side of the home page. Use this option bar to access the configuration menus. Figure 4-4 is an example of this portion of the home page screen.

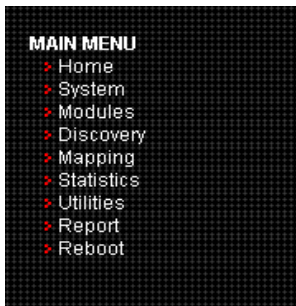


Figure 4-4: Main Menu option bar

Main Menu options:

- **Home**—display router status information.
- **System**—configure standard system components.
- **Modules**—configure Fibre Channel and SCSI module ports/buses.
- **Discovery**—view devices and discover new devices.
- **Mapping**—view and configure maps.
- **Statistics**—view router statistics.
- **Utilities**—configure utility settings.
- **Report**—view and print system information.
- **Reboot**—restart the router.

Each Main Menu option is discussed in the following sections of this chapter.

System Menu

The System Menu is accessed from the Main Menu and is used to view and configure serial, network, SNMP, Trap, Active Fabric, clock, and power supply components.

Figure 4-5 is an example of the System page.

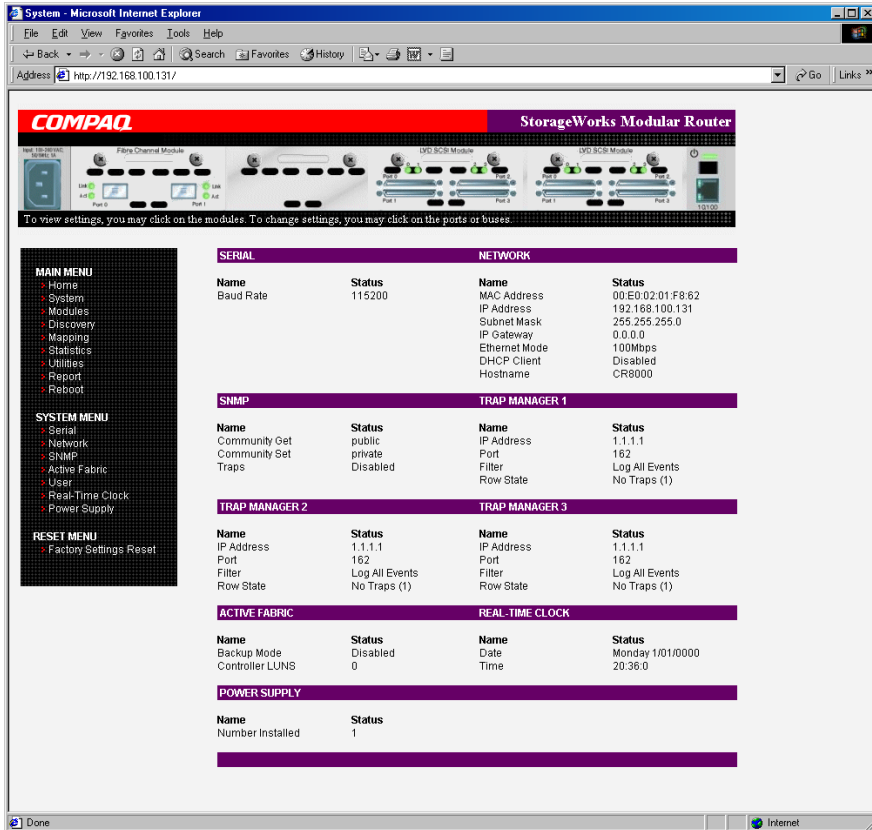


Figure 4-5: System page

System Menu tasks:

- **Serial configuration**—configure the baud rate.
- **Network configuration**—configure Ethernet settings.
- **SNMP configuration**—configure SNMP settings.
- **Active Fabric configuration**—configure Active Fabric settings.
- **User configuration**—configure user security settings.
- **Real-Time Clock configuration**—configure system date and time.
- **Power Supply configuration**—configure the number of power supplies.
- **Reset menu**—restore factory default settings.

Each menu option is discussed in the following paragraphs.

Serial Configuration

The Serial screen is used to change the baud rate for the serial port. Figure 4-6 is an example of the Serial screen.

If the Autobaud feature is being used, it may not be necessary to set the baud rate.

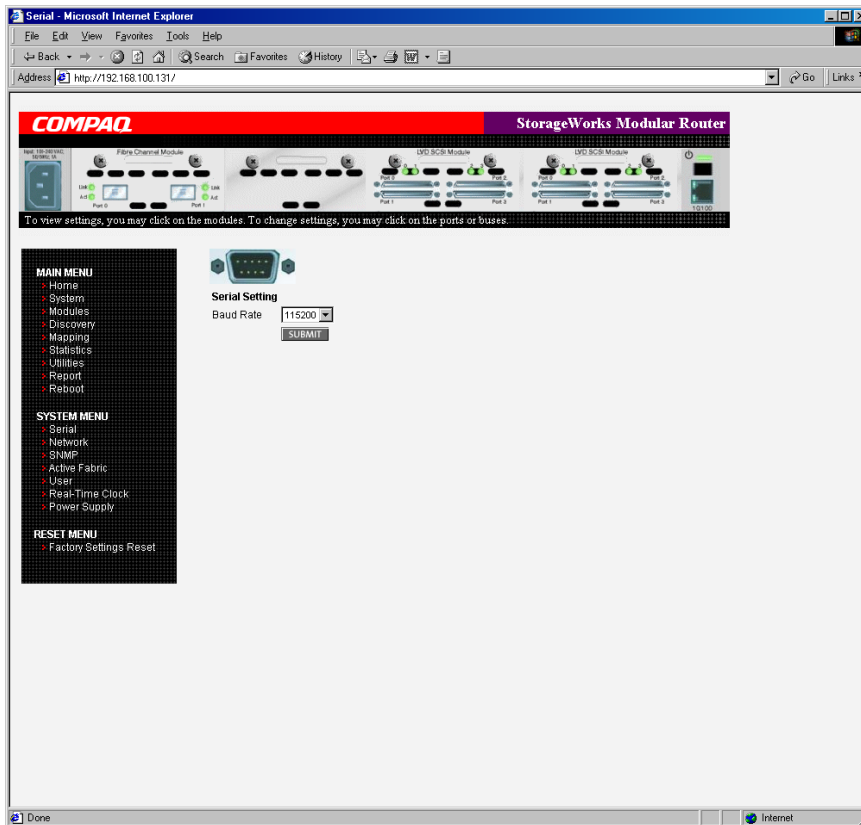


Figure 4-6: Serial screen

The current baud-rate setting is displayed. Compaq recommends setting this value to 115200.

Network Configuration

The Network screen is used to enter network settings, including Ethernet settings. Figure 4-7 is an example of the Network screen.

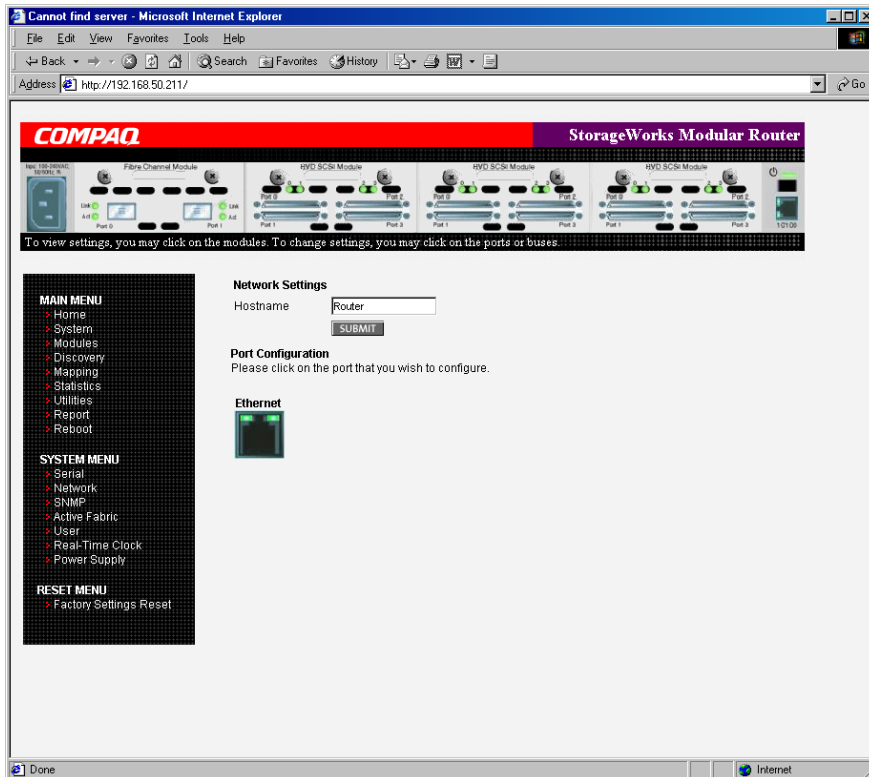


Figure 4-7: Network screen

Network menu options:

- **Network Settings**—change the hostname.
- **Port Configuration**—change Ethernet configuration settings.

Network Settings

To change the Hostname, enter an alphanumeric entry of one word up to 8 characters in length. Click **Submit**.

Port Configuration (Ethernet Settings)

To change the Ethernet configuration settings, click the Ethernet port icon.

The Ethernet Configuration dialog box is displayed. See Figure 4-8 for an example of the Ethernet Configuration dialog box.

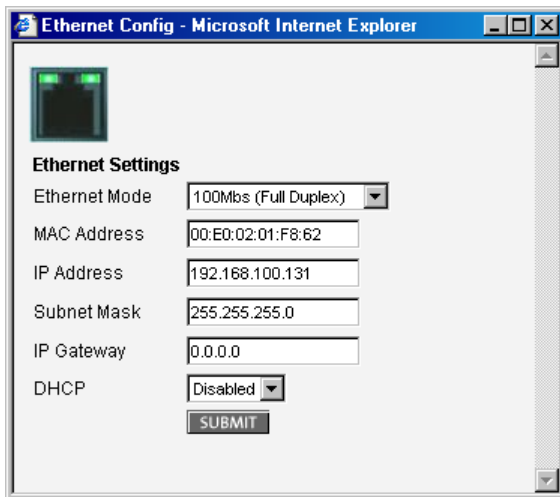


Figure 4-8: Ethernet Configuration dialog box

Ethernet configuration settings:

- **Ethernet Mode**—can be set to one of the following options:
 - 10Mps Only
 - 100Mps (half duplex) Only
 - 100Mps (full duplex) Only
 - 10/100Mps (Auto-Neg.)

- **MAC address**—is the Ethernet physical address of the router.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

The Ethernet physical address is always assigned by the manufacturer.

- **IP address**—(default: 1.1.1.1) is the IP address of the router.
- **Subnet Mask**—(default: 255.255.255.0) is the IP subnet mask for the router.
- **IP Gateway**—(default: 0.0.0.0) is the IP address of the gateway for the Ethernet network connected to the router.
- **DHCP**—enables or disables support for Dynamic Host Configuration Protocol (DHCP).

When DHCP is enabled, the router will request a dynamic IP address from a DHCP server on the Ethernet network. The router must be rebooted before an IP address will be requested from the DHCP server. After the router is rebooted, the HTTP session will have to be restarted. The IP address will be different from the former non-DHCP IP address.

NOTE: To use the DHCP feature, a DHCP server must be operational on the Ethernet network. If the DHCP feature is used when there is not DHCP server, the standard for DHCP requires the router wait three minutes for a response from a DHCP server before timing out.

Some DHCP servers allow a lease reservation to be set up for an IP address by providing the server with the Ethernet MAC address. The DHCP server will then always provide the same IP address to the router. This setup can be useful for remote management of the router via Telnet or VM. Because the method of setting up a lease reservation varies, depending on the DHCP server being used contact the Network Administrator for assistance.

SNMP Configuration

The SNMP screen is used to enter SNMP and Trap settings. Figure 4-9 is an example of the SNMP screen.

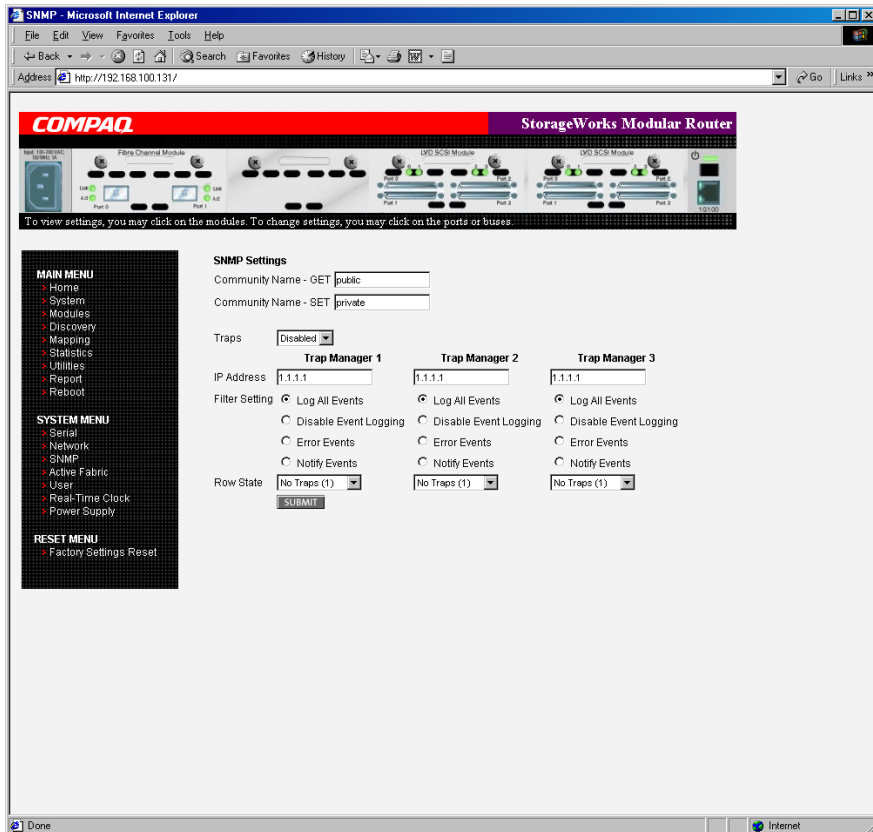


Figure 4-9: SNMP screen

SNMP settings:

- **Community Name – GET**—(default: public) is checked for each GET request received by the router.

The community name in the SNMP packet must match this community name for the SNMP GET request to be successfully completed. Configure the SNMP manager to have the same GET and SET community names as the router.

- **Community Name – SET**—(default: private) is only applicable for the FA MIB 2.2. See Appendix D “SNMP Management Information Bases” for more information.

- **Traps**—enables or disables SNMP traps for manager IP addresses.

If Traps are enabled, up to three Trap Manager IP addresses can be setup. Trapped events are logged in an event log. Event logging captures up to the last 215 events and then starts overwriting the log.

NOTE: To ensure accurate event logging, verify the clock and date are correctly set in the Real-Time Clock screen.

- **Trap Manager IP Address**—is the address used for sending Trap notifications. Typically, this is the IP address of the machine using the network management application or MIB browser.
- **Trap Manager Filter Setting**—sets filtering of event notifications (described in Appendix D, “SNMP Management Information Bases”).

Event notifications correspond to the trace setting levels configured in the Trace Settings Configuration menu. The filters that can be set include:

- Log All Events (Priority 0)
- Disable Event Logging (Priority 1)
- Error Events (Priority 6)
- Notify Events (Priority 4)

- **Trap Manager Row State**—is set to an integer in the range of 0 through 3. Options include:
 - Disabled (0)—clears to the default settings
 - No Traps (1)—no traps exist
 - Row Exist (2)—row exists but traps are not sent to target.
 - Send Traps (3)—row exists and traps are sent.

Active Fabric Configuration

The Active Fabric screen allows setup of Active Fabric options. Figure 4-10 is an example of the Active Fabric screen.

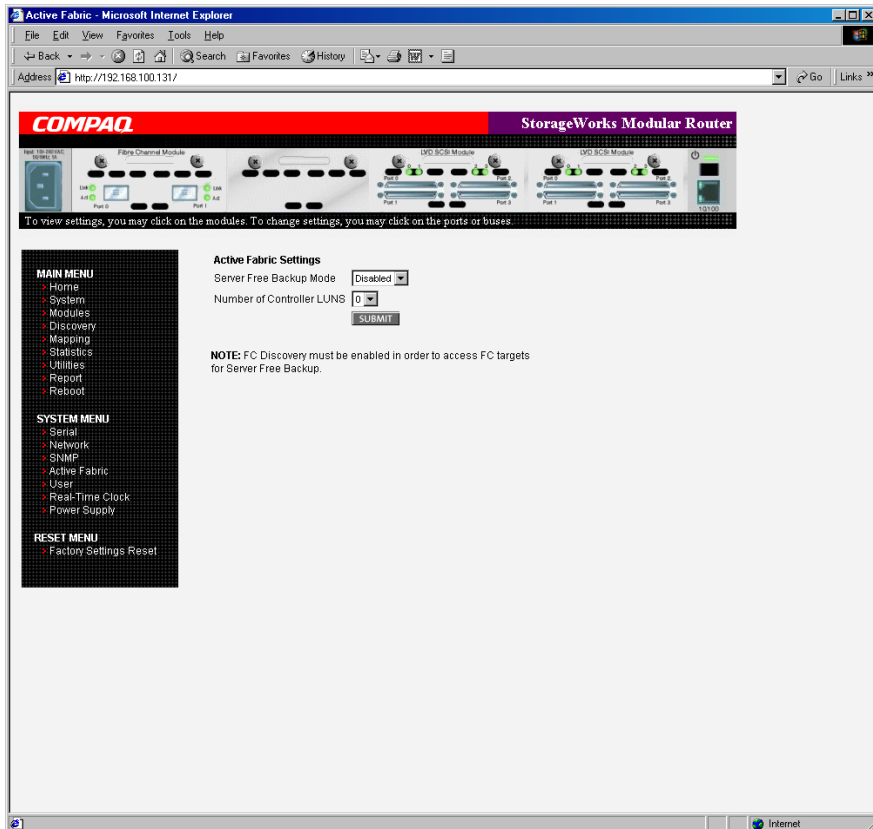


Figure 4-10: Active Fabric screen

Active Fabric settings:

- **Server-Free Backup Mode**—toggles between **Enabled** and **Disabled**.

When enabled, server-free backup capability is enabled to allow Extended Copy commands.

- **Number of Controller LUNs**—(default: 1) sets the number of controller LUNs reported by the router.

The number must be in the range of 0 through 4.

NOTE: For Server-Free Backup Mode functionality, if addressing a controller LUN is desired, at least one controller LUN must be enabled and included in a relevant map.

NOTE: If Server-Free Backup Mode is enabled, Fibre Channel Discovery must be enabled to allow router access to Fibre Channel Targets.

For information on controller LUN and Extended Copy commands, see Appendix B, “Controller LUN Commands.”

For general information about server-free backups, see Chapter 1, “Introduction.”

User Configuration

The User screen is used to set up router security. Figure 4-11 is an example of the User screen.

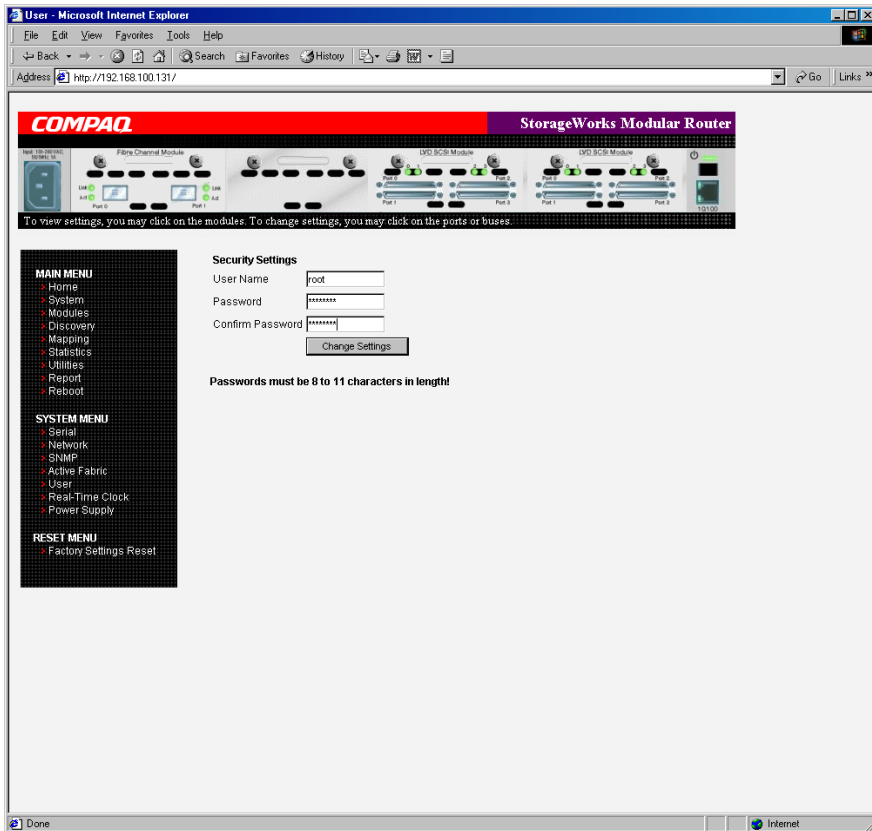


Figure 4-11: User screen

User settings:

- **User Name**—(default: root) is any alphanumeric combination.
- **Password**—(default: password) is any alphanumeric combination.

The user name and password should be unique and kept confidential. Compaq recommends using a combination of letters and numbers when creating the user name and password.

NOTE: These security settings affect all user interfaces of the router.

Real-Time Clock Configuration

The Real Time Clock screen is used to set the system time and date. Figure 4-12 is an example of the Real-Time Clock screen.

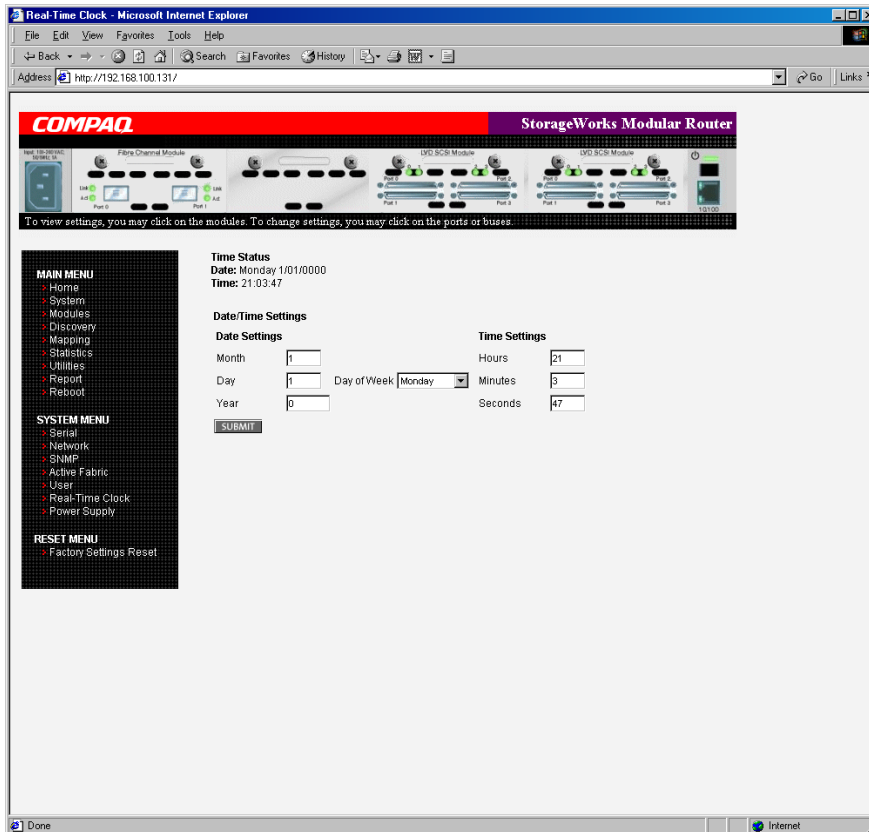


Figure 4-12: Real-Time Clock screen

Real-Time Clock settings:

- **Date Settings**—sets the month, date, and year.
Use a four-digit number to represent the year.
- **Day of Week**—sets the day of week.
- **Time Settings**—sets the hours, minutes, and seconds.
This is a 24-hour clock.

Power Supply Configuration

The Power Supply screen is used to indicate the number of power supplies installed in the router.

The router is shipped with one installed power supply, but a redundant power supply can be purchased.

If two power supplies are installed in the router, use this screen to indicate the change.

Figure 4-13 is an example of the Power Supply screen.

When set to **1**, the router suppresses event notifications of the second power supply.

NOTE: If set to '1' in a two-power-supply configuration, the router cannot issue an event notification if one of the power supplies fails.

NOTE: If there are two power supplies, and one of the two fails, this option does not inhibit the router from using the second power supply.

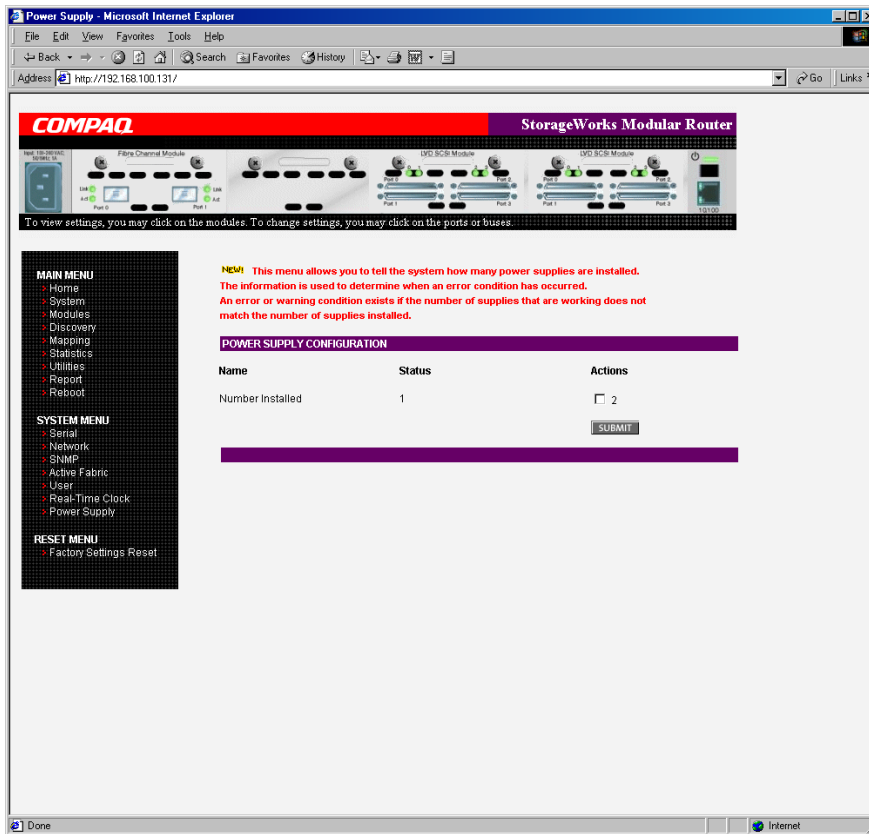


Figure 4-13: Power supply screen

Reset Menu

The Reset Menu is used to reset the router to factory default settings. Figure 4-14 is an example of the Reset Menu.

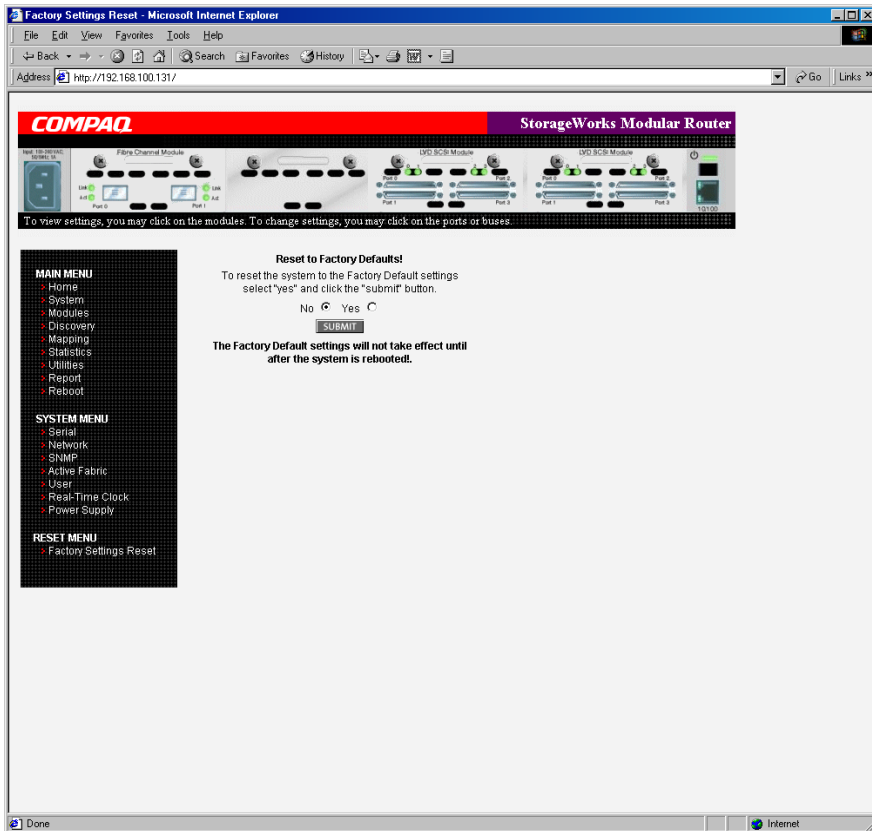


Figure 4-14: Reset to Factory Default screen

Current router activities will be disrupted while the unit resets the configuration to the factory defaults and saves those options to FLASH memory.

NOTE: Resetting to factory defaults through VM will not affect Ethernet connectivity. User-configured values for the IP address and gateway will be retained.

Modules Menu

Accessed from the Main Menu, the Modules Menu is used to view and modify configuration settings of Fibre Channel and SCSI modules.

The initial screen display of the Modules Menu includes summary information about each Fibre Channel and SCSI module in the router.

See Figure 4-15 for an example of the initial Modules Menu.

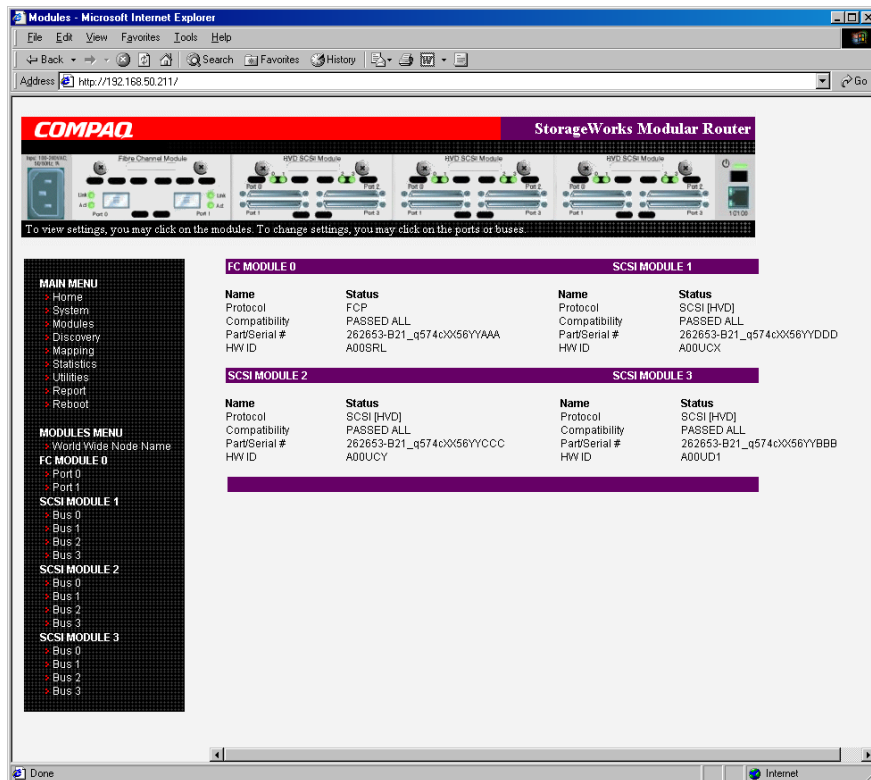


Figure 4-15: Modules menu

NOTE: To view or change configuration settings of a specific module, select one of the options from the menu bar on the left side of the screen or select a module or port from the router image at the top of the screen.

To make changes, modify the setting and then click **Submit**.

Modules Menu tasks:

- **World Wide Node Name configuration**—change World Wide Node Name.
- **Fibre Channel Module configuration**—change Fibre Channel module settings.
- **SCSI Module configuration**—change SCSI module settings.

Each Modules Menu option is discussed in the following sub-sections.

World Wide Node Name Configuration

The World Wide Node (WWN) Name screen is used to change the WWN Name settings for the router.

Figure 4-16 is an example of the World Wide Node Name screen.

These WWN settings are not normally changed.



CAUTION: Changing the WWN Name could result in duplicate names on a single Storage Area Network (SAN). Compaq recommends using the default values for World Wide Names.

NOTE: For Controller LUN commands to be operational, WWN naming schemes **MUST** be compliant with IEEE Fibre Channel Format 1, where the left-most hexadecimal character (the NAA field) of the WWN is '1'. Further, the sixth hexadecimal value from the right must be a value of '0' or '1'.

NOTE: If the configuration settings are reset to the factory default, these customized WWN settings will be overwritten.

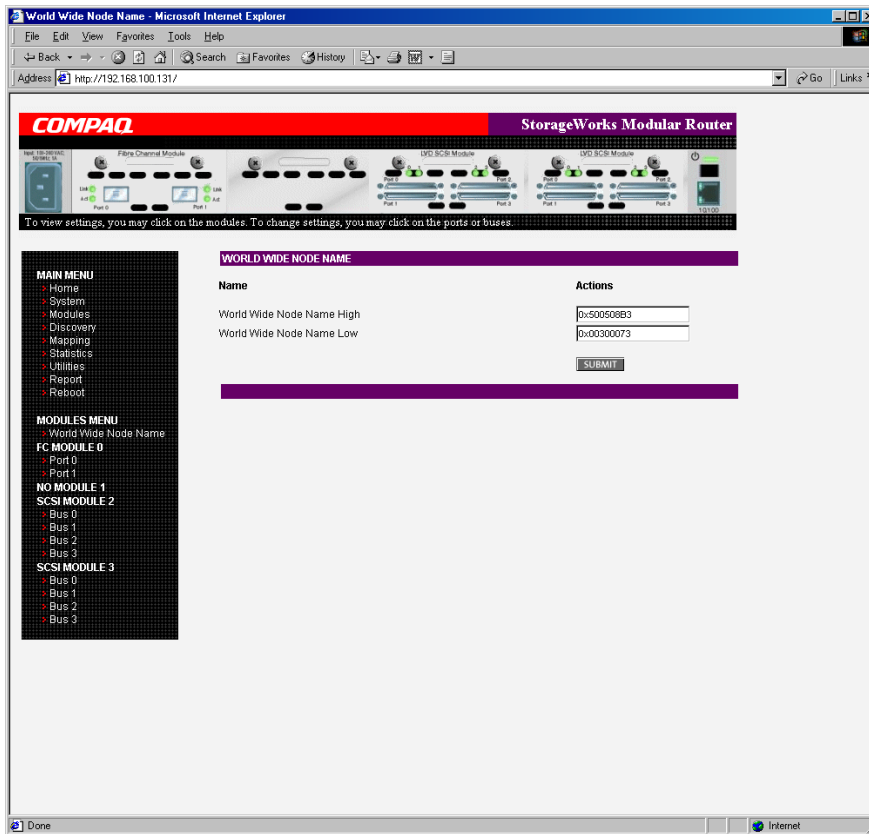


Figure 4-16: World Wide Node Name screen

Fibre Channel Module Configuration

When a Fibre Channel module is selected in Modules Menu, the Fibre Channel Module status screen is displayed. Summary information for each Fibre Channel port of the Fibre Channel module is displayed. Figure 4-17 is an example of the Fibre Channel Module screen.

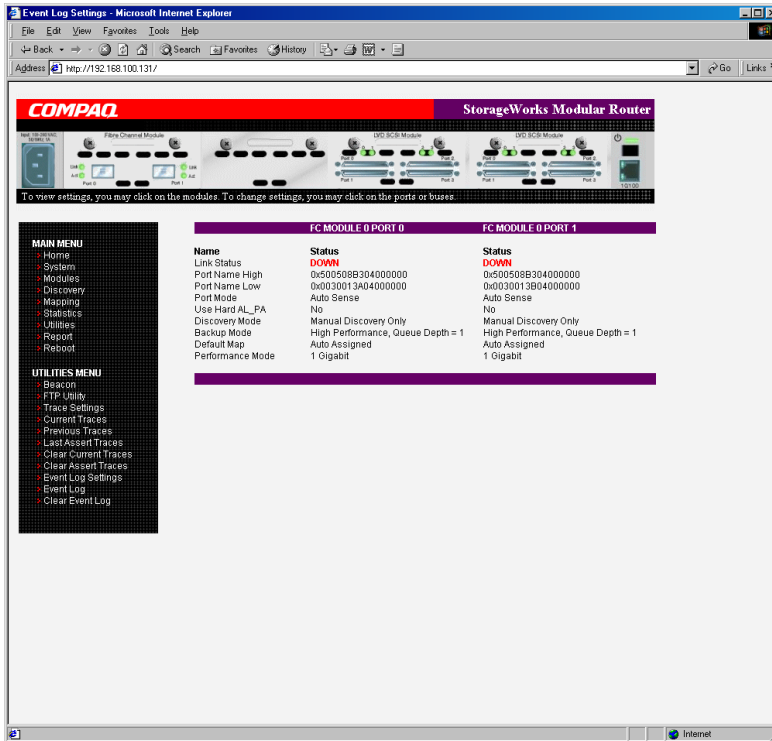


Figure 4-17: Fibre Channel module status screen

The Fibre Channel Module screen is used to view and modify Fibre Channel module configuration settings. To change settings for one of the Fibre Channel ports, select the desired port of the Fibre Channel module on the menu bar or on the router image.

Figure 4-18 is an illustration of the Fibre Channel module on the router image.



Figure 4-18: Fibre Channel module image

After a port on the Fibre Channel module is selected, the following screen is displayed to enter configuration changes. Figure 4-19 is an example of the FC Module Port Configuration Settings screen.

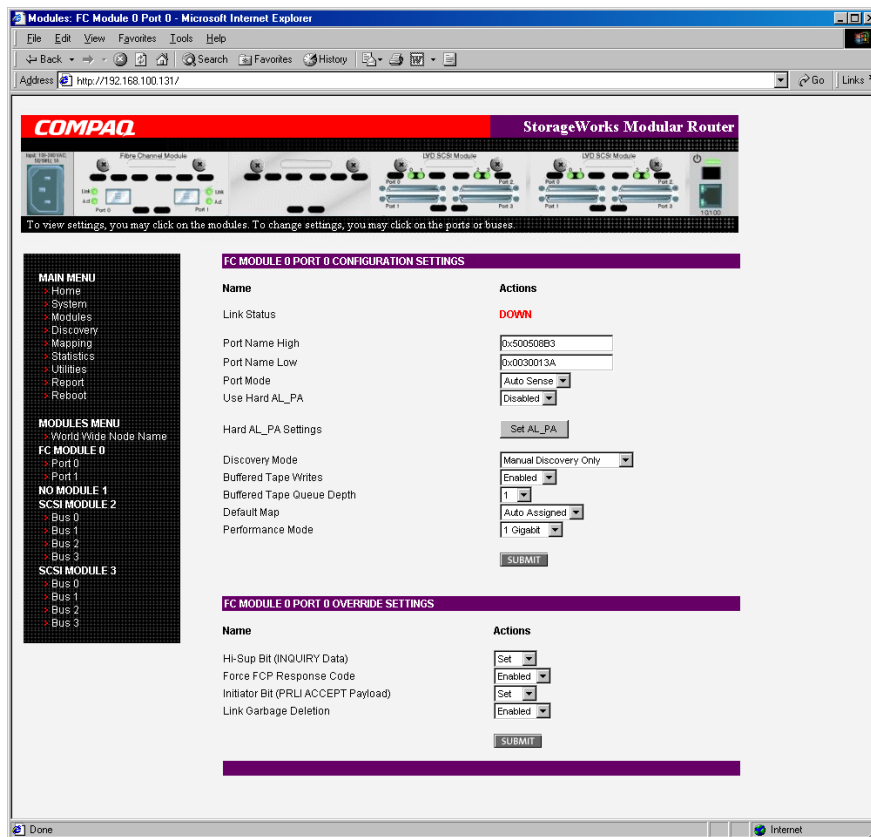


Figure 4-19: Fibre Channel module port configuration settings screen

Fibre Channel module port settings:

- **Link Status**—indicates the port link status.
- **Port Name High**—sets a new value for the World Wide Port Name High.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

- **Port Name Low**—sets a new value for the World Wide Port Name High.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

- **Port Mode**—(default: N_Port) sets the port mode.

Port Mode settings:

- **Auto Sense**—In this mode, the Fibre Channel port tries to negotiate as a loop. If it is not successful, then the Fibre Channel port negotiates as a fabric. If the port comes up as a loop, it then determines whether it is on a private or public loop.
- **N_Port**—(default) This mode allows the router to bypass the loop negotiation and come up as a fabric only. If the router is on a loop, and N_Port mode is selected, an error in communication may occur.

- **Use Hard AL_PA**—enables or disables Hard AL_PA usage.
- **Hard AL_PA Settings**—When Hard AL_PA usage is enabled, select **Set AL_PA Settings** to display the AL_PA Lookup Table.

Use the table to find the node number. This unique one-byte valid value (derived from an Arbitrated Loop Topology defined in ANSI specification FC_AL version 4.5) is used for the Fibre Channel configuration.

Figure 4-20 is an illustration of the AL_PA table.

getalpa - Microsoft Internet Explorer

FC PORT 0 AL_PA SETTINGS

Hard AL_PA Setting 0xE4

Node Number Index of
Hard AL_PA Setting

Arbitrated Loop Node Number to AL_PA Lookup Table

0:0x01	16:0x29	32:0x45	48:0x5A	64:0x75	80:0x9E	96:0xB5	112:0xD2
1:0x02	17:0x2A	33:0x46	49:0x5C	65:0x76	81:0x9F	97:0xB6	113:0xD3
2:0x04	18:0x2B	34:0x47	50:0x63	66:0x79	82:0xA3	98:0xB9	114:0xD4
3:0x08	19:0x2C	35:0x49	51:0x65	67:0x7A	83:0xA5	99:0xBA	115:0xD5
4:0x0F	20:0x2D	36:0x4A	52:0x66	68:0x7C	84:0xA6	100:0xBC	116:0xD6
5:0x10	21:0x2E	37:0x4B	53:0x67	69:0x80	85:0xA7	101:0xC3	117:0xD9
6:0x17	22:0x31	38:0x4C	54:0x69	70:0x81	86:0xA9	102:0xC5	118:0xDA
7:0x18	23:0x32	39:0x4D	55:0x6A	71:0x82	87:0xAA	103:0xC6	119:0xDC
8:0x1B	24:0x33	40:0x4E	56:0x6B	72:0x84	88:0xAB	104:0xC7	120:0xE0
9:0x1D	25:0x34	41:0x51	57:0x6C	73:0x88	89:0xAC	105:0xC9	121:0xE1
10:0x1E	26:0x35	42:0x52	58:0x6D	74:0x8F	90:0xAD	106:0xCA	122:0xE2
11:0x1F	27:0x36	43:0x53	59:0x6E	75:0x90	91:0xAE	107:0xCB	123:0xE4
12:0x23	28:0x39	44:0x54	60:0x71	76:0x97	92:0xB1	108:0xCC	124:0xE8
13:0x25	29:0x3A	45:0x55	61:0x72	77:0x98	93:0xB2	109:0xCD	125:0xEF
14:0x26	30:0x3C	46:0x56	62:0x73	78:0x9B	94:0xB3	110:0xCE	
15:0x27	31:0x43	47:0x59	63:0x74	79:0x9D	95:0xB4	111:0xD1	

Figure 4-20: AL_PA lookup table

- **Discovery Mode**—(default: auto discovery on reboot events) determines how the router will discover new Fibre Channel devices.

Discovery Mode settings:

- **Auto Discovery on Reboot Events**—(default) allows the router to automatically discover all Fibre Channel devices when rebooted or when link-up events occur, such as connecting cables or rebooting network hubs.

Both the ports and the devices behind the ports are discovered on all subsequent link-up events.

- **Auto Discovery on Link Up Events**—allows the router to automatically discover all Fibre Channel devices when rebooted or when link-up events occur, such as connecting cables or rebooting network hubs.

Both the ports and the devices behind the ports are discovered for the first link-up event. Subsequent link-up events will only discover the ports and not the devices behind the ports.

- **Manual Discovery Only**—sets discovery of new devices to only occur after the user selects the **Discovery** option from the Main Menu or when a Registered State Change Notification (RSCN) is received from a fabric.

NOTE: SCSI devices attached to a Fibre Channel must be mapped as sequential Fibre Channel LUNs starting at LUN number 00. Skipping LUN numbers is not recommended when mapping Fibre Channel LUNs because Fibre Channel Discovery stops the discovery process whenever an empty LUN position is found.

- **Buffered Tape Writes**—(default: enabled) enables or disables the Buffered Tape Writes option.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

When enabled, to enhance performance, Buffered Tape Writes return status on consecutive write commands prior to the tape device receiving data.

- **Buffered Tape Queue Depth**—sets the Buffered Tape Queue Depth.

Select a setting of 0 through 10 from the drop-down list.

- **Default Map**—(default: auto-assigned) sets the current mapping mode for the selected port.

The current map can be set to:

- Indexed
- Auto-assigned—(default) contains all the SCSI devices that are attached to the router.
- SCC

For more information about mapping modes, see Appendix C, “Addressing Methods and Table Structures.”

For information on changing map settings, see “Mapping Menu” later in this chapter.

- **Performance Mode**—(default: 1 Gb/s) toggles between 1 Gb/s and 2 Gb/s.

NOTE: If set incorrectly and the router is plugged into a Loop or Fabric, the unit may receive Framing errors due to the incorrect Fibre Channel link speed.

- **Override Settings**—enhances interoperability with some storage devices that require special consideration during setup of the router configuration menus.



CAUTION: If these configuration settings are incorrectly set, processing difficulties may occur. Before changing these settings, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

- **Hi-Sup Bit**—toggles between **Set** and **Clear**.
- **Force FCP Response Code**—toggles between **Off** and **On** for support of Compaq-specific HBA #223180-B21 and #120186-001.

- **Initiator Bit**—toggles between **Set** and **Clear**.

When using the router in a router-to-router configuration, this option should be configured to **Set**. A router-to-router configuration is a type of configuration where one router appears as a target to another initiator router.

- **Link Garbage Deletion**—toggles between **Enabled** and **Disabled**.

SCSI Module Configuration

When a SCSI module is selected in the Modules Menu, the SCSI Module status screen is displayed. (Figure 4-21) is an illustration of the SCSI Module status screen.

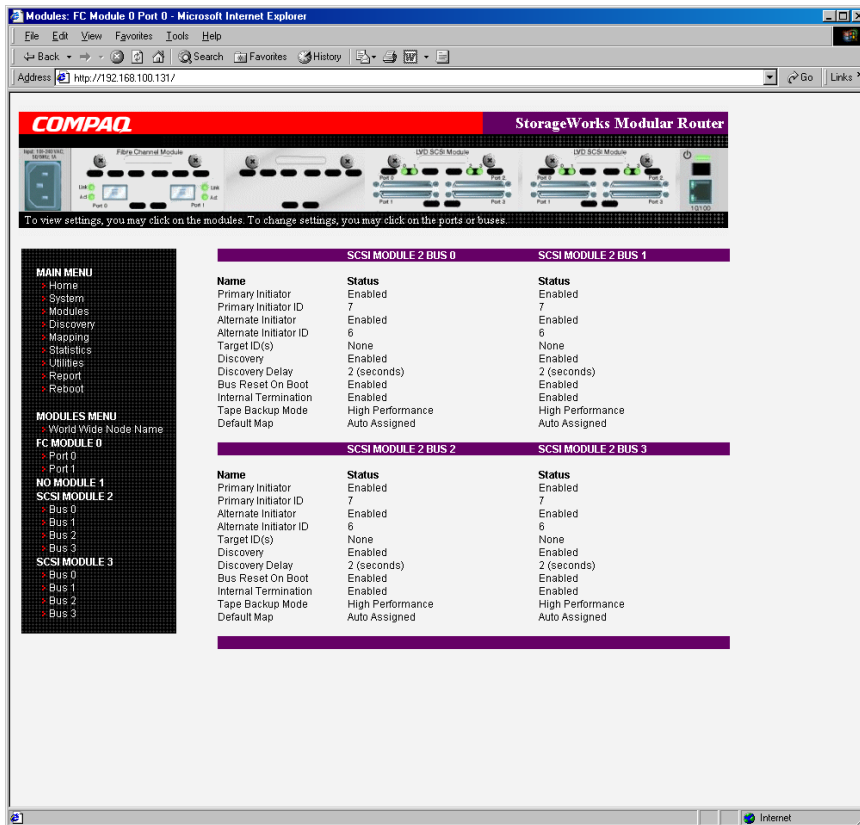


Figure 4-21: SCSI Module status screen

The SCSI Module status screen is used to view and modify SCSI module settings. Summary information for each SCSI bus of the SCSI module is displayed.

To change settings for one of the SCSI buses, select the desired bus of the SCSI module on the menu bar or on the router image.

Figure 4-22 is an illustration of the SCSI module on the router image.

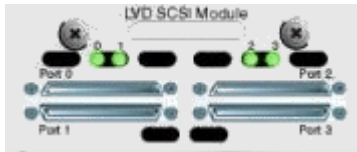


Figure 4-22: SCSI module image

After a bus on the SCSI module is selected, the SCSI Module Bus Configuration Settings screen is displayed to enter configuration changes. See Figure 4-23.

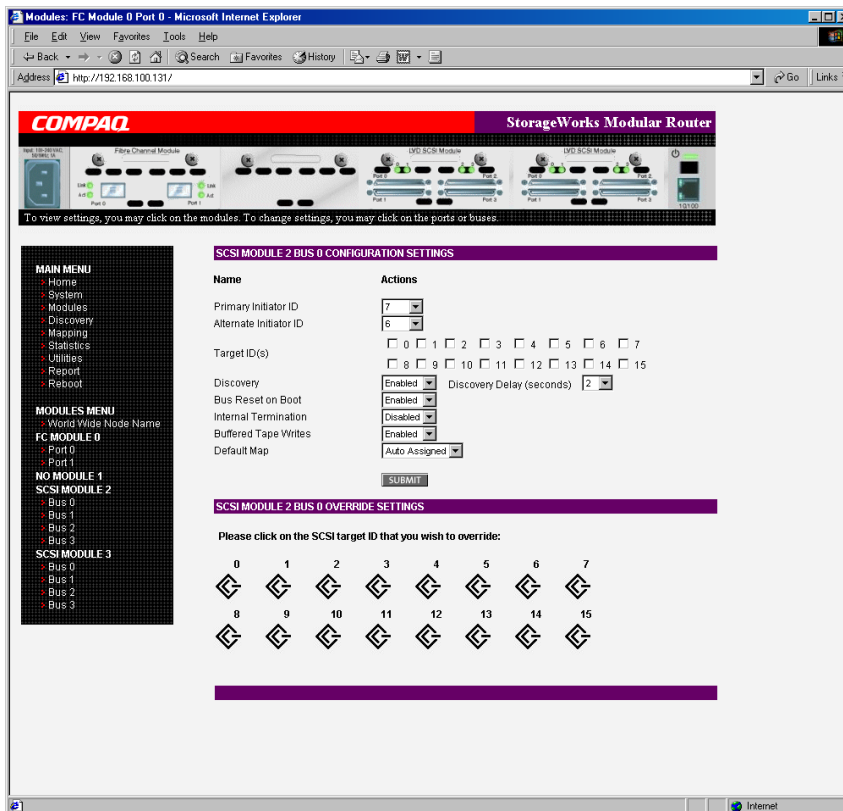


Figure 4-23: SCSI Module Bus Configuration Settings screen

SCSI module bus settings:

- **Primary Initiator ID**—(default: 7) must be a unique ID.
- **Alternate Initiator ID**—(default: none) will be used if the primary ID is taken. Must be a unique ID.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

- **Target ID(s)**—adds or removes Target IDs.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

NOTE: Target IDs must be setup prior to mapping devices on the SCSI bus.

NOTE: Do not enable Target IDs unless there is a SCSI initiator on the bus that wants to use Fibre Channel devices. This type of configuration is known as a Target Mode configuration.

- **Discovery**—toggles between **Enabled** and **Disabled**.
- **Discovery Delay**—is the wait time after a power-up or reboot before discovering SCSI devices.

NOTE: Compaq recommends setting the value to at least 2 seconds to ensure all SCSI devices complete their individual power-ups.

- **Bus Reset on Boot**—toggles between **Enabled** and **Disabled**.

When enabled, the router will automatically reset SCSI buses during a power up or reboot of the router.

- **Internal Termination**—toggles between **Enabled** and **Disabled**.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

When enabled, allows internal termination of the selected SCSI bus. When disabled, the SCSI Bus, not the router handles SCSI termination.

- **Buffered Tape Writes**—(default: Enabled) toggles between **Enabled** and **Disabled**.

When enabled, Buffered Tape Writes enhance system performance. Buffered Tape Writes return status on consecutive write commands prior to the tape device receiving data.

- **Default Map**—(default: auto-assigned) sets the current mapping mode for the selected bus.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

The current map can be set to:

- Indexed
- Auto-assigned (default)—contains all the devices attached to the router.
- SCC

For more information about mapping modes, see Appendix C, “Addressing Methods and Table Structures.”

For information on changing map entries, see “Mapping Menu” later in this chapter.

- **Override Settings**—To override the settings of a SCSI target, select a Target ID icon with the appropriate Target ID number.

After a specific Target is selected, the SCSI Override sub-screen is displayed and is used to enter the Override settings. See Figure 4-24 for an illustration of the SCSI Override screen.



CAUTION: If this configuration setting is incorrectly set, processing difficulties may occur. Before changing this setting, evaluate the need for the change and verify the desired setting. Compaq recommends backing up the router configuration to an external file before making changes to this setting.

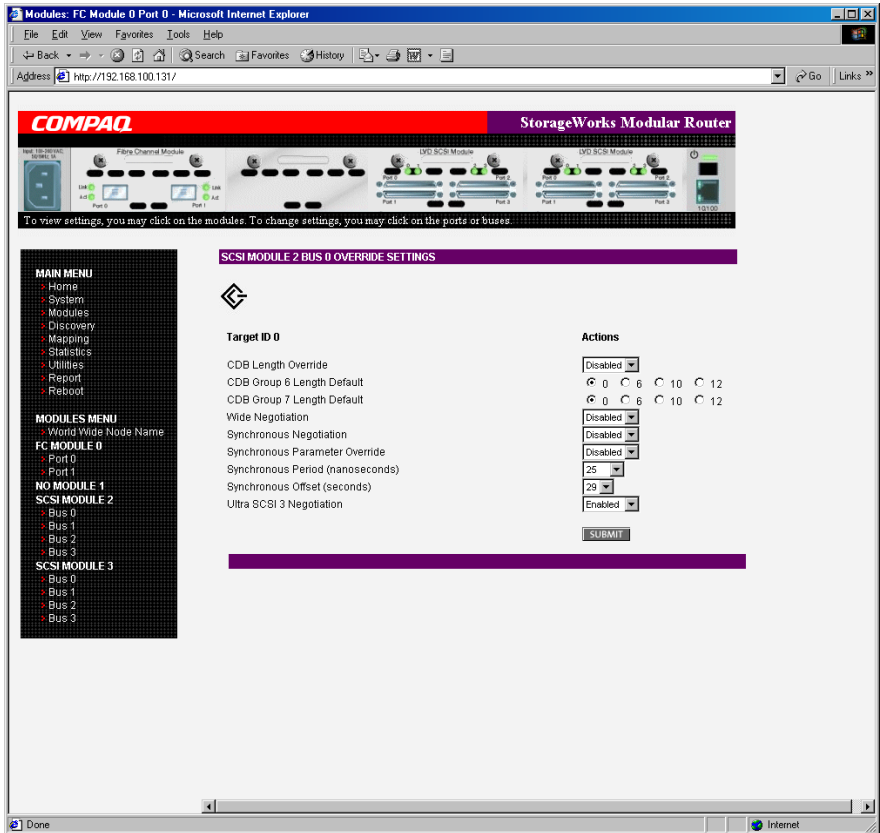


Figure 4-24: SCSI Device Override screen

SCSI bus override settings:

- **CDB Length Override**—enables or disables the override of default CDB lengths.
- **CDB Group 6 Length Default**—(default: 0) can be set to 0, 6, 10, or 12.
- **CDB Group 7 Length Default**—(default: 0) can be set to 0, 6, 10, or 12.
- **Wide Negotiation**—enables or disables negotiation on a wide SCSI bus.
- **Synchronous Negotiation**—enables or disables synchronous negotiation on the SCSI bus.
- **Synchronous Parameter Override**—enables or disables parameters for synchronous negotiation.
- **Synchronous Period**—(default: 40) sets the maximum number of seconds allowed for negotiation.
- **Synchronous Offset**—(default: 16) sets the maximum variation in transfer rate that can be negotiated in megabytes per seconds (MB/s).
- **Ultra SCSI-3 Negotiation**—enables or disables Ultra SCSI-3 support for the selected Target ID.

When enabled, Ultra SCSI-3 Negotiation helps solve certain compatibility issues in mixed vendor environments where there may be a device that cannot handle automatic negotiation of the bus speed or where there is a device that negotiates to use Ultra SCSI-3 but cannot handle the speed.

Discovery Menu

Accessed from the Main Menu, the Discovery Menu is used to view Target devices and discover new Target devices.

Figure 4-25 is an example of the Discovery page.

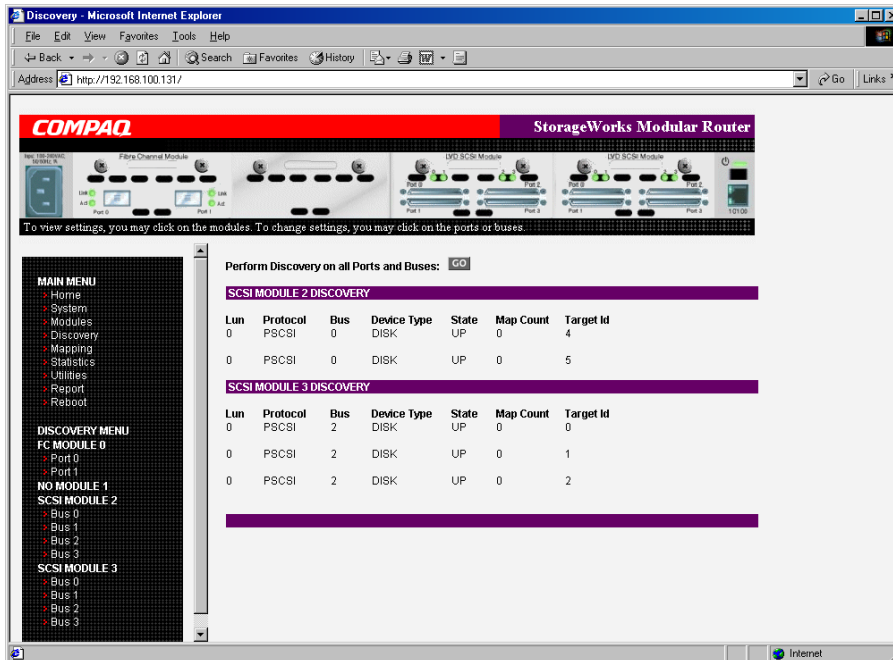


Figure 4-25: Discovery page

In the Discovery Menu, select a specific Fibre Channel Port or SCSI bus from the Menu Bar or the router image and then click **Go**.

Mapping Menu

Accessed from the Main Menu, the Mapping Menu is used to view and modify host and map information for a Fibre Channel port or SCSI bus. Maps and hosts may be added, edited, or deleted.

The initial screen display lists all available hosts and the assigned map for the selected Fibre Channel port or SCSI bus.

Figure 4-26 is an example of the initial Mapping screen.

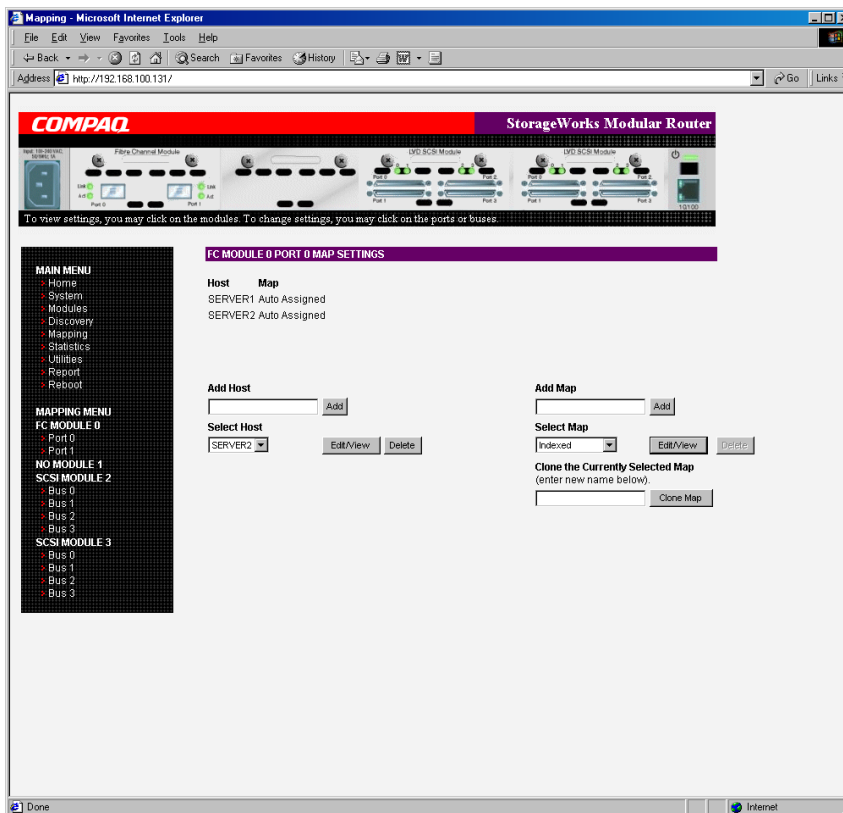


Figure 4-26: Mapping screen

To view or change map settings of a specific module:

1. Select one of the module and port/bus from the menu bar on the left side of the screen or from the router image at the top of the screen.
2. After a Fibre Channel port or SCSI bus has been selected, specific mapping information is displayed, including the name of the port, the selected host, and the assigned map.
3. To make changes to the configuration, enter the new value and then click **Submit**.

Because many mapping configuration settings are common to Fibre Channel and SCSI maps, this section is subdivided as follows:

- Fibre Channel and SCSI Common Mapping Tasks
- Fibre Channel Mapping Tasks
- SCSI Mapping Tasks

Fibre Channel and SCSI Common Mapping Tasks

The following action options are available for Fibre Channel and SCSI maps:

- **Add Host**—adds a new host.
To add an undefined host, type the hostname in the **Add Host** field and then click **Add**.
- **Add Map**—adds a new map.
To add an undefined map, type the name of the map in the **Add Map** field and then click **Add**.
- **Select Host**—adds a known host.
To select a previously set up host, expand the **Select Host** drop-down box and select the host from the list.
- **Select Map**—adds a known map.
To select a previously set up map, expand the **Select Map** drop-down box and select the map from this list.

- **Delete Host**—deletes the current host.

NOTE: 'Built at runtime' hosts cannot be deleted.

- **Delete Map**—deletes the current map.

NOTE: 'Indexed', 'Auto Assigned', and 'SCC' maps cannot be deleted or renamed.

- **Edit/View Host**—view or change host information.

Viewing and changing Host information is discussed in the following paragraphs.

- **Edit/View Map**—view or change map information.

Viewing and changing Map information is discussed in the following paragraphs.

- **Clone Map**—makes a copy of the Current map.

Cloning makes it easier to setup new maps with similar information to previously created maps. The new map must have a unique map ID and name.

NOTE: SCC and Auto-Assigned maps cannot be cloned.

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

Each task is discussed in the following paragraphs.

Viewing and Changing Fibre Channel Host Information

To view or change current host information:

1. In the Mapping Menu screen, select the desired Fibre Channel module and port.
2. Click **Edit/View** in the Host section of the screen.

The Fibre Channel Host Name dialog box is displayed. Current host information is shown at the top of the dialog box.

3. Enter the new settings and then click **Modify**.

Figure 4-27 is an example of the Fibre Channel Host Name dialog box.

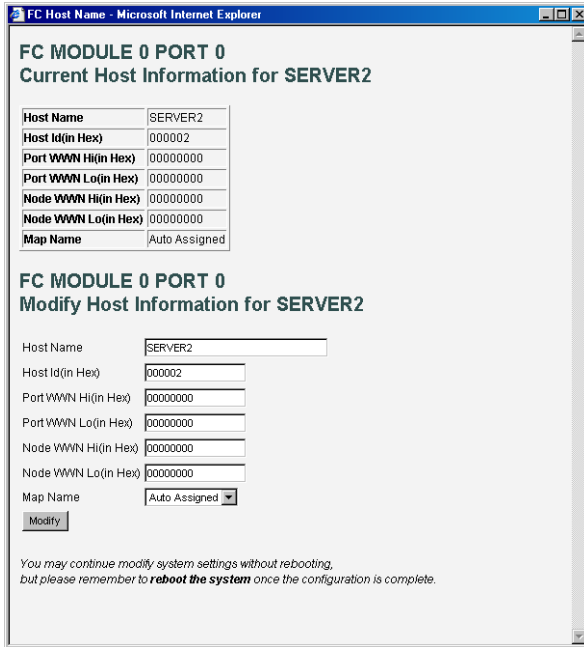


Figure 4-27: Fibre Channel Host Name dialog box

Fibre Channel Host Name settings:

- **Host Name**
- **Host ID** (hexadecimal)
- **Port WWN Hi** (hexadecimal)
- **Port WWN Lo** (hexadecimal)
- **Node WWN Hi** (hexadecimal)
- **Node WWN Lo** (hexadecimal)
- **Map Name**

Viewing and Changing Fibre Channel Map Information

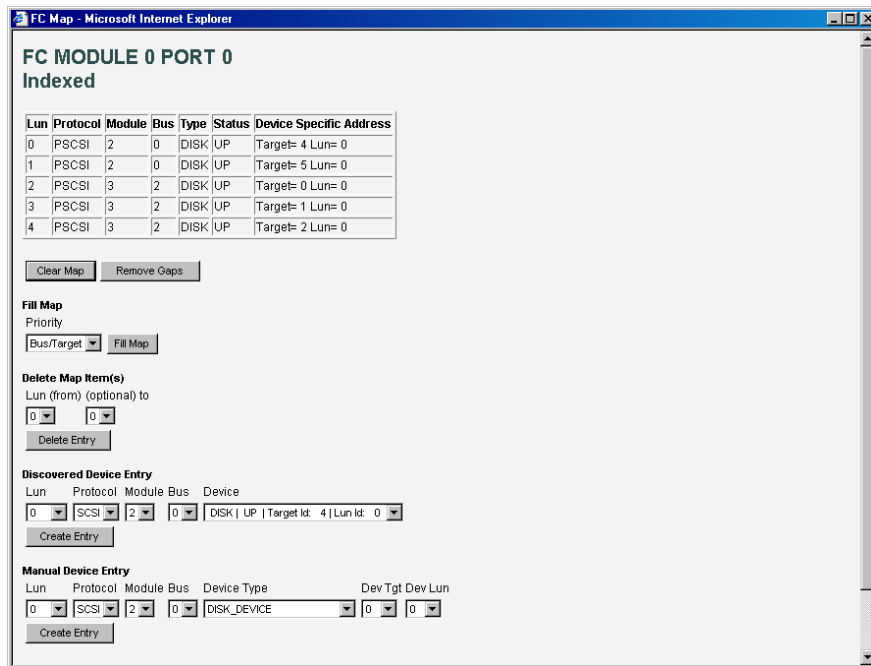
To view or change current Fibre Channel map host information:

1. In the Mapping Menu screen, select the desired Fibre Channel module and port.
2. Click **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 click the appropriate action button.

Figure 4-28 is an example of the Fibre Channel Map dialog box.



FC MODULE 0 PORT 0
Indexed

Lun	Protocol	Module	Bus	Type	Status	Device Specific Address
0	PSCSI	2	0	DISK	UP	Target= 4 Lun= 0
1	PSCSI	2	0	DISK	UP	Target= 5 Lun= 0
2	PSCSI	3	2	DISK	UP	Target= 0 Lun= 0
3	PSCSI	3	2	DISK	UP	Target= 1 Lun= 0
4	PSCSI	3	2	DISK	UP	Target= 2 Lun= 0

Clear Map Remove Gaps

Fill Map
Priority
Bus/Target Fill Map

Delete Map Item(s)
Lun (from) (optional) to
0 0
Delete Entry

Discovered Device Entry
Lun Protocol Module Bus Device
0 SCSI 2 0 DISK | UP | Target Id: 4 | Lun Id: 0
Create Entry

Manual Device Entry
Lun Protocol Module Bus Device Type Dev Tgt Dev Lun
0 SCSI 2 0 DISK_DEVICE 0 0
Create Entry

Figure 4-28: Fibre Channel Map dialog box

NOTE: Auto-Assigned and SCC maps cannot be modified, cleared, filled, or have entries removed.

NOTE: Map settings are saved to memory when any of the buttons within the page are selected.

Fibre Channel Map settings:

- **Clear Map**—clears all entries from the current map.
- **Remove Gaps**—removes any incremental gaps in the sequence of LUN listed in the table.

When the system removes gaps from the table, the LUN are renumbered in sequential order, starting with LUN 0.

NOTE: Some operating systems require gaps be removed in the mapping table in order to detect all devices.

- **Fill Map**—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**.

When the map is filled, the display will show the current devices.

- **Delete**—deletes map entries.

To delete map entries, expand the Delete Map Item LUN drop-down box, select the LUN, and then click **Delete**.

To delete a range of LUNs, select the beginning LUN to delete from the 'from' drop-down box and select the last LUN to delete from the 'to' drop-down box.

- **Discovered Device Entry**—adds a discovered device to the map.

To add a discovered device to the map, use the drop-down boxes to enter the settings, and then click **Create Entry** in the Discovered Device Entry section of the screen.

- **Manual Device Entry**—create 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.

SCSI Mapping Tasks

Configuration tasks for SCSI mapping include:

- Viewing and Changing SCSI Host Information
- Viewing and Changing SCSI Map Information

Each task is discussed in the following paragraphs.

Viewing and Changing SCSI Host Information

To view or change current SCSI host information:

1. In the Mapping Menu screen, select the desired SCSI module and bus.
2. Click **Edit/View** in the Host section of the screen.

The SCSI Host Name dialog box is displayed. Current host information is shown at the top of the dialog box.

3. Enter the new settings and then click **Modify**.

Figure 4-29 is an example of the SCSI Host Name configuration dialog box.

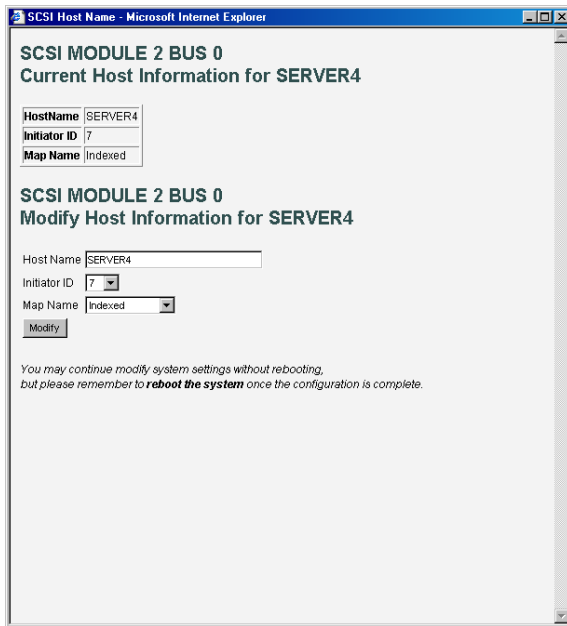


Figure 4-29: SCSI Host Name dialog box

SCSI Host Name settings:

- **Host Name**
- **Initiator ID**
- **Map Name**

Viewing and Changing SCSI Map Information

To view or change current SCSI map host information:

1. In the Mapping Menu screen, select the desired SCSI module and bus.
2. Click **Edit/View** in the Map section of the screen.

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

3. Enter the new settings and then click the appropriate action button.

Figure 4-30 is an example of the SCSI Map dialog box.

SCSI MODULE 2 BUS 0
Indexed

Target	Lun	Protocol	Module	Port	Type	Status	Device Specific Address
0	0	FCP	0	0	DISK	DOWN	Port Name: 0x0123456701234567 Lun: 0
0	1	FCP	0	0	TAPE	DOWN	Port Name: 0x0123456801234568 Lun: 0

Clear Map Fill Map Remove Gaps

Delete Map Item(s)
Delete Map Item(s) (optional) to
Target Lun (from) (optional) to
0 0 0
Delete Entry

Discovered Device Entry

Target	Lun	Protocol	Module	Port	Device
0	0	FCP	0	0	DISK DOWN Lun id: 0 Port Name: 0x0123456701234567 Node Name: 0x0123456701234567

Create Entry

Manual Device Entry

Target	Lun	Protocol	Module	Port	Device Type	Node Name	Port Name	Dev Lun
0	1	FCP	0	0	TAPE_DEVICE	high	high	0
						low	low	

Create Entry

You may continue modify system settings without rebooting, but please remember to **reboot the system** once the configuration is complete. <

Figure 4-30: SCSI Map dialog box

NOTE: To map Fibre Channel devices to any SCSI initiator on the selected bus, a Target ID must be enabled from the SCSI Bus Configuration Menu. A Target ID should only be added if there is a SCSI initiator that needs to address Fibre Channel devices. Each Target ID can be used to store up to 32 Fibre Channel devices.

NOTE: Auto-Assigned and SCC maps cannot be modified, cleared, filled, or have entries deleted.

NOTE: Map settings are saved to memory when any button within the page is selected.

SCSI Map settings:

- **Clear Map**—clears all entries from the current map.
- **Fill Map**—fills in the current map.

When the map is filled, the display will show the current devices.

- **Remove Gaps**—removes any incremental gaps in the sequence of LUN listed in the table.

When the system removes gaps from the table, the LUN are renumbered in sequential order, starting with LUN 0.

NOTE: Some operating systems require gaps be removed in the mapping table to detect all devices.

- **Delete**—deletes map entries.

To delete a range of LUNs, select the beginning LUN to delete from the 'from' drop-down box and select the last LUN to delete from the 'to' drop-down box.

- **Discovered Device Entry**—adds a discovered device to the map.

To add a discovered device to the map, use the drop-down boxes to enter the settings, 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.

NOTE: SCSI maps can be filled or devices can be added to them only when at least one SCSI Target ID has been enabled in the SCSI bus configuration menu.

Statistics Menu

Accessed from the Main Menu, the Statistics Menu is used to display Fibre Channel port and SCSI bus information. Figure 4-31 is an example of the Statistics Menu.

The screenshot shows a web browser window titled "Statistics - Microsoft Internet Explorer" with the address bar displaying "http://192.168.100.131/". The main content area is titled "StorageWorks Modular Router" and features a navigation menu on the left and a main statistics section.

MAIN MENU

- Home
- System
- Modules
- Discovery
- Mapping
- Statistics
- Utilities
- Report
- Reboot

STATISTICS MENU

- FC MODULE 0
 - Port 0
 - Port 1
- NO MODULE 1
- SCSI MODULE 2
 - Bus 0
 - Bus 1
 - Bus 2
 - Bus 3
- SCSI MODULE 3
 - Bus 0
 - Bus 1
 - Bus 2
 - Bus 3

Reset System Statistics for all SCSI Buses: [Go](#)

FC MODULE 0 STATISTICS

Name	Port 0	Port 1
In Device Data Sequences	0	0
Out Device Data Sequences	0	0
In Link Data Sequences	0	0
Out Link Data Sequences	0	0
In PBSY Frames	0	0
Out PBSY Frames	0	0
In FBSY Frames	0	0
Out FBSY Frames	0	0
In PRJT Frames	0	0
Out PRJT Frames	0	0
FC Link Down	0	0
In Aborts	0	0
Out Aborts	0	0
Laser Faults	0	0
LOS	0	0
Sync	0	0
Bad Rx Characters	0	0
Link Failures	1	1
Bad CRCs	0	0
Protocol Errors	0	0
Bad SCSI Frames	0	0

NO MODULE 1

SCSI MODULE 2 STATISTICS

Name	Bus 0	Bus 1	Bus 2	Bus 3
Mode	LVD	LVD	LVD	LVD
Resets	2	1	1	1
Active IDs				

SCSI MODULE 3 STATISTICS

Name	Bus 0	Bus 1	Bus 2	Bus 3
Mode	LVD	LVD	LVD	LVD
Resets	1	1	1	1
Active IDs				

Figure 4-31: Statistics Menu

To view information for a specific module port/bus, click the component on menu bar or the router image.

To reset the statistics, click **Go**.

Utilities Menu

Accessed from the Main Menu, the Utilities Menu is used to view and configure utility options.

Figure 4-32 is an example of the Utilities Menu.

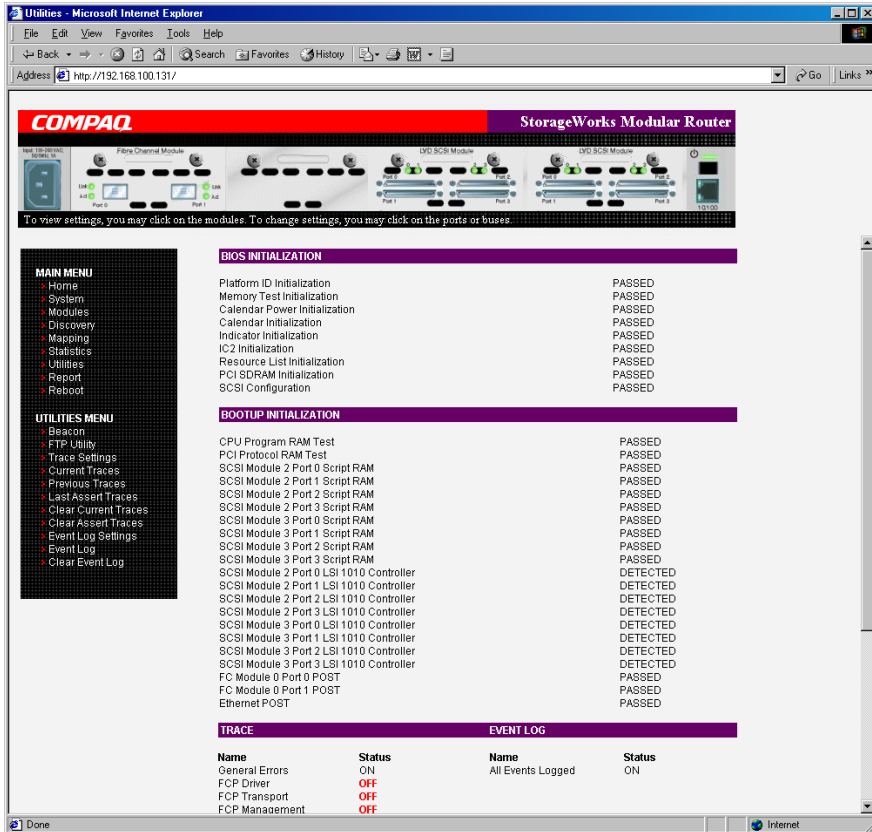


Figure 4-32: Utilities menu

Utility Menu tasks:

- **Beacon configuration**—enable the Beacon mode.
- **FTP Utility access**—open an FTP session.
- **Trace Settings configuration**—configure trace settings.
- **Current Traces display**—view current trace information.
- **Previous Traces display**—view previous trace information.
- **Last Assert Traces display**—view last assert trace information.
- **Clear Current Traces**—clear current trace information.
- **Clear Assert Traces**—clear current trace information.
- **Event Log Settings**—configure Event Log settings.
- **Event Log display**—view the Event Log.
- **Clear Event Log**—clear the Event Log.

Each Utility Menu option is discussed in the following sections.

Beacon Mode Configuration

The Beacon Configuration screen is used to enable and disable the router Beacon mode. When enabled, the Power LED located on the back-side of the router will continuously blink, alternating between amber and green.

To enable the Beacon settings, select the **ON** checkbox and then click **Submit**.

Figure 4-33 is an example of the Beacon settings screen.

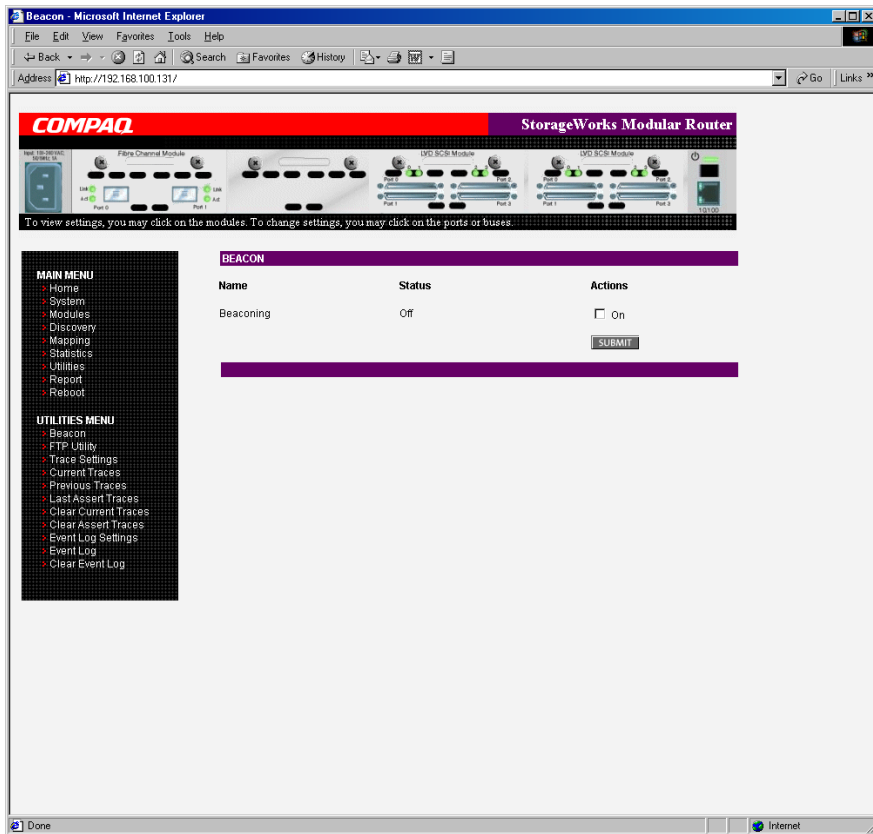


Figure 4-33: Beacon configuration screen

NOTE: When the router is rebooted, Beaconing is automatically disabled.

FTP Utility Access

The FTP Utility screen is used to open an FTP session. Figure 4-34 is an example of the FTP Utility screen.

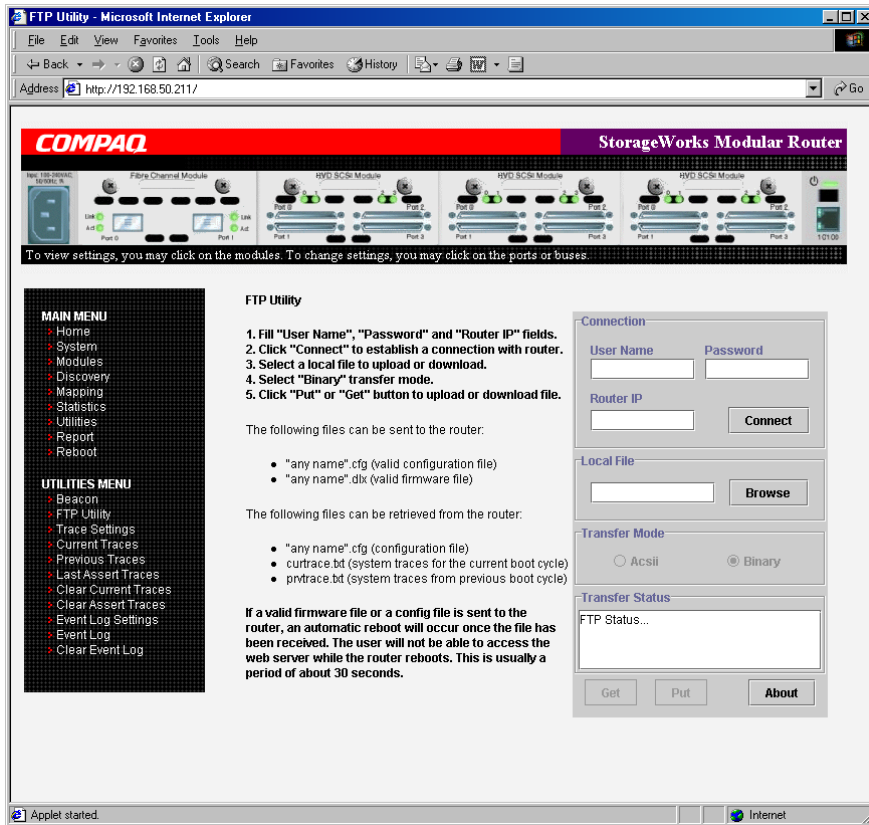


Figure 4-34: FTP Utility screen

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 Compaq 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 router.
2. Click **Connect**.
3. Select the local file to upload or download. If necessary, click **Browse** to scroll through a file list.

The following file types can be uploaded to the router:

- Configuration (*.cfg*)
- Firmware (*.dlx*)

The following file types can be downloaded from the router:

- Configuration (*.cfg*)
- Traces for the current boot cycle (*curtrace.txt*)
- Traces from the previous boot cycle (*prvtrace.txt*)

4. Click **Binary** Transfer mode.
5. To download a file, click **Get**.
6. To upload a file, click **Put**.

NOTE: If a valid firmware or configuration file is uploaded to the router, an automatic reboot will occur once the file has been received. The router 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. Figure 4-35 is an example of the Trace Settings screen.

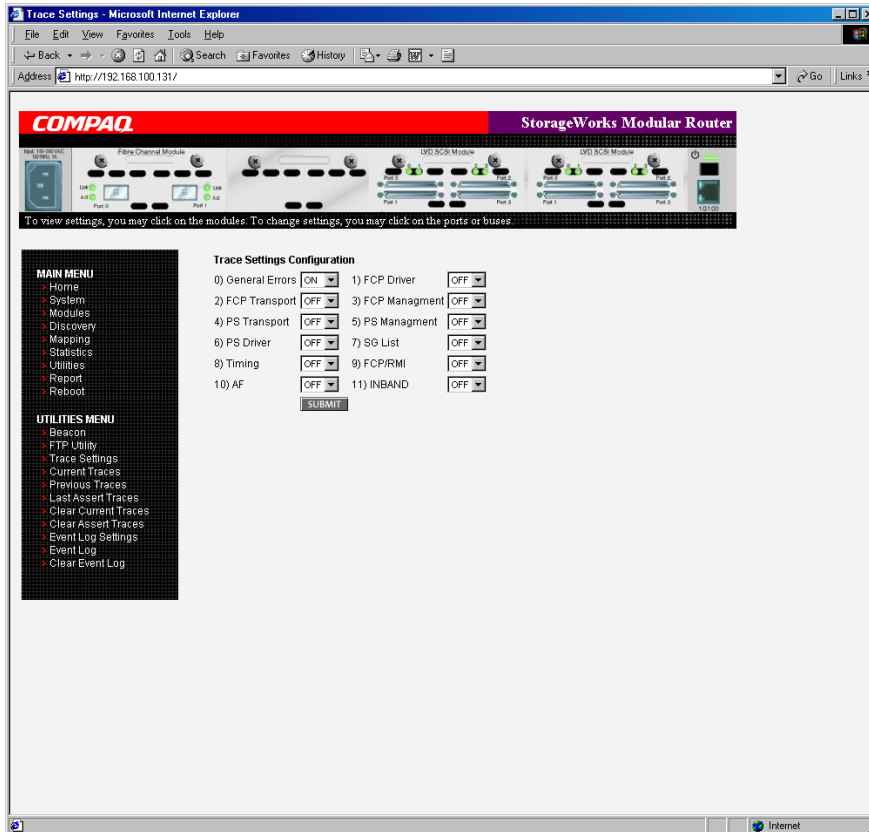


Figure 4-35: Trace Settings screen

Current Trace settings are displayed.

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

Table 4-1 is a brief description list of the trace settings.

Table 4-1: Trace Settings

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 router 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 4-36 is an example of the Current Traces screen.

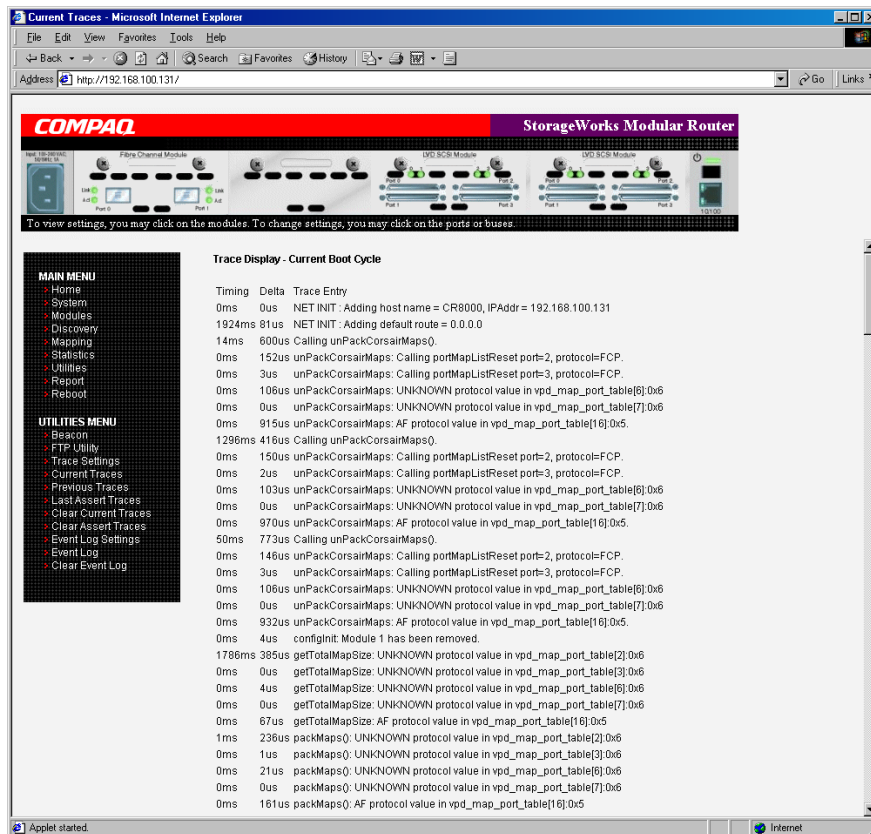


Figure 4-36: Current Traces screen

Clear Current Traces and Clear Assert Traces

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

Current router activities will not be disrupted while the buffer is cleared.

Figure 4-37 is an example of the Clear Current Trace Buffer screen.

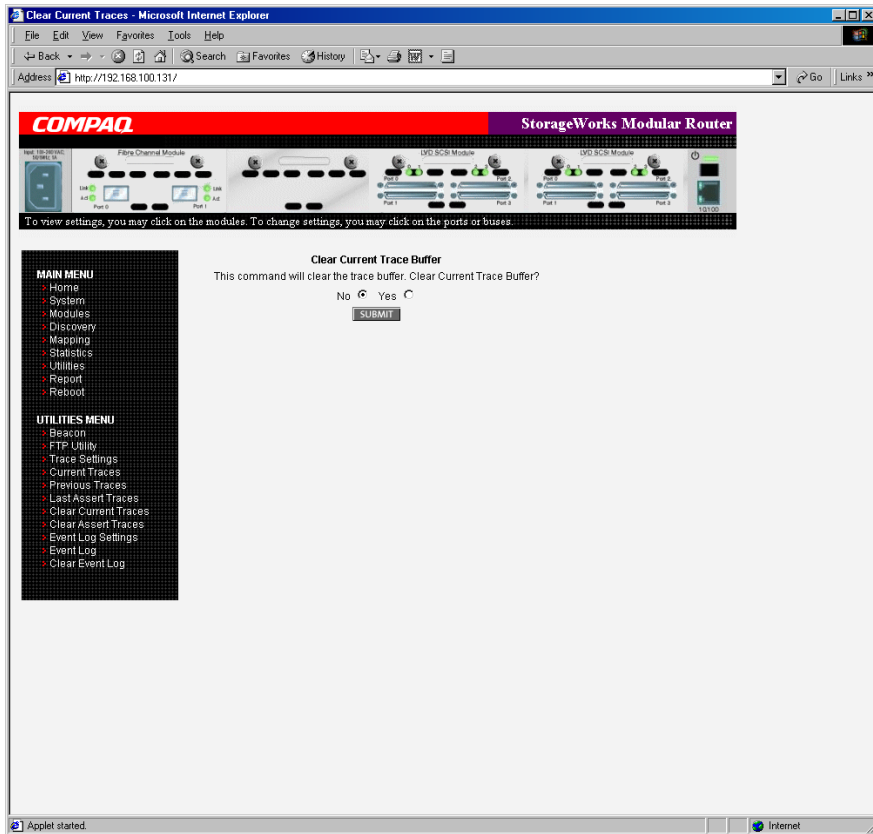


Figure 4-37: Clear Current Trace Buffer screen

Event Log Configuration

The Event Log Setting screen is used to configure Event Log filters. Figure 4-38 is an example of the Event Log Filter configuration screen.

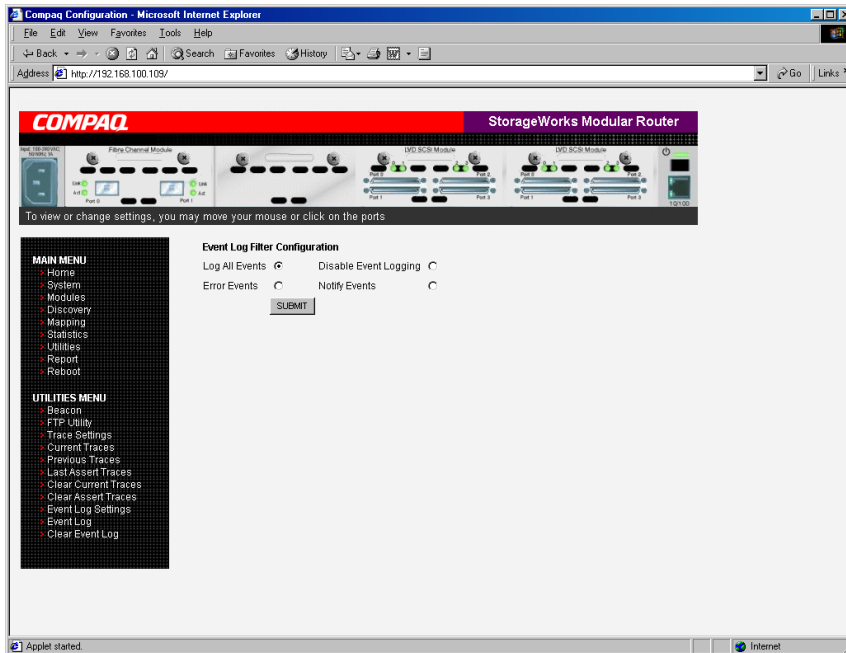


Figure 4-38: Event Log settings screen

Event Log settings:

- **Log All Events**
- **Disable/Enable Event Logging**
- **Log Error Events**
- **Log Notify Events**

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

NOTE: To ensure accurate event logging, be sure to 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 4-39 is an example of the Event Log display screen.

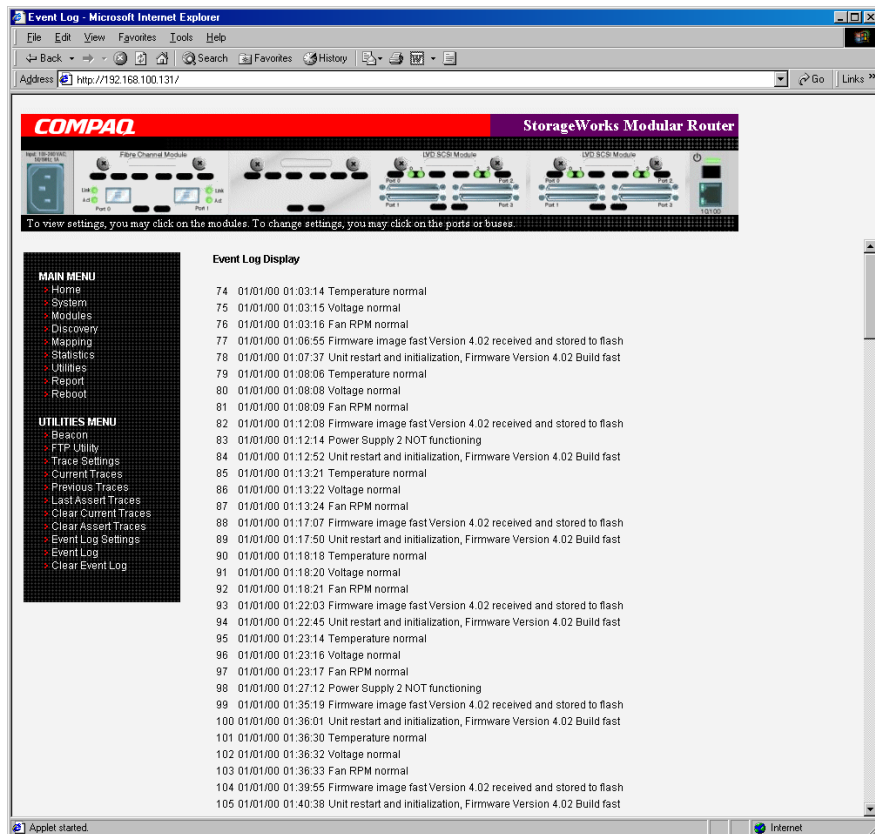


Figure 4-39: Event Log display screen

Clear Event Log

The Clear Event Log screen is used to clear the Event Log. Figure 4-40 is an example of the Clear Event Log screen.

Current router activities will not be disrupted.

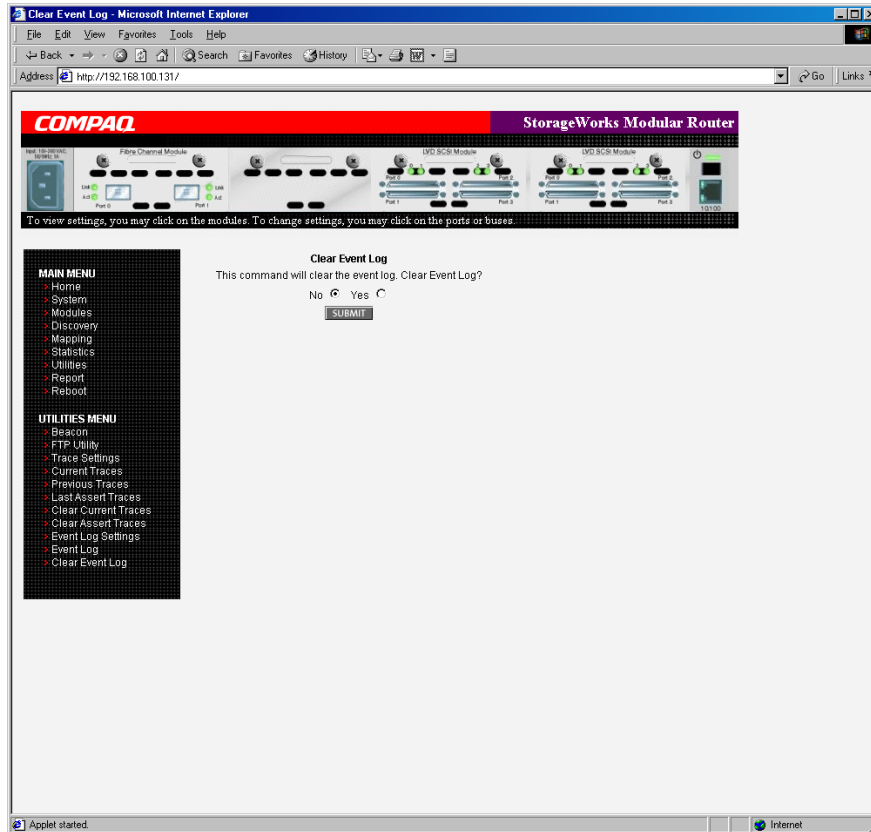


Figure 4-40: Clear Event Log screen

Report Menu

Accessed from the Main Menu, the Report page displays a consolidated view of all system information, including environmental conditions. Figure 4-41 is an example of the Report page.

To print the system information, click **Printable View**.

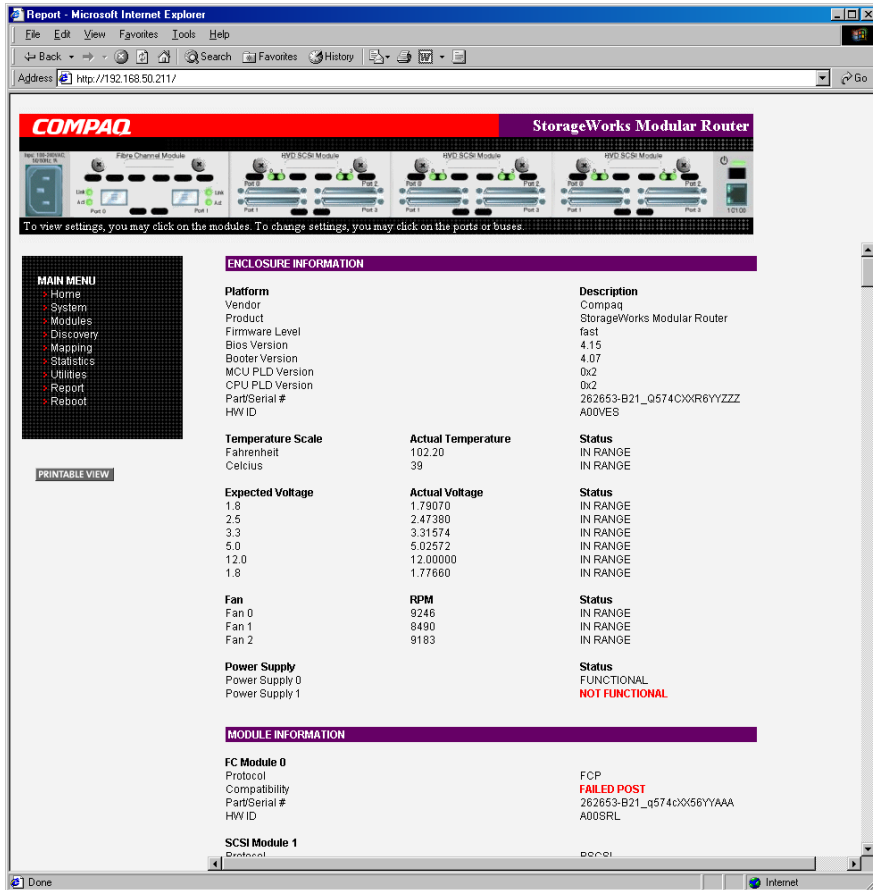


Figure 4-41: Report screen

Reboot Option

Router reboots are executed using this router Main Menu option. Figure 4-42 is an example of the Reboot screen.

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

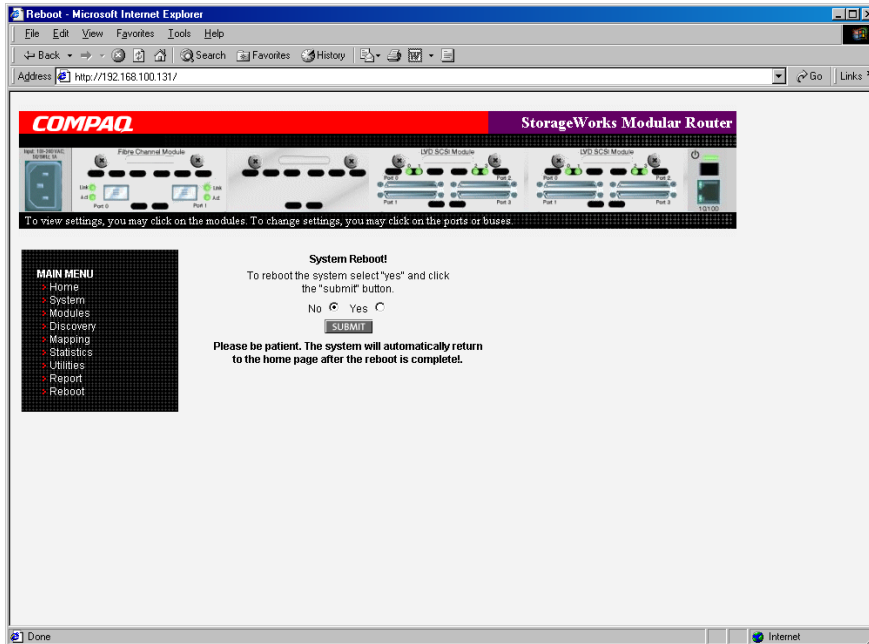


Figure 4-42: Reboot screen

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