

User Guide

# HP StorageWorks 2/8q Fibre Channel Switch Management

First Edition (November 2004)

**Part Number:** A7450-96007

This manual describes the management tools for the HP StorageWorks 2/8q Fibre Channel Switch (2/8q FC Switch) that are included with the Modular Smart Array 1000 Small Business SAN.

Main sections of this guide include:

- Switch Manager User Interface
- Command Line Interface



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## About This Guide

This guide provides information to help you use the following management tools to manage the HP StorageWorks 2/8q Fibre Channel Switch (2/8q FC Switch):

- Switch Manager
- Command Line Interface (CLI)

“About This Guide” topics include:

- [Overview](#), page 14
- [Conventions](#), page 15
- [Getting help](#), page 17

## Overview

This section covers the following topics:

- [Intended audience](#)
- [Related documentation](#)

## Intended audience

This book is intended for use by the system administrator responsible for the MSA1000 storage system.

## Related documentation

The following MSA1000 SAN and 2/8q FC Switch documents are on the MSA1000 Small Business SAN and HA Documentation CD:

- *HP StorageWorks Modular Smart Array 1000 Small Business SAN Kit Installation Instructions* (also printed)
- *HP StorageWorks 2/8q Fibre Channel Switch Installation Guide*
- *HP StorageWorks 2/8q Fibre Channel Switch Simple Network Management Protocol Reference Guide*
- *HP StorageWorks 2/8q Fibre Channel Switch Event Messages Reference Guide*

The following MSA1000-specific documents are on the MSA1000 documentation CD:

- *HP StorageWorks MSA1000 Configuration Overview*
- *HP StorageWorks MSA1000 Installation Guide*
- *HP StorageWorks Modular Smart Array 1000 Maintenance and Service Guide*
- *HP StorageWorks Modular Smart Array 1000/1500 cs Command Line Interface User Guide*
- *HP StorageWorks Modular Smart Array 1000 Controller Reference Guide*
- *HP Array Configuration Utility User Guide*

## Conventions

Conventions consist of the following:

- Document conventions
- Text symbols
- Equipment symbols

## Document conventions

This document follows the conventions in [Table 1](#).

**Table 1: Document conventions**

Element	Convention
Cross-reference links	Blue text: <a href="#">Figure 1</a>
Menu items, buttons, keys, tabs, and user input in a graphical interface. (Use plain text for all other GUI elements.)	<b>Bold</b>
Text emphasis and document titles (not CD titles) in body text	<i>Italics</i>
Command-line user input, commands, code, device instances, file and directory names, and system responses (output and messages)	Monospace font
Command-line and code variables	<i>Monospace, italic font</i>
Web site addresses	Blue underlined sans serif font text ( <a href="http://www.hp.com">http://www.hp.com</a> )

## Text symbols

The following symbols may be found in the text of this guide. They have the following meanings:



**WARNING:** Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or death.

---



**Caution:** Text set off in this manner indicates that failure to follow directions could result in damage to equipment or data.

---



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**Note:** Text set off in this manner presents commentary, sidelights, or interesting points of information.

---

## Equipment symbols

The following equipment symbols may be found on hardware for which this guide pertains. They have the following meanings:



Any enclosed surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. Enclosed area contains no operator serviceable parts.

**WARNING:** To reduce the risk of personal injury from electrical shock hazards, do not open this enclosure.

---



Any RJ-45 receptacle marked with these symbols indicates a network interface connection.

**WARNING:** To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

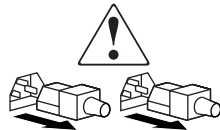
---



Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. Contact with this surface could result in injury.

**WARNING:** To reduce the risk of personal injury from a hot component, allow the surface to cool before touching.

---



Power supplies or systems marked with these symbols indicate the presence of multiple sources of power.

**WARNING:** To reduce the risk of personal injury from electrical shock, remove all power cords to completely disconnect power from the power supplies and systems.

---



Any product or assembly marked with these symbols indicates that the component exceeds the recommended weight for one individual to handle safely.

**WARNING:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manually handling material.

---



## Getting help

If you still have a question after reading this guide, contact an HP Authorized Service Provider or access the following HP web site: <http://www.hp.com>.

---

**Note:** HP call centers use product and serial numbers to validate warranty entitlement. Most HP products can provide product number, serial number and firmware revision electronically through the use of supplied management or diagnostic utilities, eliminating the need to physically inspect or remove products from installed enclosures. You may be directed by HP to run these utilities to gather required entitlement information.

---

## HP installation and configuration assistance

A moderate level of SAN-related knowledge is required to successfully install this product. If you are not familiar with installing and configuring storage array systems in a SAN, HP can install it for you.

For more information, access the following HP web site:  
[http://www.hp.com/hps/storage/ns\\_implementation.html](http://www.hp.com/hps/storage/ns_implementation.html).

Depending on your needs, different levels of assistance are available.

For example, the HP Installation and Startup for HP StorageWorks Disk Arrays Service Package includes:

- Physical installation of the MSA
- Virtual disk design and configuration of the MSA
- Service planning
- Service deployment
- Installation Verification Testing (IVT)
- Customer orientation

## HP technical support

Telephone numbers for worldwide technical support are listed on the following HP web site: <http://www.hp.com/support/>. From this web site, select the country of origin.

---

**Note:** For continuous quality improvement, calls may be recorded or monitored.

---

Be sure to have the following information available before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

## HP storage web site

The latest information on this product, as well as the latest drivers, are available on the following HP web site: <http://www.hp.com/country/us/eng/prodserv/storage.html>. From this web site, select the appropriate product or solution.

## HP authorized reseller

For the name of your nearest HP Authorized Reseller:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868
- Elsewhere, see the HP web site for locations and telephone numbers: <http://www.hp.com>.

# Switch Manager

# 1

This chapter describes how to use the Switch Manager application and its menus, including:

- [Getting started](#), page 20
- [Managing fabrics](#), page 35
- [Managing switches](#), page 58
- [Managing ports](#), page 80
- [Graphing port performance](#), page 91
- [Interpreting Switch Manager messages](#), page 97

## Getting started

- [Installing Switch Manager](#), page 20
- [Starting Switch Manager](#), page 21
- [Exiting Switch Manager](#), page 22
- [Removing Switch Manager](#), page 23
- [Changing the encryption key for the default fabric view file](#), page 23
- [Saving and opening fabric view files](#), page 23
- [Setting Switch Manager preferences](#), page 24
- [Using online help](#), page 25
- [Viewing software version and copyright information](#), page 25
- [Using the Switch Manager user interface](#), page 25
- [Using the topology display](#), page 31
- [Using the faceplate display](#), page 33

## Installing Switch Manager

Switch Manager is installed during the initial set up and installation of the MSA1000 Small Business SAN. If Switch Manager is not installed on your system, first verify that your workstation or server meets the following minimum system requirements. (Table 2)

**Table 2: Management system requirements**

Item	Minimum Requirements
Operating system	Windows® 2000/2003 32-bit operating systems Linux® Red Hat 32-bit operating systems
Memory	256 MB
Disk space	150 MB, per installation
Processor	300 MHz
Hardware	CD-ROM drive, RS-232 serial port, RJ-45 Ethernet port
Internet browser	Windows: Microsoft® Internet Explorer® Linux: Netscape Navigator 6.2 or later, or Mozilla 1.0.2 or later with Personal Security Manager

### Installing Switch Manager on Windows systems

1. Close all programs currently running, and then insert the Small Business SAN Software CD into the server or management workstation CD-ROM drive.  
The CD automatically starts, and displays the HP Small Business SAN Wizard.
2. In the Welcome window, click **Next**, and then follow the onscreen instructions.

---

**Note:** Switch Manager is installed and placed in the following system folder:  
C:\Program Files\HP\HP\_StorageWorks\_Switch\_Manager.

---

## Installing Switch Manager on Linux systems

1. Close all programs currently running, and then insert the Small Business SAN Software CD into the server or management workstation CD-ROM drive.  
The CD auto-mounts, and executes an installation script.  
If the CD does not auto-mount, mount the CD and execute the HP Small Business Linux Wizard script from the /linux directory. (install\_smb.sh)
2. Follow the onscreen instructions to complete the installation.

## Starting Switch Manager

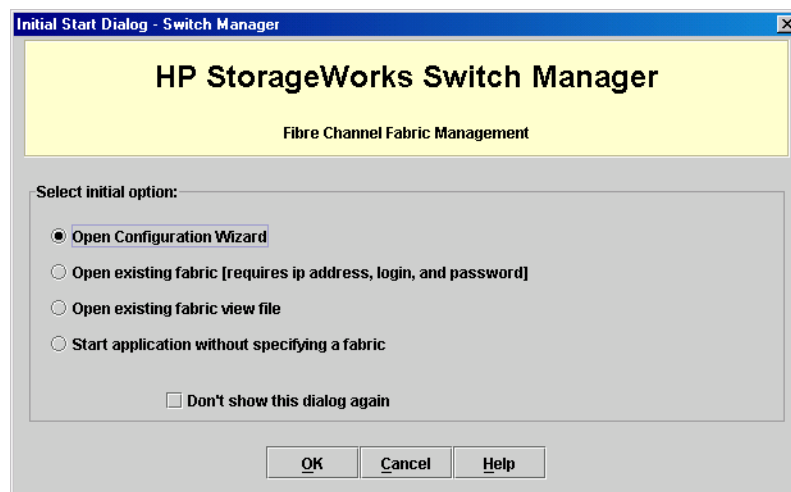
For Windows systems, do one of the following:

- Double-click the Switch Manager shortcut icon
- Select **Start** > Switch Manager
- Enter the following at the command line:  
`<install_directory>Switch_Manager.exe`

For Linux systems, because the installation script creates a symbolic link between /opt/HP/HP\_StorageWorks\_Switch\_Manager/Switch\_Manager and /usr/sbin/Switch\_Manager, enter the following at the command line:

```
# Switch_Manager
```

The application opens with the Initial Start Dialog—Switch Manager dialog box (Figure 1). If you prefer not to see this dialog box, check the **Don't show this dialog again** option. This has the same effect as disabling the Display Initial Startup Dialog preference. See “[Setting Switch Manager preferences](#)” on page 24 for more information.



**Figure 1: Initial Startup Dialog—Switch Manager dialog box**

The following options are available from this initial dialog box:

- **Open Configuration Wizard**—Opens the wizard to configure a switch, add a new switch, replace/restore a switch, or recover or edit an IP configuration of an existing switch. See “[Configuration wizard](#)” on page 69.
- **Open existing fabric (requires ip address, login, and password)**—Opens the Add a New Fabric dialog box, which prompts you for a fabric name, IP address, account name, and password. See “[Adding a fabric](#)” on page 36.

- **Open existing fabric view file**—Opens the Open View dialog box which prompts you to specify a fabric view file that you saved earlier. See [“Opening a fabric view file”](#) on page 37.
- **Start application without specifying a fabric**—Opens the Switch Manager window.

## Exiting Switch Manager

To exit a Switch Manager application session:

1. Select **File > Exit**.

If you have not yet defined an encryption key, the Save Default Fabric View File dialog box (Figure 2) is displayed and prompts you to save the current fabric view as the default fabric view file.



**Figure 2: Save Default Fabric View File dialog box**

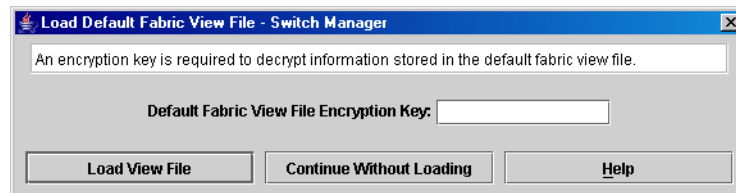
2. Enter the encryption key information in the **Default Fabric View File Encryption Key** box.
3. Re-enter the encryption key in the **Re-enter Encryption Key to Confirm** box.
4. Click **OK** to save the current set of fabrics to the default fabric view file in the working directory.

The encryption key is used to encrypt the sensitive data in the default fabric view file. See [“Changing the encryption key for the default fabric view file”](#) on page 23 for more information.

If an encryption key has been defined and the View File Auto Save and Load preferences setting is set to **Enable**, the current fabric view is automatically saved to your default fabric view file upon exiting future Switch Manager sessions.

To prevent Switch Manager from prompting you to save the default fabric view file between Switch Manager sessions, set the View File Auto Save and Load preferences setting to **Enable** (default). See [“Setting Switch Manager preferences”](#) on page 24 for more information.

In your next Switch Manager session, the Load Default Fabric View File dialog box (Figure 3) prompts you to load the default fabric view file and to specify its encryption key, if there is one. If you do not want to load the default fabric view file, click **Continue Without Loading** to open the Switch Manager with no fabric displayed.



**Figure 3: Load Default Fabric View File dialog box**

## Removing Switch Manager

### Removing Switch Manager from Windows

To remove Switch Manager from Windows:

1. Browse for and change to the installation directory:  
The default directory is C:\Program Files\HP\HP\_StorageWorks\_Switch\_Manager.
2. Double-click the uninstall program file or shortcut/link, and then follow the onscreen instructions to remove Switch Manager.

### Removing Switch Manager from Linux

To remove Switch Manager from Linux:

1. Browse for and change to the installation directory.  
The default directory is /opt/HP/HP\_StorageWorks\_Switch\_Manager.
2. Enter the following command:  

```
# Uninstall_HP_StorageWorks_Switch_Manager
```

## Changing the encryption key for the default fabric view file

To change the encryption key for the Switch Manager default fabric view file:

1. Select **File > Save Default Fabric View File**.
2. Enter an encryption key in the **Default Fabric File Encryption Key** box.
3. Re-enter the same encryption key in the confirmation box.
4. Click **OK** to save the current set of fabrics to the default fabric view file in the working directory.

## Saving and opening fabric view files

A fabric view file is one or more fabrics saved to a file. In addition to the Switch Manager default fabric view file, you can save and open your own fabric view files.

To save a set of fabrics to a file:

1. Select **File > Save View As**. The Save View dialog box is displayed.
2. Enter a name for the fabric file or click **Browse** to select an existing file.  
Files are saved in the working directory.
3. Enter a password in the **File Password** box.  
When opening this fabric file, a password is required. If the **File Password** box is left blank, no password is required when attempting to open this fabric file.
4. Click **OK**.

To open a fabric view file:

1. Select **File > Open View File**. The Open View dialog box is displayed.
2. Enter a name for the fabric file or click **Browse** to select an existing file.
3. Enter a password in the **File Password** box.
4. Click **OK**.

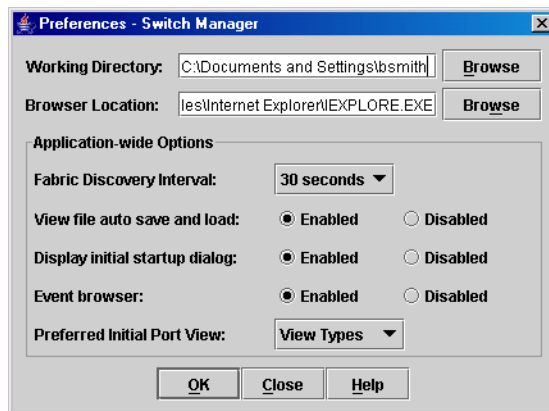
## Setting Switch Manager preferences

Using the preferences settings to:

- Change the location of the working directory in which to save files.
- Change the location of the browser used to view the online help.
- Choose the fabric discovery interval. The fabric discovery interval is how often the Switch Manager application receives information from the fabric. Choose 30 (default), 45, or 60 seconds. The smaller the interval, the more often the application talks to the switch and thus the greater impact to performance.
- Enable (default) or disable the view file auto save and load feature. See [“Exiting Switch Manager”](#) on page 22 for more information on the default fabric view file.
- Enable (default) or disable the use of the Initial Start Dialog—Switch Manager dialog box at the beginning of a Switch Manager session. See [“Starting Switch Manager”](#) on page 21 for information about the Initial Start Dialog—Switch Manager dialog box. After a default fabric view file is created, this setting has no effect.
- Enable (default) or disable the Event Browser. See the [“Event Browser”](#) on page 41. If the Event Browser is enabled using the Preferences dialog box, the next time Switch Manager is started, all events from the switch alarm log is displayed. If the Event Browser is disabled when Switch Manager is started and later enabled, only those events from the time the Event Browser was enabled and forward are displayed.
- Choose the default port view when opening the faceplate display. You can set the faceplate to reflect the current port type (default), port speed, port operational state, or port transceiver media. Regardless of the default port view you choose, you can change the port view in the faceplate display by opening the **View** menu and then selecting a different port view option. See [“Port status”](#) on page 80 for more information.

To set preferences for your Switch Manager sessions:

1. Select **File > Preferences**. The Preferences dialog box is displayed ([Figure 4](#)).



**Figure 4: Preferences dialog box**

2. Enter or browse for paths to the working directory and browser.
3. Select the preferences you want in the **Application-wide Options** area.
4. Click **OK**.



## Using online help

Online help is available for the Switch Manager application and its functions.

You can do one of the following to open the online help file:

- Select **Help > Help Topics**.
- Click **Help** on the tool bar.
- Click **Help** in a dialog box to display context-sensitive help for all Switch Manager dialog boxes.

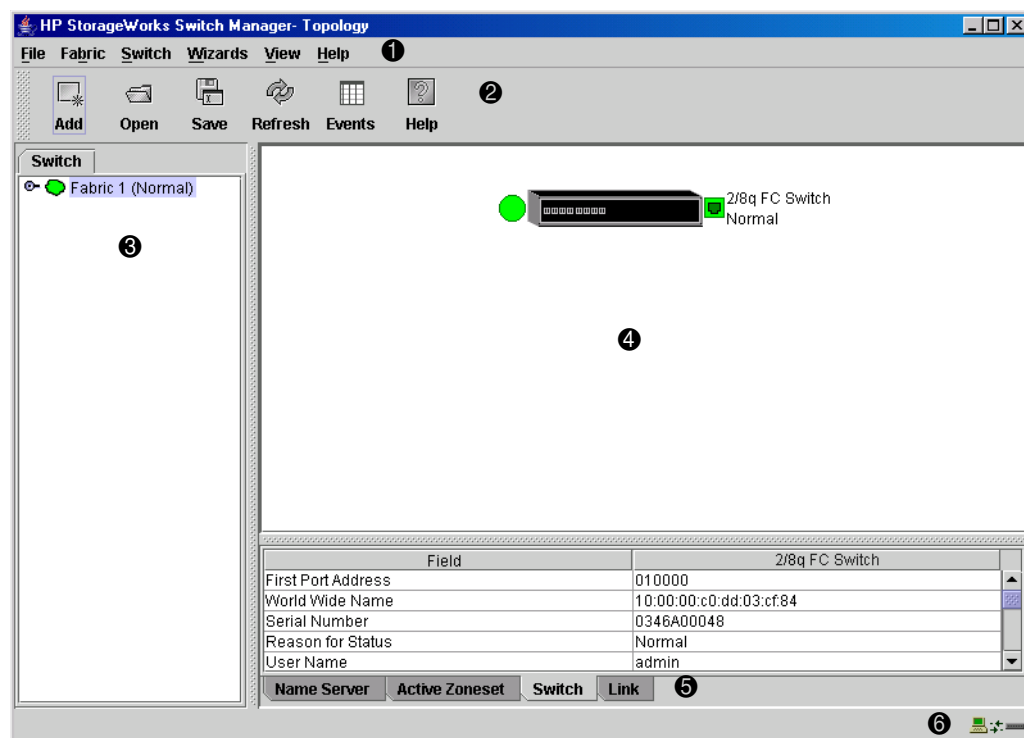
## Viewing software version and copyright information

To view Switch Manager software version and copyright information:

1. Select **Help > About**.
2. Click **OK** when you are finished.

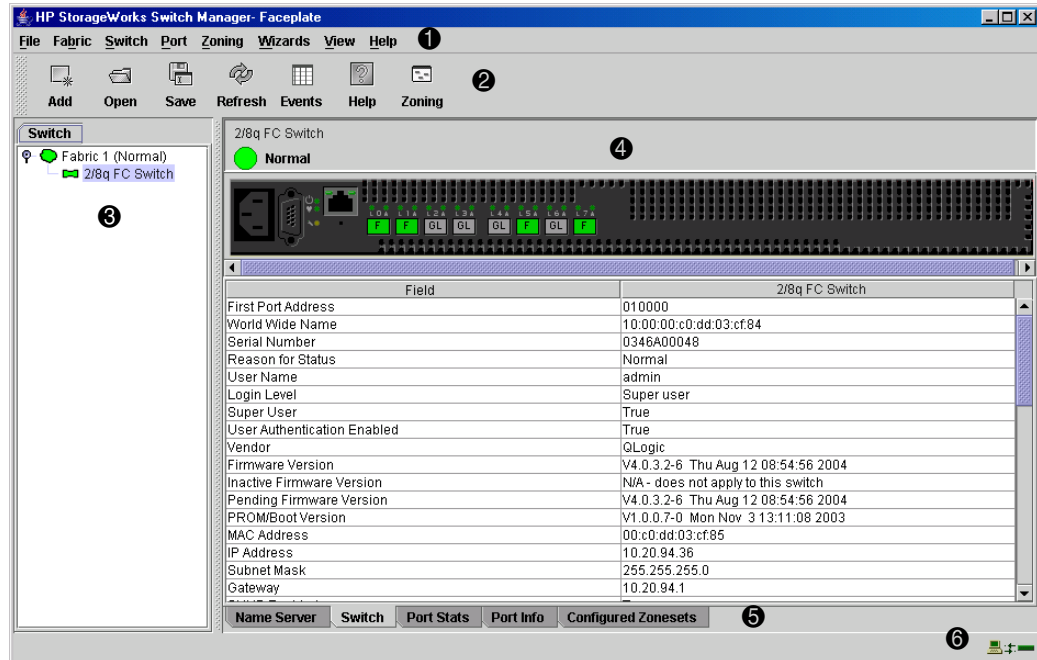
## Using the Switch Manager user interface

The Switch Manager application uses two basic displays to manage the fabric and individual switches; the topology display (Figure 5) and the faceplate display (Figure 6). The topology display shows all switches that are able to communicate. The faceplate display shows the front of a single switch and its ports.



- |               |                            |
|---------------|----------------------------|
| ① Menu bars   | ④ Graphic window           |
| ② Tool bar    | ⑤ Data window and tabs     |
| ③ Fabric tree | ⑥ Working status indicator |

**Figure 5: Switch Manager Topology window**



- ① Menu bars
- ② Tool bar
- ③ Fabric tree
- ④ Graphic window
- ⑤ Data window and tabs
- ⑥ Working status indicator

**Figure 6: Switch Manager Faceplate window**

## Menu bars

In addition to the menu bar, both the topology and faceplate displays have context sensitive menus that pop up when you right-click in the graphic window. The menus and the options offered in them vary depending on the display. For example, the **Port** menu and many of the **Switch** menu selections are available only in the faceplate display.

See [Figure 7](#) and [Figure 8](#) for example menu bar options for the topology and faceplate displays.

See [“Opening the topology display menus”](#) on page 33 and [“Opening the Faceplate menu”](#) on page 34 for information about accessing these displays.

## Topology display menu bar options and shortcut keys

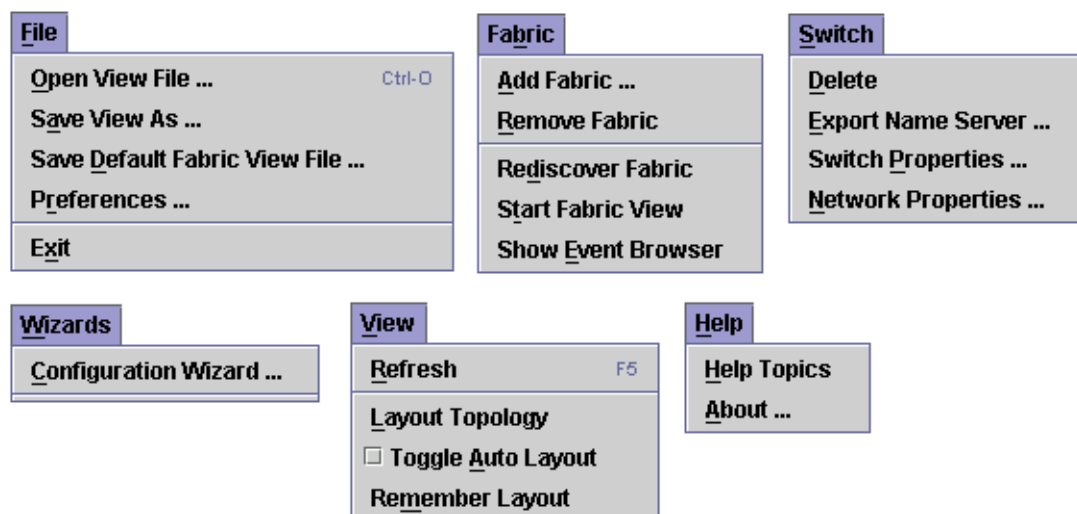


Figure 7: Topology display menu bar options

Table 3: Topology display shortcut keys

Shortcut	Selection	Shortcut	Selection
Ctrl+O Alt+F, O	File>Open View File	Alt+S, E	Switch>Export Name Server
Alt+F, A	File>Save View As	Alt+S, P	Switch>Switch Properties (active only when one switch is selected)
Alt+F, D	File>Save Default Fabric View File	Alt+S, N	Switch>Network properties (active only when one switch is selected)
Alt+F, R	File>Preferences	Alt+W, C	Wizards>Configuration Wizard
Alt+F, X	File>Exit	Alt+V, R F5	View>Refresh
Alt+B, A	Fabric>Add Fabric	Alt+V, L	View>Layout Topology
Alt+B, R	Fabric>Remove Fabric	Alt+V, A	View>Toggle Auto Layout
Alt+B, D	Fabric>Rediscover Fabric	Alt+V, M	View>Remember Layout
Alt+B, T	Fabric>Start Fabric View	Alt+H, H	Help>Help Topics
Alt+B, E	Fabric>Show Event Browser	Alt+H, A	Help>About
Alt+S, D	Switch>Delete		
Shortcut key combinations are not case-sensitive.			

## Faceplate display menu bar options and shortcut keys

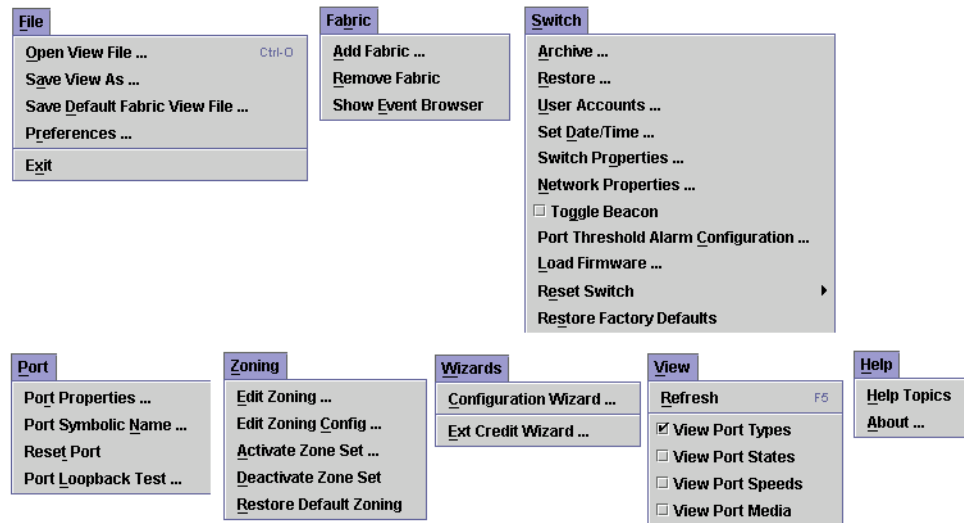


Figure 8: Faceplate display menu bar options








Table 4: Faceplate display shortcut keys

Shortcut	Selection	Shortcut	Selection
Ctrl+O Alt+F, O	File>Open View File	Alt+S, E +R +A	Switch>Reset Switch   Reset Hard Reset
Alt+F, A	File>Save View As	Alt+S, S	Switch> Restore Factory Defaults
Alt+F, D	File>Save Default Fabric View File	Alt+S, W	Switch>Download Support File
Alt+F, R	File>Preferences	Alt+P, R	Port>Port Properties
Alt+F, X	File>Exit	Alt+P, N	Port>Port Symbolic Name
Alt+B, A	Fabric>Add Fabric	Alt+P, T	Port>Reset Port
Alt+B, R	Fabric>Remove Fabric	Alt+P, L	Port>Port Loopback Test
Alt+B, E	Fabric>Show Event Browser	Alt+Z, E	Zoning>Edit Zoning
Alt+S, A	Switch>Archive	Alt+Z, C	Zoning>Edit Zoning Config
Alt+S, R	Switch>Restore	Alt+Z, A	Zoning>Activate Zone Set
Alt+S, U	Switch>User Accounts	Alt+Z, D	Zoning>Deactivate Zone Set
Alt+S, D	Switch>Set Date/Time	Alt+Z, R	Zoning>Restore Default Zoning
Alt+S, O	Switch>Switch Properties	Alt+W, C	Wizards>Configuration Wizard
Alt+S, N	Switch>Network Properties	Alt+W, E	Wizards>Ext Credit Wizard
Alt+S, G	Switch>Toggle Beacon	Alt+V, R F5	View>Refresh
Alt+S, C	Switch>Port Threshold Alarm Configuration	Alt+H, H	Help>Help Topics
Alt+S, L	Switch>Load Firmware	Alt+H, A	Help>About
Shortcut key combinations are not case-sensitive.			

## Tool bar

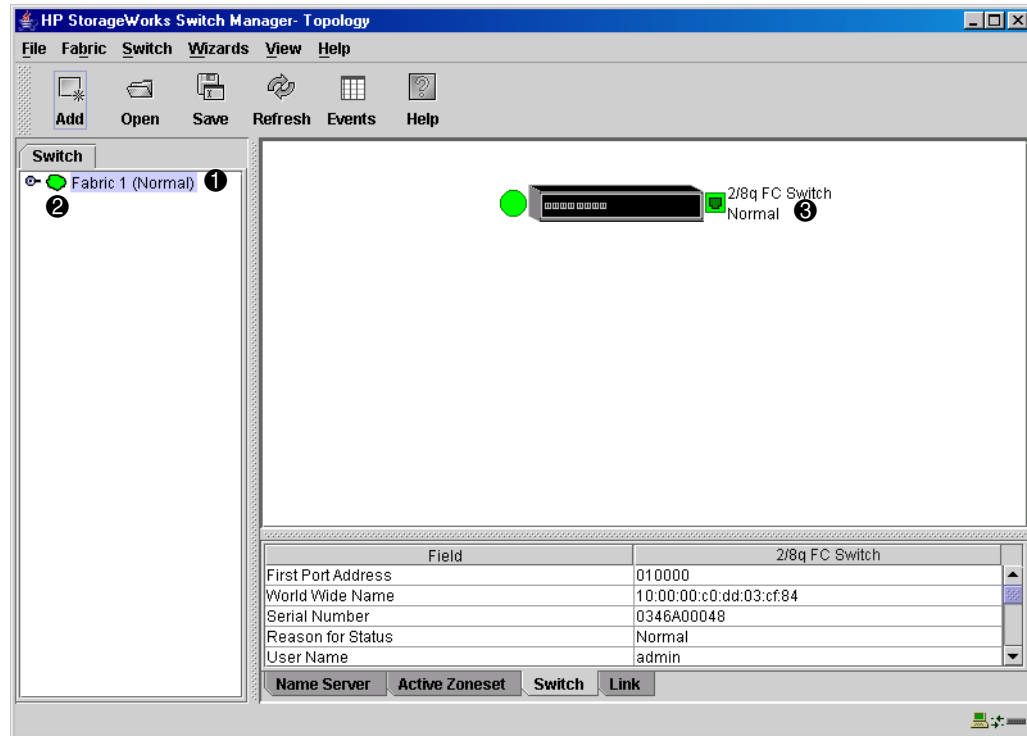
The tool bar consists of a row of graphical buttons that are used to access Switch Manager functions (Table 5). Tool bar buttons are an alternative method to using the menu bar. The tool bar can be relocated in the display by clicking and dragging the handle at the left edge of the tool bar.

**Table 5: Tool bar buttons**

Button	Description
 Add	Add Fabric—Adds a new fabric to the fabric view.
 Open	Open View File—Opens an existing fabric view file.
 Save	Save View As—Saves the current fabric view to a file.
 Refresh	Refresh—Updates the topology or faceplate display with the current information.
 Events	Event Browser—Opens the event browser.
 Help	Help Topics—Opens the online help file.
 Zoning	Edit Zoning—Opens the Edit Zoning dialog box (available only in the faceplate display).

## Fabric tree

The fabric tree lists the managed fabrics and their switches (Figure 9). The window width can be adjusted by clicking and dragging the moveable window border. An entry handle located to the left of an entry in the tree indicates that the entry can be expanded or collapsed. Click this handle or double-click the entry to expand or collapse a fabric tree entry. A fabric entry expands to show its member switches.



- ① Fabric entry
- ② Entry handle
- ③ Switch entries

### Figure 9: Fabric tree

Each fabric tree entry has a small icon next to it that uses color to indicate operational status.

- A green icon indicates normal operation.
- A yellow icon indicates that a switch is operational, but may require attention to maintain maximum performance.
- A red icon indicates a potential failure or non-operational state (if switch is offline).
- A blue icon indicates that a switch is unknown, unreachable, or unmanageable.

If the status of the fabric is not normal, the fabric icon in the fabric tree indicates the reason for the abnormal status. The same message is provided when you rest the mouse over the fabric icon in the fabric tree.

The fabric tree provides access to the topology and faceplate displays for any fabric or switch.

- To open the topology display from the fabric tree, click a fabric entry.
- To open the faceplate display from the fabric tree, click a switch entry.

## Graphic window

The graphic window (Figure 6), presents graphic information about fabrics and switches such as the fabric topology and the switch faceplate. The window height can be adjusted by clicking and dragging the window border that it shares with the data window. This only works when displaying a fabric.

## Data window and tabs

The data window presents a table of data and statistics associated with the selected tab. (Figure 6.) Use the scroll bar to browse through the data. The window length can be adjusted by clicking and dragging the border that it shares with the graphic window.

Adjust the column width by moving the pointer over the column heading border shared by two columns until a right/left arrow graphic is displayed. Click and drag the arrow to the desired width.

The data window tabs present options for the type of information to display in the data window. These options vary depending on the display.

## Working status indicator

The working status indicator, located in the lower right corner of the Switch Manager window (Figure 6), shows when the management workstation is exchanging information with the fabric. As conditions change, the fabric forwards this information to the management system where it is reflected in the various displays.

## Using the topology display

The topology display (Figure 10) receives information from the selected fabric and displays its topology. Switches appear in the graphic window and use color to indicate status. Consider the following topology display features:

- [Switch status](#)
- [Topology data windows](#)
- [Working with switches and links](#)

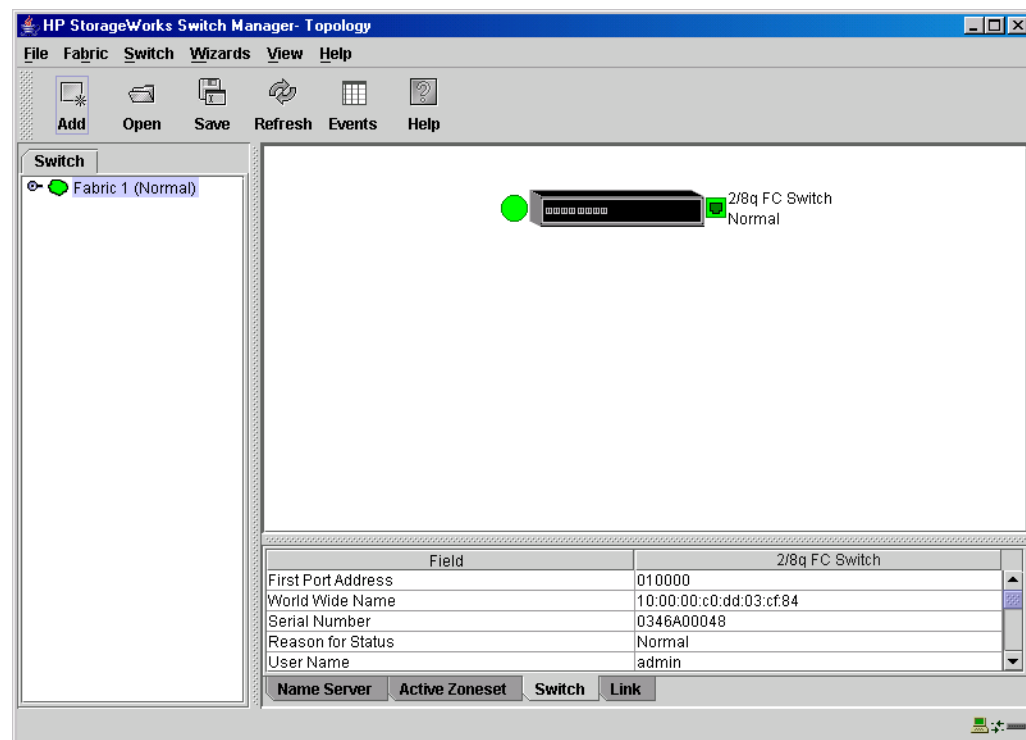


Figure 10: Topology display

### Switch status

Switch icon shape and color provide information about the switch and its operational state. Lines represent links between switches. The topology display uses green to indicate normal operation, yellow to indicate operational with errors, red to indicate a potential failure or non-operational state, and blue to indicate unknown, unreachable, or unmanageable. See [“Fabric status”](#) on page 40 for more information about topology display icons.

### Topology data windows

The topology display provides the following data windows, which correspond to the data window tabs at the bottom of the display:

- **Name Server**—Displays all devices logged with the name server and their addresses within the current fabric configuration. See [“Name Server data window”](#) on page 63 for more information.
- **Active Zoneset**—Displays the active zone set for the fabric including zones and their member ports. See [“Active Zoneset data window”](#) on page 44 for more information about this data window. See [“Zoning a fabric”](#) on page 45 for information about zone sets and zones.
- **Switch**—Displays current network and switch configuration data for the selected switches. See [“Switch data window”](#) on page 63 for more information.
- **Link**—Displays information about the inter-switch links. See [“Link data window”](#) on page 64 for more information.

### Working with switches and links

Switch and link icons are selectable and moveable, and serve as access points for other displays and menus. You select switches and links to display information about them, modify their configuration, or delete them from the display. Context-sensitive menus are displayed when right-clicking on a switch or link icon, or in the background of the topology display graphic window.

#### *Selecting switches*

Selected switch icons are highlighted in light blue. Select switches in the following ways:

- To select a switch, click the icon.
- To select multiple switches, hold down **Ctrl** and select.
- To select all switches, right-click anywhere in the graphic window background. Select **Select All Switches** from the menu.
- To cancel a selection, hold down **Ctrl** and select the item again. To cancel all selections, click in the graphic window background.

#### *Arranging switches in the display*

You can arrange switch icons in the topology display:

- To move an individual switch icon, click and drag the icon to another location in the graphic window. Links stretch or contract to remain connected.
- To arrange all switch icons in the topology display automatically, select **View > Layout Topology**.

By default, the **Toggle Auto Layout** box in the **View** menu is checked, which causes Switch Manager to arrange the icons when **Layout Topology** is selected.



You can save a custom arrangement, or layout, and restore that layout during a Switch Manager session. Begin by arranging the icons, and then select **View > Remember Layout**. To restore the saved layout, select **View > Toggle Auto Layout** box, and then select **Layout Topology**.

### *Opening the topology display menus*

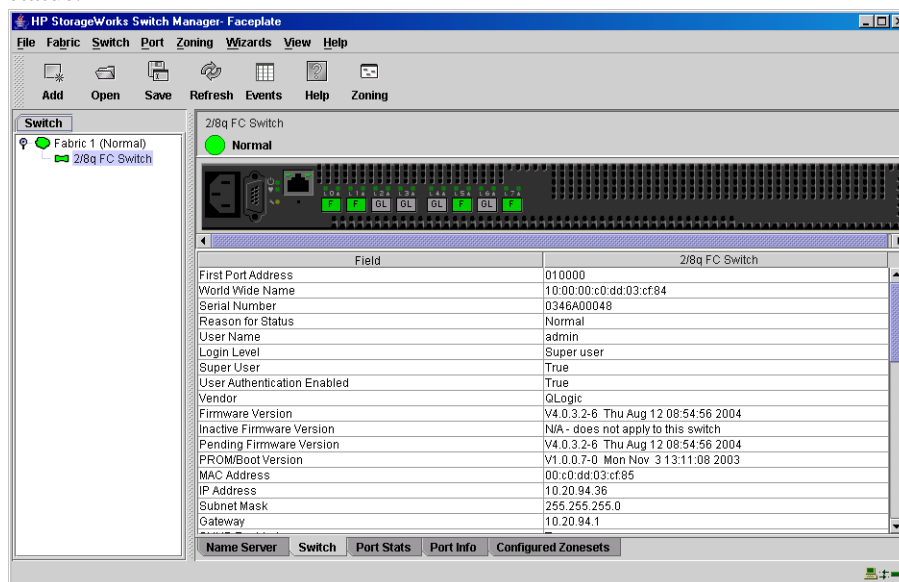
The faceplate display shows the front of a single switch and its ports. To open the faceplate display when viewing the topology display, click the switch entry/icon in the fabric tree, or double-click the switch graphic.

The topology display also offers a **Fabric**, **Switch**, and **Link** menu:

- To open the **Fabric** menu, right-click the graphic window background. The **Fabric** menu presents selections to refresh the fabric, select all switches, select all links, or layout topology.
- To open the **Switch** menu, right-click the switch icon in the graphic window. The **Switch** menu presents selections to refresh the switch, delete the switch from the display, open the Switch Properties dialog box, and open the Network Properties dialog box.
- To open the **Link** menu, right-click the link. The **Link** menu presents a selection to delete the link from the display.

## Using the faceplate display

The faceplate display (Figure 11) displays the switch name and operational state, and port status.



**Figure 11: Faceplate display**

### Port views and status

Port color and text provide information about the port and its operational state. Green indicates active; gray indicates inactive. The faceplate display provides views of port status corresponding to the **View** menu options in the faceplate display. See “Port status” on page 80 for more information about these displays.

Displayed port information includes the port type, state, speed, and media.

Context-sensitive menus are displayed when you right-click on the faceplate image or on a port icon in the faceplate display.

### **Faceplate data windows**

The faceplate display provides the following data windows, which correspond to the data window tabs at the bottom of the display:

- **Name Server**—Displays all devices connected to the switch that are logged with the name server.
- **Switch**—Displays current switch configuration data.
- **Port Statistics**—Displays performance data for the selected ports.
- **Port Information**—Displays information for the selected ports.
- **Configured Zonesets**—Displays all zone sets, zones, and zone membership in the zoning database.

### **Working with ports**

Ports are selectable and serve as access points for other displays and menus. Select ports to display information about them in the data window or to modify them. Context-sensitive menus are displayed when right-clicking the faceplate image or on a port icon in the faceplate display.

#### ***Selecting ports***

You can select ports in the following ways. Selected ports are outlined in white.

- To select a port, click the port in the faceplate display.
- To select a range of consecutive ports, select a port, and then press and hold **Shift** and select another port. The application selects both end ports and all ports in between in port number sequence.
- To select several non-consecutive ports, hold **Ctrl** while selecting.
- To select all ports, right-click on the faceplate image, and then select **Select All Ports** from the menu.
- To cancel a selection, press and hold **Ctrl** and select it again.

#### ***Opening the Faceplate menu***

To open the **Faceplate** menu, right-click on the faceplate image to present the following tasks:

- Refresh the switch
- Select all ports
- Manage switch properties
- Manage network properties
- Extended credits wizard
- Manage port properties
- Change the port symbolic name
- Run the port loopback tests

If no ports are selected, the port-related tasks is unavailable in the menu. Right-click a port to open the **Port** menu. Hold down the **Shift** or **Ctrl** to select more than one port. If multiple ports are selected, right-click on one of the selected ports.

## Managing fabrics

This section describes the following tasks that manage fabrics:

- [Managing fabric security](#), page 35
- [Managing the fabric database](#), page 36
- [Displaying fabric information](#), page 40
- [Zoning a fabric](#), page 45

## Managing fabric security

The components of Fibre Channel fabric security are:

- [User account security](#)
- [Fabric services](#)

---

**Note:** HP does not support Inter-Switch Links (ISLs), also known as E-Ports, between two or more switches. There should be no fiber cables joining two or more switches together. This is not a supported configuration. If they are connected, remove the link. The features relating to the use of ISLs—specifically Interop AutoSave, Interop Mode, Inband Management, and Legacy Addressing—are left in this User Guide for completeness, but are not supported by HP.

---

## User account security

User account security is the process by which your user account and password are authenticated with the list of valid user accounts and passwords. The switch validates your account and password when you attempt to add a fabric using Switch Manager or log into a switch through Telnet. The system administrator defines accounts, passwords, and authority levels that are stored on the switch. See “[Displaying switch information](#)” on page 62 for more information.

The Admin account possesses Admin authority which grants full access to all tasks of the Switch Manager menu system. The switch validates your user account and Switch Manager grants access to its menus according to your authority level. If you do not have Admin authority, you are limited to monitoring tasks.

---

**Note:** If a user is logged into a switch using Switch Manager or CLI, and an administrator changes user access rights or passwords, existing logins are not affected by the new settings. Login access and privileges are only checked for a new login request.

---

## Fabric services

Fabric services security includes SNMP and In-band management.

Simple Network Management Protocol (SNMP) is the protocol governing network management and monitoring of network devices. SNMP security consists of a read community string and a write community string, which are basically the passwords that control read and write access to the switch. The read community string (“public”) and write community string (“private”) are set at the factory defaults and should be changed if SNMP is enabled using the Network Properties dialog box. If SNMP is enabled (default) and the read and write community strings have not been changed from their defaults, you risk unwanted access to the switch. See [“Enabling SNMP configuration”](#) on page 36 for more information. SNMP is enabled by default.

In-band management is the ability to manage switches across inter-switch links using Switch Manager, SNMP, management server. The switch comes from the factory with in-band management enabled. If you disable in-band management on a particular switch, you can no longer communicate with that switch by means other than a direct Ethernet or serial connection. See [“Enabling In-band Management”](#) on page 36 for more information. In-band management is not supported at this time.

### Enabling SNMP configuration

1. Open the faceplate display, and then select **Switch > Network Properties**. The Network Properties dialog box is displayed.
2. Select **SNMP Enabled** in the **SNMP Configuration** area.
3. Click **OK**.

### Enabling In-band Management

1. Open the faceplate display, and then select **Switch > Switch Properties**. The Switch Properties dialog box is displayed.
2. Select **In-band Management Enable**.
3. Click **OK**.

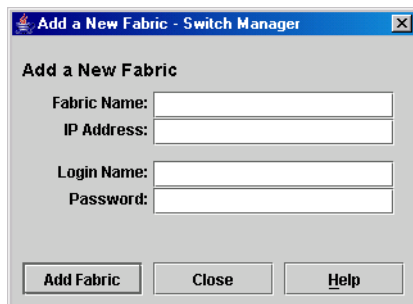
## Managing the fabric database

A fabric database contains the set of fabrics that you have added during a Switch Manager session. Initially, if you do not open an existing fabric or fabric view file, the Switch Manager application opens with an empty fabric database.

### Adding a fabric

To add a fabric to the database:

1. Select **Fabric > Add Fabric**. The Add a New Fabric dialog box is displayed ([Figure 12](#)).



**Figure 12: Add a New Fabric dialog box**

2. Enter a fabric name (optional) and the IP address of the switch through which to manage the fabric.
3. Enter an account name and password. The factory login name and password are: admin, password. The password is for the switch and is stored in the switch firmware.
  - See “[User account security](#)” on page 35 for information about user authentication.
  - See “[Managing user accounts](#)” on page 58 or the “[User command](#)” on page 171 for information about creating user accounts.
4. Click **Add Fabric**.

---

**Note:** A switch supports a combined maximum of 19 logins or sessions as follows:

- Four logins or sessions for internal applications such as management server and SNMP
  - Nine high priority Telnet sessions
  - Six logins or sessions for Switch Manager inband and out-of-band logins, and Telnet logins. Additional logins are refused.
- 

## Removing a fabric

To delete a fabric file from the database:

1. Select a fabric in the fabric tree.
2. Select **Fabric > Remove Fabric**.

## Opening a fabric view file

A fabric view file is one or more fabrics saved to a file.

1. Select **File > Open View File**, or click **Open**. If the fabric you are currently viewing has changed, you are prompted to save the changes to the fabric view file with the Save View dialog box before opening a different view file.
2. Enter the name of the file to open, and enter a file password, if a password was entered when this fabric view file was saved.
3. Click **OK**.

## Saving a fabric view file

1. Select **File > Save View As**. The Save View dialog box is displayed.
2. Enter a new file name.
3. Enter a file password, if necessary.
4. Click **OK**.

## Rediscovering a fabric

After making changes to or deleting switches from a fabric view, it may be helpful to again view the actual fabric configuration. The rediscover fabric option clears out the current fabric information being displayed, and rediscovers all switch information. The rediscover function is more comprehensive than the refresh function.

To rediscover a fabric, select **Fabric > Rediscover Fabric**.

## Adding a new switch to a fabric

If there are no special conditions to be configured for the new switch, simply plug in the switch and the switch becomes functional with the default fabric configuration. Default fabric configuration settings:

- Fabric zoning is sent to the switch from the fabric.
- All ports are **GL\_Ports**.
- The default IP address 10.0.0.1 is assigned to the switch without a gateway or boot protocol configured (RARP, BOOTP, and DHCP).

If you are adding a new switch to a fabric and do not want to accept the default fabric configuration, do the following:

1. If the switch is not new, reset the switch to the factory configuration before adding the switch to the fabric by selecting **Switch > Restore Factory Defaults**.
2. If you want to manage the switch through the Ethernet port, you must first configure the IP address using the Network Properties dialog box or the Config Wizard.
3. Configure any special switch settings.

Consider configuring the **Default Visibility** setting to **None** in the Zoning Config dialog box to prevent devices from finding other devices on all switches in the fabric until the new switch is configured. To open the Zoning Config dialog box, select **Zoning > Edit Zoning Config**.

4. Configure the port types for the new switch using the Port Properties dialog box.  
The ports can be **G\_Port**, **GL\_Port**, **F\_Port**, **FL\_Port**, or **Donor**.
5. Connect the devices to the switch.
6. Make any necessary zoning changes using the Edit Zoning dialog box.

To open the Edit Zoning dialog box, select **Zoning > Edit Zoning**. If you changed the Default Visibility setting in the Zoning Config dialog box from **All** to **None**, change that setting back to **All**. To open the Zoning Config dialog box, select **Zoning > Edit Zoning Config**.

## Replacing a failed switch

The archive/restore works for all switches. However, the **Restore** menu item is not available for the in-band switches. You can only restore a switch out-of-band (the fabric management switch). There are certain parameters that are not archived, and these are not restored by Switch Manager. See “[Archiving a switch configuration](#)” on page 75 and “[Restoring a switch configuration](#)” on page 75 for information about archive and restore. Use the following procedure to replace a failed switch for which an archive is available.

1. At the failed switch:
  - a. Turn off the power and disconnect the AC cords.
  - b. Note port locations and remove the interconnection cables and SFPs.
  - c. Remove the failed switch.
2. At the replacement switch:
  - a. Mount the switch in the location where the failed switch was removed.
  - b. Install the SFPs using the same ports as were used on the failed switch.



**Caution:** Do not reconnect the target devices and initiator devices at this time. Doing so could invalidate the fabric zoning configuration.

- c. Attach the AC cords and power up the switch.
3. Select the failed switch in the topology display, and then select **Switch > Delete**.
4. Restore the configuration from the failed switch to the replacement switch:
  - a. Open a new fabric through the replacement switch.
  - b. Open the faceplate display for the replacement switch, and then select **Switch > Restore**. The Restore dialog box is displayed.
  - c. Enter the archive file for the failed switch or browse for the file.
  - d. Click **Restore**.
5. Select **Switch > Reset Switch**.
 

This resets the replacement switch to activate the configuration formerly possessed by the failed switch including the domain ID and the zoning database.
6. Reconnect the target devices, and initiator devices to the replacement switch using the same ports as were used on the failed switch.

## Deleting switches and links

The Switch Manager application does not automatically delete switches or links that have failed or have been physically removed from the Fibre Channel network. In these cases, you can delete switches and links to bring the display up to date. If you delete a switch or a link that is still active, the Switch Manager application automatically restores itself. The display can also be refreshed.

### Deleting a switch

To delete a switch:

1. Select one or more switches in the topology display, and then select **Switch > Delete**.

### Deleting a link

To delete a link:

1. Select one or more links in the topology display, and then select **Switch > Delete**.

## Displaying fabric information

The topology display is the primary tool for monitoring a fabric. The graphic window of the topology display provides status information for switches and the Ethernet connection to the management workstation.

The data window tabs show name server, switch, and active zone set information. The Active Zoneset tab shows the zone definitions for the active zone set. See “[Name Server data window](#)” on page 63 and “[Switch data window](#)” on page 63 for information about the Name Server and Switch data windows.

## Fabric status

The fabric updates the topology and faceplate displays by forwarding changes in status to the management workstation as they occur. You can allow the fabric to update the display status, or you can refresh the display at any time.





To refresh the topology display, do one of the following:

- Click **Refresh**.
- Select **View > Refresh**.
- Press **F5**.
- Right-click anywhere in the background of the topology display, and then click **Refresh Fabric** from the menu.

The topology display uses switch and status icons to provide status information about switches and the Ethernet connection. The switch status icons, displayed on the left side of a switch, vary in shape and color. Switches controlled by an Ethernet Internet Protocol have a colored Ethernet icon displayed on the right side of the switch. A green Ethernet icon indicates normal operation, yellow indicates a condition that may require attention to maintain maximum performance, and red indicates a potential failure. [Table 6](#) shows the different switch icons and their meanings.



**Table 6: Topology display switch and status icons**

Switch Icon	Description
 	2/8q FC Switch <ul style="list-style-type: none"> <li>■ Normal operation (green)</li> <li>■ Warning—Operational with errors (yellow)</li> <li>■ Critical—Potential failure (red)</li> <li>■ Unknown—Communication status unknown, unreachable, or unmanageable (blue)</li> </ul>
	Fabric Management Switch: <ul style="list-style-type: none"> <li>■ Ethernet connection normal (green)</li> <li>■ Ethernet connection warning (yellow)</li> <li>■ Ethernet connection critical (red)</li> </ul>
	Switch is not manageable with this version of Switch Manager. Use the management application that was shipped with this switch.

## Event Browser

The Event Browser displays a list of events generated by the switches in the fabric and the Switch Manager application. Events are generated by the Switch Manager application and are not saved on the switch, but can be saved to a file during the Switch Manager session. Entries in the Event Browser are formatted by severity, time stamp, source, type, and description. The maximum number of entries allowed is 1500. Once the maximum is reached, the event list wraps and the oldest events are discarded and replaced with the new events. Event entries from the switch, use the switch time stamp, while event entries generated by the application have a workstation time stamp. You can filter, sort, and export the contents of the Event Browser to a file. The Event Browser begins recording when enabled and Switch Manager is running.

If the Event Browser is enabled using the Preferences dialog box, the next time Switch Manager is started all events from the switch log are displayed. If the Event Browser is disabled when Switch Manager is started and later enabled, only those events from the time the Event Browser was enabled and forward are displayed.

### Displaying the Event Browser

Perform the following to display the Event Browser:

1. Select **Fabric > Show Event Browser** or click **Events** on the tool bar. The Events Browser is displayed ([Figure 13](#)).

If the **Show Event Browser** selection or the **Events** button is grayed-out, you must first enable the **Events Browser** preference. See “[Setting Switch Manager preferences](#)” on page 24.

Severity is indicated in the severity column, using icons as described in [Table 7](#).

Severity	Timestamp	Source	Type	Description
	Thu Sep 09 08:40:25 EDT 2004	28q FC Switch	Switch	[8400.0023]Successful login user (admin@OB-session1) with admin privilege from address 16.129.80.65-1887
	Thu Sep 09 08:40:30 EDT 2004	28q FC Switch	Switch	[8400.0022]Successful login user (snmp@OB-session2) with admin privilege
	Thu Sep 09 08:40:30 EDT 2004	28q FC Switch	Switch	[8400.0022]Successful login user (snmp@OB-session3) with admin privilege
●	Thu Sep 09 08:37:26 EDT 2004	28q FC Switch	Switch	[8400.002A]User (admin) attempted to log into switch with an incorrect password from 16.129.80.65-2592
	Thu Sep 09 08:37:26 EDT 2004	28q FC Switch	Switch	[8400.0022]Successful login user (ms@OB-session4) with admin privilege
	Thu Sep 09 08:42:26 EDT 2004	28q FC Switch	Switch	[8400.002C]User login session 4 user (ms@OB-session4) has timed out
●	Thu Sep 09 10:03:34 EDT 2004	28q FC Switch	Switch	[8400.002A]User (admin) attempted to log into switch with an incorrect password from 16.129.80.65-1070
	Thu Sep 09 10:03:34 EDT 2004	28q FC Switch	Switch	[8400.0022]Successful login user (ms@OB-session5) with admin privilege
	Thu Sep 09 10:08:34 EDT 2004	28q FC Switch	Switch	[8400.002C]User login session 5 user (ms@OB-session5) has timed out
	Fri Sep 10 05:17:44 EDT 2004	28q FC Switch	Switch	[8400.0022]Successful login user (admin@OB-session6) with admin privilege
●	Fri Sep 10 05:24:52 EDT 2004	28q FC Switch	Switch	[8400.002A]User (admin) attempted to log into switch with an incorrect password from 16.129.80.65-4068
	Fri Sep 10 05:25:01 EDT 2004	28q FC Switch	Switch	[8400.0023]Successful login user (admin@OB-session7) with admin privilege from address 16.129.80.65-4070
	Fri Sep 10 05:26:14 EDT 2004	28q FC Switch	Switch	[8400.002C]User login session 6 user (admin@OB-session6) has timed out
	Fri Sep 10 09:24:36 EDT 2004	16.129.82.149 (Unknown)	Fabric Change	[8F00.0005] Added Fabric "16.129.82.149 (Unknown)"
	Fri Sep 10 09:24:36 EDT 2004	Connection to:16.129.82.149	Login Change	[8F00.0008] Login failed
⚠	Fri Sep 10 09:24:36 EDT 2004	16.129.82.149 (Entry Switch Login Failed)	Fabric Status	[8F00.000C] Unknown
	Fri Sep 10 09:24:36 EDT 2004	16.129.82.149 (Entry Switch Login Failed)	Fabric Change	[8F00.0005] Removed Fabric "16.129.82.149 (Entry Switch Login Failed)"
	Fri Sep 10 09:24:44 EDT 2004	16.129.82.149 (Unknown)	Fabric Change	[8F00.0005] Added Fabric "16.129.82.149 (Unknown)"
	Fri Sep 10 09:24:44 EDT 2004	Connection to:16.129.82.149	Login Change	[8F00.0008] Super user
	Fri Sep 10 09:24:45 EDT 2004	16.129.82.149 (Unknown)	Fabric Change	[8F00.0007] Discovered Switch "10.00.00:c0:d0:03:d0:3c"
	Fri Sep 10 09:24:45 EDT 2004	10.00.00:c0:d0:03:d0:3c	Switch Status	[8F00.000D] Normal
	Fri Sep 10 09:24:45 EDT 2004	16.129.82.149 (Normal)	Fabric Status	[8F00.000C] Normal

1 Severity column

2 Column sorting buttons

Figure 13: Event Browser

**Note:**

- Events that are generated by the application are not saved on the switch. They are permanently discarded when you close a Switch Manager session, but you can save these events to a file on the workstation before closing Switch Manager and can read it later with a text editor or browser.
- Events that are generated by the switch are stored on the switch, and retrieved when the application is restarted. Some alarms are configurable. See [“Configuring port threshold alarms”](#) on page 66.

Table 7: Event severity levels

Severity Icon	Description
	Alarm—An Alarm is any event that is a “serviceable event.” This means that attention by the user or field service is required. Alarms are events that get posted asynchronously to the screen. Alarms cannot be turned off. If the alarm denotes that a system error has occurred, the customer or field representative will be directed to provide a “show support” capture of the switch.
	Critical Event—An event generated by the Switch Manager application and indicates a potential failure. Critical log messages are events that warrant notice by the user. By default, these log messages are posted to the screen. Critical log messages do not have alarm status because they require no immediate attention from a user or service representative.
	Warning Event—An event generated by the Switch Manager application that indicates errors or other conditions that may require attention to maintain maximum performance. Warning messages are not posted to the screen unless the log is configured to do so. Warning messages are not disruptive and therefore do not meet the criteria of Critical. The user need not be informed asynchronously.
No icon	Informative—An unclassified event generated by the Switch Manager application that provides supporting information.

## Filtering the Event Browser

Filtering the Event Browser enables you to display only those events that are of interest based on the event severity, timestamp, source, type, and description. To filter the Event Browser, select **Filter > Filter Entries**. This opens the Filter Events dialog box (Figure 14). The Event Browser displays those events that meet all of the criteria in the Filter Events dialog box. If the filtering criteria is cleared or changed, all the events that were previously hidden that satisfy the new criteria are shown.

You can filter the event browser in the following ways:

- **Severity**—Check one or more of the corresponding check boxes to display alarm events, critical events, warning events, or informative events.
- **Date/Time**—Check one or both of the From: and To: check boxes. Enter the bounding timestamps (MM/dd/yy hh:mm:ss aa) to display only those events that fall within those times. (“aa” indicates AM or PM.) The current year (yy) can be entered as either 2 or 4 digits. For example, 12/12/03 will be interpreted December 12, 2003.
- **Text**—Check one or more of the corresponding check boxes and enter a text string (case sensitive) for event source, type, and description. The Event Browser displays only those events that satisfy all of the search specifications for the Source, Type, and Description text.

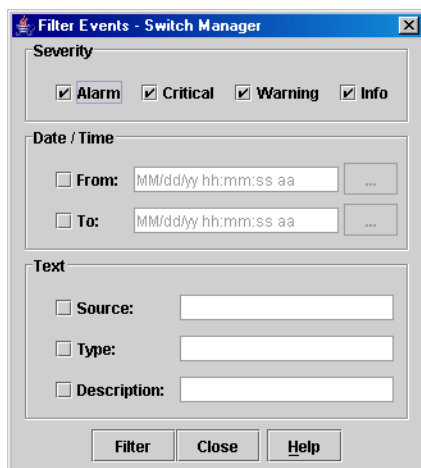


Figure 14: Filter Events dialog box

## Sorting the Event Browser

Sorting the Event Browser enables you to display the events in alphanumeric order based on the event severity, timestamp, source, type, or description. Initially, the Event Browser is sorted in ascending order by timestamp.

To sort the Event Browser, click the **Severity**, **Timestamp**, **Source**, **Type**, or **Description** column buttons. You can also open the **Sort** menu and then select **By Severity**, **By Timestamp**, **By Source**, **By Type**, or **By Description**. Successive sort operations of the same type alternate between ascending and descending order.

### Saving the Event Browser to a file

To save the Event Browser to a file:

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**Note:** Filtered events are not saved.

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1. Filter and sort the Event Browser to obtain the desired display.
2. Select **File > Save As**.
3. Select a folder and enter a file name in which to save the event log, and then click **Save**.

The file can be saved in XML, CSV, or text format. XML files can be opened with an internet browser or text editor. CSV files can be opened with Microsoft Excel or most spreadsheet applications.

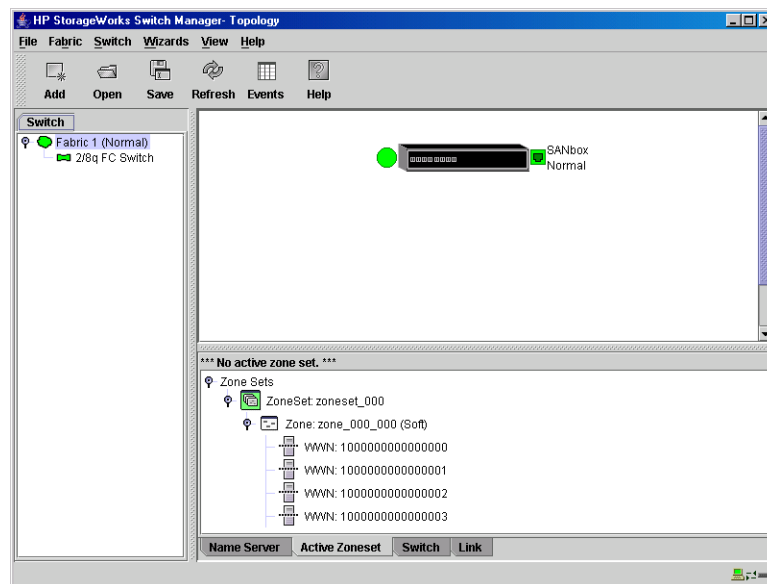
### Active Zoneset data window

The Active Zoneset data window displays the zone membership for the active zone set that resides on the fabric management switch.

To open the Active Zoneset data window, click the **Active Zoneset** tab below the data window in the topology display. See “[Configured Zonesets data windows](#)” on page 65 for information about the zone set definitions on a particular switch. See “[Zoning a fabric](#)” on page 45 for more information about zone sets and zones.

The Active Zoneset data window ([Figure 15](#)) uses display conventions for expanding and contracting entries that are similar to the fabric tree. An entry handle located to the left of an entry in the tree indicates that the entry can be expanded. Click this handle or double-click the following entries:

- A zone set entry expands to show its member zones.
- A zone entry expands to show its member port/devices.
- WWN and FC devices that are zoned, but no longer part of the fabric, are grayed-out.



**Figure 15: Active Zoneset data window**

## Zoning a fabric

Zoning enables you to divide the ports and devices of the fabric into zones for more efficient and secure communication among functionally grouped nodes. This subsection addresses the following topics:

- [Zoning concepts](#), page 45
- [Using the Zoning Config dialog box](#), page 48
- [Restoring default zoning](#), page 48
- [Merging fabrics and zoning](#), page 49
- [Using the Edit Zoning dialog box](#), page 49
- [Managing zone sets](#), page 52
- [Managing zones](#), page 54
- [Managing aliases](#), page 56
- [Saving the Zoning Database to a File](#), page 57

## Zoning concepts

The following zoning concepts provide some context for the zoning tasks described in this section:

- [Zones](#)
- [Aliases](#)
- [Zone sets](#)
- [Zoning database](#)
- [Zoning configuration](#)

### Zones

A zone is a named group of ports or devices that can communicate with each other. Devices within a zone can only communicate with other devices in the same zone. A device may participate in more than one zone.

Membership in a zone can be defined by switch domain ID and port number, device Fibre Channel address, or device World Wide Name (WWN).

- WWN entries define zone membership by the World Wide Name of the attached device. With this membership method, you can move WWN member devices to different switch ports in different zones without having to edit the member entry as you would with a domain ID/port number member. Furthermore, unlike FCID members, WWN zone members are not affected by changes in the fabric that could change the Fibre Channel address of an attached device.
- FCID entries define zone membership by the Fibre Channel address of the attached device. With this membership method you can replace a device on the same port without having to edit the member entry as you would with a WWN member.
- Domain ID/Port number entries define zone membership by switch domain ID and port number. All devices attached to the specified port become members of the zone. The specified port must be an F\_Port or an FL\_Port.

Two types of zones are supported. The following zone types define increasingly restrictive levels of communication.

- Soft zones
- Hard zones (ACL zoning)

### ***Soft Zones***

Soft zoning divides the fabric for purposes of controlling discovery. Devices within the same soft zone automatically discover and communicate freely with all other members of the same zone. The soft zone boundary is not secure; traffic across soft zones can occur if addressed correctly. Soft zone boundaries yield to ACL zone boundaries. Soft zones can overlap; that is, a device can participate in more than one soft zone. Zone membership can be defined by Fibre Channel address, domain ID and port number, World Wide Name, or a combination. Soft zoning supports all port types.

### ***Hard Zoning (ACL Zoning)***

Access Control List (ACL) zoning divides the fabric for purposes of controlling discovery and inbound traffic. ACL zoning is a type of hard zoning that is hardware enforced. This type of zoning is useful for controlling access to certain devices without totally isolating them from the fabric. Devices can communicate with each other and transmit outside the ACL zone, but cannot receive inbound traffic from outside the zone. The ACL zone boundary is secure against inbound traffic. ACL zones can overlap; that is, a port can be a member of more than one ACL zone. ACL zone boundaries supersede soft zone boundaries. Membership can be defined only by domain ID and port number. ACL zoning supports all port types.

### **Aliases**

To make it easier to add a group of ports or devices to one or more zones, you can create an alias. An alias is a named set of ports or devices that are grouped together for convenience. Unlike zones, aliases impose no communication restrictions between its members. You can add an alias to one or more zones. However, you cannot add a zone to an alias, nor can an alias be a member of another alias.

### **Zone sets**

A zone set is a named group of zones. A zone can be a member of more than one zone set. All zones that are not members of a zone set belong to the orphan zone set. The orphan zone set is saved on the switch. Each switch in the fabric maintains its own zoning database containing one or more zone sets. This zoning database resides in non-volatile or permanent memory and is therefore retained after a reset. See “[Configured Zonesets data windows](#)” on page 65 for information about displaying the zoning database.

To apply zoning to a fabric, choose a zone set and activate it. When you activate a zone set, the switch distributes that zone set and its zones, excluding aliases, to every switch in the fabric. This zone set is known as the active zone set. See “[Active Zoneset data window](#)” on page 44 for information about displaying the active zone set.

### **Zoning database**

Each switch has its own zoning database. The zoning database is made up of all aliases, zones, and zone sets that have been created on the switch or received from other switches. The switch maintains two copies of the inactive zoning database: one copy is maintained in temporary memory for editing purposes; the second copy is maintained in permanent memory. Zoning database edits are made on an individual switch basis and are not propagated to other switches in the fabric when saved.

The zoning limits for a fabric are as follows:

- **MaxZoneSets is 256**—The maximum number of zone sets that can be configured on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric.
- **MaxZones is 256**—The maximum number of zones that can be configured on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric.
- **MaxAliases is 256**—The maximum number of aliases that can be configured on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric.
- **MaxTotalMembers is 2000**—The maximum number of total zone and alias members that can be configured on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric. Aliases are considered zone members since they can be added to a zone just like a normal zone member.
- **MaxZonesInZoneSets is 1000**—The maximum number of zone linkages to zone sets that can be configured on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric. Every time a zone is added to a zoneset this constitutes a linkage.
- **MaxMembersPerZone is 2000**—The maximum number of zone members that can be added to any zone on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric. Aliases are considered zone members when added to a zone.
- **MaxMembersPerAlias is 2000**—The maximum number of zone members that can be added to any alias on the switch. This is enforced during the configuration of zoning and during a zoning database merge from the fabric.

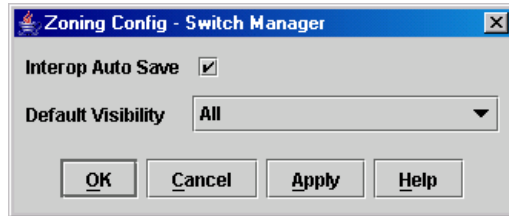
### Zoning configuration

You can set the Interop Auto Save and Default Visibility zoning configuration parameters using Switch Manager. The Interop Auto Save parameter determines whether changes to the active zone set that a switch receives from another switch in the fabric is saved to permanent memory on that switch. Interop Auto Save is not supported at this time. The Default Visibility parameter permits or prohibits communication among ports/devices when there is no active zone set. See “[Using the Zoning Config dialog box](#)” on page 48 for information about zoning configuration using Switch Manager.



## Using the Zoning Config dialog box

Use the Zoning Config dialog box to change the Interop Auto Save and Default Visibility configuration parameters. In the faceplate display, select **Zoning > Edit Zoning Config** to open the Zoning Config dialog box (Figure 16). After making changes, click **OK** to put the new values into effect.



**Figure 16: Zoning Config dialog box**

### Interop Auto Save parameter

The Interop Auto Save parameter determines whether changes to the active zone set that a switch receives from other switches in the fabric is saved to the zoning database on that switch. Changes are saved when an updated zone set is activated. Zoning changes are always saved to temporary memory. However, if Interop Auto Save is enabled, the switch firmware saves changes to the active zone set in temporary memory and to the zoning database. If Interop Auto Save is disabled, changes to the active zone set are stored only in temporary memory, which is cleared when the switch is reset. Interop Auto Save is not supported at this time.

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**Note:** Disabling the Interop Auto Save parameter can be useful to prevent the propagation of zoning information when experimenting with different zoning schemes. However, leaving the Interop Auto Save parameter disabled can disrupt device configurations should a switch have to be reset. For this reason, the Interop Auto Save parameter should be enabled in a production environment. Interop Auto Save is not supported at this time.

---

### Default Visibility parameter

Default visibility determines the level of communication that is permitted among ports/devices when there is no active zone set. The default visibility parameter can be set differently on each switch. When default visibility is enabled (ALL) on a switch, all ports/devices on the switch can communicate with all ports/devices on switches that also have default visibility enabled. When Default Visibility is disabled (NONE), none of the ports/devices on that switch can communicate with any other port/device in the fabric.

## Restoring default zoning

Restoring the default zoning clears the switch of all zoning definitions.



**Caution:** This command deactivates the active zone set.

---

1. In the faceplate display, select **Zoning > Restore Default Zoning**.
2. Click **OK** to restore default zoning and save changes to the zoning database.



## Merging fabrics and zoning

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**Note:** HP does not support merging fabrics.

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### Zone merge failure

A zone merge fails if the two active zone sets have member zones with identical names that differ in membership or type. For example, consider Fabric A and Fabric B, each with a soft zone named “ZN1” in its active zone set. Fabric A “ZN1” contains a member specified by Domain ID 1 and Port 1; Fabric B “ZN1” contains a member specified by Domain ID 1 and Port 2. In this case, the merge fails because the two zones have the same name, but different membership.

### Zone Merge failure recovery

When a zone merge failure occurs, the conflict that caused the failure must be resolved. You can correct a failure due to a zone conflict by deactivating one of the active zone sets or by editing the conflicting zones so that their membership is the same. You can deactivate the active zone set on one fabric if the active zone set on the other fabric accurately defines your zoning needs. If not, you must edit the zone memberships, and reactivate the zone sets. After correcting the zone membership, reset the isolated ports to allow the fabrics to join.

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**Note:** If you deactivate the active zone set in one fabric and the Interop Auto Save parameter is enabled, the active zone set from the second fabric propagates to the first fabric and replace all zones with matching names in the configured zone sets. Interop Auto Save is not supported at this time.

If the zone sets to merge have the same Zone A that only differ in the type of zone (soft vs. hard), the zone sets merge. If this is a 2 switch fabric, Switch 1 states that Zone A is soft and Switch 2 states that Zone A is ACL.

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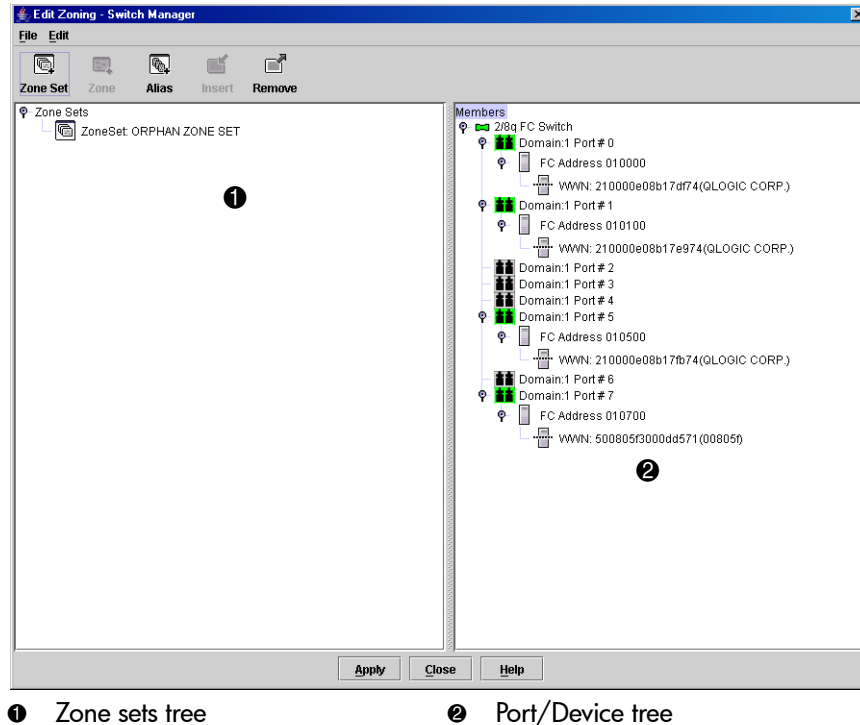
See “[Managing zones](#)” on page 54 for information about adding and removing zone members. See “[Resetting a port](#)” on page 89 for information about resetting a port.

## Using the Edit Zoning dialog box

To edit the zoning database for a particular switch, select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed ([Figure 17](#)). Changes can only be made to inactive zone sets, which are stored in flash (non-volatile) memory and retained after resetting a switch.

To apply zoning to a fabric, choose a zone set and activate it. When you activate a zone set, the switch distributes that zone set and its zones, excluding aliases, to every switch in the fabric. This zone set is known as the active zone set.

You can not edit an active zone set on a switch. You must configure an inactive zone set to your needs and then activate that updated zone set to apply the changes to the fabric. When you activate a zone set, the switch distributes that zone set to the temporary zoning database on every switch in the fabric. In addition to the merged active zone set, each switch maintains its own original zone set in its zoning database. Only one zone set can be active at one time.



① Zone sets tree

② Port/Device tree

**Figure 17: Edit Zoning dialog box**

**Note:** If the Interop Mode parameter is enabled on the Switch Properties dialog box, every time the active zone set changes, the switch copies it into an inactive zone set stored on the switch. You can edit this copy of the active zone set stored on the switch, and activate the updated copy to apply the changes to the active zone set. The edited copy then becomes the active zone set.












As illustrated in [Figure 17](#), the Edit Zoning dialog box has a Zone Sets tree and a Port/Device (or members) tree. Both trees use display conventions similar to the fabric tree for expanding and contracting zone sets, zones, and ports. An expanded port shows the port Fibre Channel address; an expanded address shows the port World Wide Name. Select items as follows:

- Click a zone, zone set, or port icon.
- Right-click to select a zone set or zone, and then open the corresponding menu.
- Hold down **Shift** while clicking several consecutive icons.
- Hold down **Ctrl** while clicking several non-consecutive icons. Using tool bar buttons, menus, or a drag-and-drop method, you can create and manage zone sets and zones in the zoning database. [Table 8](#) describes the zoning tool bar operations.

After defining zoning changes, click **OK** to implement those changes and exit the Edit Zoning dialog box. Click **Apply** to save changes without closing the Edit Zoning dialog box. Before zoning changes are implemented, Switch Manager checks for and reports zoning conflicts:

- Empty zone sets
- Empty zones
- Empty aliases
- ACL zones with non-domain ID/port number membership

**Table 8: Edit Zoning dialog box tool bar buttons and icons**

Tool bar button / icon	Description
 Zone Set	Create Zone Set—Create a new zone set
 Zone	Create Zone—Create a new zone
 Alias	Create Alias—Create another name for a set of objects
 Insert	Insert Member—Add the selected zone to a zone set, or add the selected port/device to a zone
 Remove	Remove Member—Delete the selected zone from a zone set, or delete the selected port/device from a zone
	Switch port—Not logged in
	Switch port—Logged in
	NL_Port (loop) device—Logged into fabric
	NL_Port (loop) device—Not logged into fabric
	N_Port device—Logged into a fabric
	N_Port device—Not logged into a fabric

## Managing zone sets

Zoning a fabric involves creating a zone set, creating zones as zone set members, and then adding devices as zone members. The zoning database supports multiple zone sets to serve the different security and access needs of your storage area network, but only one zone set can be active at one time. Managing zone sets consists of the following tasks:

- [Creating a zone set](#)
- [Activating and deactivating a zone set](#)
- [Copying a zone to a zone set](#)
- [Removing a zone from a zone set or from all zone sets](#)
- [Removing a zone set](#)
- [Removing all zoning definitions](#)

---

**Note:** Changes that you make to the zoning database are limited to the managed switch and do not propagate to the rest of the fabric. To distribute changes to configured zone sets fabric wide, you must edit the zoning databases on the individual switches.

---

### Creating a zone set

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed ([Figure 17](#)).
2. Select **Edit > Create Zone Set**. The Create Zone Set dialog box is displayed.
3. Enter a name for the zone set, and then click **OK**. The new zone set name is displayed in the Zone Sets dialog box. A zone set name must begin with a letter and be no longer than 64 characters. Valid characters are 0-9, A-Z, a-z, \_, -, ^, and \$.
4. To create new zones in a zone set, do one of the following:
  - Right-click a zone set and then select **Create A Zone** from the menu. In the Create a Zone dialog box, enter a name for the new zone, and then click **OK**. The new zone name is displayed in the Zone Sets dialog box.
  - Copy an existing zone by dragging a zone into the new zone set. See “[Copying a zone to a zone set](#)” on page 53.
5. Click **Apply** to save changes to the zoning database.

### Activating and deactivating a zone set

You must activate a zone set to apply its zoning definitions to the fabric. Only one zone set can be active at one time. When you activate a zone set, the switch distributes that zone set to the temporary zoning database on every switch in the fabric.

The purpose of the deactivate function is to suspend all fabric zoning, which results in free communication fabric wide or no communication depending on the default visibility setting. See “[Default Visibility parameter](#)” on page 48 for more information. It is not necessary to deactivate the active zone set before activating a new one.

- To activate a zone set, select **Zoning > Activate Zone Set**. The Activate Zone Set dialog box is displayed. Select a zone set from the Select Zone Set menu, and then click **Activate**.
- To deactivate the active zone set, select **Zoning > Deactivate Zone Set**. Acknowledge the warning about traffic disruption, and then click **Yes** to confirm that you want to deactivate the active zone set.

### Copying a zone to a zone set

To copy an existing zone and its membership from one zone set to another, Do the following:

1. Select the zone and drag it to the chosen zone set.
2. Click **Apply** to save changes to the zoning database.

### Removing a zone from a zone set or from all zone sets

You can remove a zone from a zone set or from all zone sets in the database.

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the zone(s) to be removed from the Zone Sets tree.
3. Select **Edit > Remove** to remove the zone from the zone set, or select **Remove from All Zones** to remove the zone from all zone sets.
4. Click **Apply** to save changes to the zoning database.

Alternatively, you may use shortcut menus to remove a zone from a zone set or from all zone sets in the database.

### Removing a zone set

Removing a zone set from the database affects the member zones in the following ways:

- Member zones that are members of other zone sets are not affected.
  - Member zones that are not members of other zone sets become members of the orphan zone set. The orphan zone set is saved on the switch.
1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
  2. Select the zone set to be removed in the Zone Sets tree.
  3. Select **Edit > Remove** to remove the zone set.
  4. Click **Apply** to save changes to the zoning database.

Alternatively, you may use shortcut menus to remove a zone set from the database.

### Removing all zoning definitions

To clear all zone and zone set definitions from the zoning database, choose one of the following:

- Select **Edit > Clear Zoning**, and then click **Yes** in the Removes All dialog box to confirm that you want to delete all zones and zone sets.
- Right-click the Zone Sets heading at the top of the Zone Sets tree, and then select **Clear Zoning** from the menu. Click **Yes** to confirm that you want to delete all zone sets and zones.

## Managing zones

Managing zones involves the following:

- [Creating a zone in a zone set](#)
- [Adding zone members](#)
- [Creating a member](#)
- [Renaming a zone or a zone set](#)
- [Removing a zone member](#)
- [Removing a zone from a zone set](#)
- [Removing a zone from all zone sets](#)
- [Changing zone types](#)

---

**Note:** Changes that you make to the zoning database are limited to the managed switch and do not propagate to the rest of the fabric. To distribute changes to configured zone sets fabric wide, you must edit the zoning databases on the individual switches.

---

### Creating a zone in a zone set

When a zone is created, its zone type is soft. To change the zone type to a hard zone, refer to “[Changing zone types](#)” on page 56 for more information. See “[Zones](#)” on page 45 for information on zone types (soft and hard).

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed ([Figure 17](#)).
2. Select a zone set.
3. Select **Edit > Create a Zone**. The Create a Zone dialog box is displayed.
4. Enter a name for the new zone.
5. Click **OK**.

The new zone name is displayed in the Zone Sets dialog box. A zone name must begin with a letter and be no longer than 64 characters. Valid characters are 0-9, A-Z, a-z, \_, ^, \$, and -.

---

**Note:** If you enter the name of a zone that already exists in the database, the Switch Manager asks if you would like to add that zone and its membership to the zone set.

---

6. To add switch ports or attached devices to the zone, do one of the following:
  - In the zone set tree, select the zone set. In the graphic window, select the port to add to the zone. Select **Edit > Add Members**.
  - Select a port by port number, Fibre Channel address, or World Wide Name in the Port/Device tree, and drag it into the zone.
  - Select a port by port number, Fibre Channel address, or World Wide Name in the Port/Device tree. Right-click the zone and then select **Add Zone Members**.
7. Click **Apply** to save changes to the zoning database.

### Adding zone members

Adding a zone member to a zone affects every zone set in which that zone is a member. To add member ports/devices to a zone, do one of the following:

- Select a port by port number, Fibre Channel address, or World Wide Name in the Port/Device tree, and drag it into the zone. To select and drag multiple ports/devices, press and hold **Ctrl** while dragging.
- Select one or more ports by port number, Fibre Channel address, or World Wide Name in the Port/Device tree. Right-click the zone and then select **Add Zone Members** from the menu.
- Select **Edit > Create Members**. Choose the WWN, Domain/Port, or First Port Address option and enter the port hex value.

Click **Apply** to save changes to the zoning database.

---

**Note:** Domain ID conflicts can result in automatic reassignment of switch domain IDs. These reassignments are not reflected in zones that use domain ID/port number pair to define their membership. Be sure to reconfigure zones that are affected by a domain ID change.

---

### Creating a member

The Create a Member dialog box allows you to add a member to a zone or alias that can not be added using the drag/drop method.

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the zone or alias in the left pane in which to add a member.
3. Select **Edit > Create Members**. The Create a Member dialog box is displayed.
4. Click **WWN, Domain Port, or FC Address**.
5. Enter the hexadecimal value for the new zone member. Enter 16 digits for a WWN member, 4 digits for a Domain Port member (DDPP), or 6 digits for an FC Address member (DDPPAA - D=Domain ID, P=PortNumber, A=ALPA).
6. Click **OK**.

### Renaming a zone or a zone set

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the zone/zone set to be renamed in the Zone Sets tree.
3. Select **Edit > Rename**. The Rename Zone/Rename Zone Set dialog box is displayed.
4. Enter a new name for the zone/zone set.
5. Click **OK**.

### Removing a zone member

Removing a zone member affects every zone and zone set in which that zone is a member.

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the zone member to be removed.
3. Select **Edit > Remove**.
4. Click **OK**.

### Removing a zone from a zone set

Zones that are no longer members of any zone set are moved to the orphan zone set. The orphan zone set is saved on the switch.

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the zone to be removed in the Edit Zoning dialog box.  
The selected zone is removed from that zone set only.
3. Select **Edit > Remove**.
4. Click **OK**.

### Removing a zone from all zone sets

Zones that are no longer members of any zone set are moved to the orphan zone set. The orphan zone set is saved on the switch. To remove a zone from all zone sets including the orphan zone set:

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the zone to be removed in the Edit Zoning dialog box.
3. Select **Edit > Remove Zone from All Sets**.
4. Click **OK**.

### Changing zone types

1. Select the switch with the zone type to change in the faceplate display.
2. Select **Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
3. Select the zone to change in the Zone Sets tree.
4. Select **Edit > Set Zone Type**. The Set Zone Type dialog box is displayed.
5. Select **Soft** or **ACL** from the **Zone Type** drop-down list.
  - Soft zoning is the least restrictive type of zoning.
  - ACL zoning is hard zoning and is enforced by hardware and defines access to a given port.

## Managing aliases

An alias is a collection of objects that can be zoned together. An alias is not a zone, and can not have a zone or another alias as a member. Managing aliases includes:

- [Creating an alias](#)
- [Adding a member to an alias](#)
- [Removing an alias from all zones](#)

---

**Note:** Changes that you make to the zoning database are limited to the managed switch and do not propagate to the rest of the fabric. To distribute changes to configured zone sets fabric wide, you must edit the zoning databases on the individual switches. You do not see aliases in the active zone set.

---



### Creating an alias

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select **Edit > Create Alias**. The Create Alias dialog box is displayed.
3. Enter a name for the alias, and then click **OK**.

The alias name is displayed in the Zone Sets dialog box. An alias name must begin with a letter and be no longer than 64 characters. Valid characters are 0-9, A-Z, a-z, \_, \$, ^, and -.

4. Click **OK**.

### Adding a member to an alias

You can add a member to an alias in the following ways:

- Drag-and-drop method.
- Select the alias in the left pane and the member in the right pane to add to that alias, and then click **Insert**.
- Select the alias in the left pane and the member in the right pane to add to that alias, and then select **Edit > Add Members**.

To add a member to an alias using the drag-and-drop method:

1. On the member to be added, click and hold down the mouse button.
2. Drag the selected member from the right pane to the alias in the left pane.

To add a member to an alias using the menu options:

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select an alias in the left pane.
3. Select the member to add to the selected alias in the right pane.
4. Choose one of the following:
  - Select **Edit > Add Members**.
  - Click **Insert**.
5. Click **OK**.

### Removing an alias from all zones

To remove an alias from all zones:

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select the alias to be removed in the Zone Sets tree.
3. Select **Edit > Remove Alias from All Zones**. The Remove dialog box is displayed.
4. Click **Yes**.

## Saving the Zoning Database to a File

You can save the zoning database to an XML file. You can later reload this zoning database on the same switch or another switch.

1. Select **Zoning > Edit Zoning**. The Edit Zoning dialog box is displayed (Figure 17).
2. Select **File > Save As**. The Save dialog box is displayed.
3. Enter a file name for the database file.
4. Click **Save**.

## Managing switches

This section describes the following tasks that manage switches in the fabric.

- [Managing user accounts](#), page 58
- [Displaying switch information](#), page 62
- [Configuring port threshold alarms](#), page 66
- [Exporting name server information to a file](#), page 67
- [Paging a switch](#), page 67
- [Setting the date/time and NTP client](#), page 68
- [Resetting a switch](#), page 68
- [Configuring a switch](#), page 68
- [Archiving a switch configuration](#), page 75
- [Restoring a switch configuration](#), page 75
- [Restoring the factory default configuration](#), page 77
- [Downloading a support file](#), page 78
- [Installing firmware](#), page 78
- [Displaying hardware status](#), page 79

## Managing user accounts

Only the Admin account can manage user accounts with the User Account Administration dialog box. However, any user can modify their own password. Select **Switch > User Accounts**. The User Account Administration dialog box is displayed. A user account includes an account name or login, password, authority level, and expiration date.

Switches come from the factory with the following user accounts:

**Table 9: Factory Supplied User Accounts**

Account name	Password	Admin authority	Expiration
admin	admin	true	never expires
images	images	false	never expires

The Admin account can create, remove, or modify user accounts, and change account passwords. The Admin account can also view and modify the switch and its configuration with Switch Manager. The Admin account can not be removed. Users without Admin authority are limited to viewing switch status and configuration.

The Images account can not be removed, and is required for exchanging files with the switch using FTP.

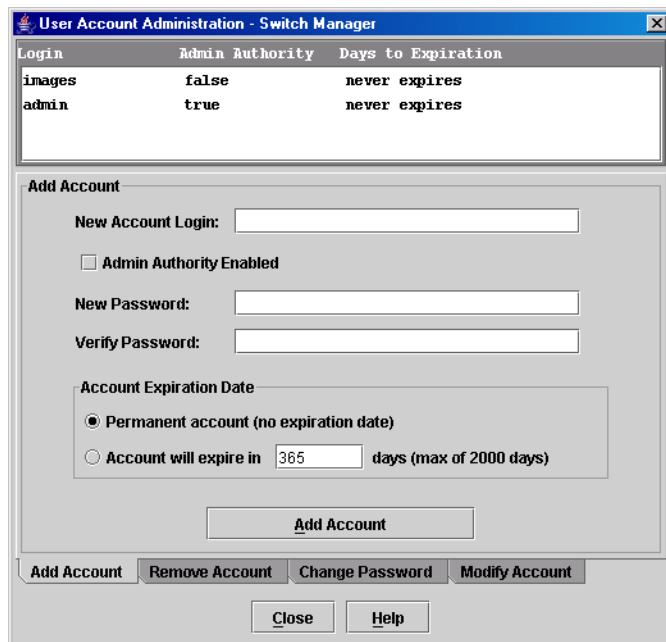
Managing user accounts includes:

- [Creating user accounts](#)
- [Removing a user account](#)
- [Changing a user account password](#)
- [Modifying a user account](#)

## Creating user accounts

A switch can have a maximum of 15 user accounts.

1. Select **Switch > User Accounts**. The User Account Administration dialog box is displayed (Figure 18).



**Figure 18: User Account Administration dialog box – Add Account**

2. Click the **Add Account** tab at the bottom of the dialog box. The Add Account tab is displayed.
3. Enter an account name in the **New Account Login** box. Account names are limited to 15 characters.
4. Click the **Admin Authority Enabled** check box to grant admin authority to the account name.
5. Enter a password in the **New Password** box and enter it again in the **Verify Password** box. A password must have a minimum of 4 characters and no more than 20.
6. Select an option from the **Account Expiration Date** area.
7. Click **Add Account**.

## Removing a user account

1. Select **Switch > User Accounts**. The User Account Administration dialog box is displayed (Figure 18).
2. Click the **Remove Account** tab at the bottom of the dialog box. The Remove Account tab is displayed (Figure 19).
3. Select the account (login) name from the list of accounts at the top of the dialog box, and then click **Remove Account**.

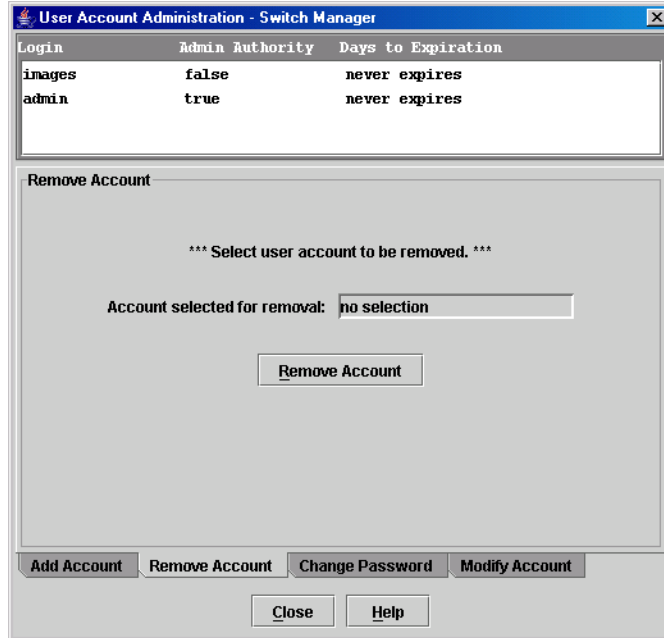


Figure 19: User Account Administration dialog box – Remove Account

## Changing a user account password

1. Select **Switch > User Accounts**. The User Account Administration dialog box is displayed.
2. Click the **Change Password** tab at the bottom of the dialog box. The Change Password tab is displayed (Figure 20).
3. Select the account (login) name from the list of accounts at the top of the dialog box,
4. Enter the password in the **Old Password**, **New Password**, and **Verify Password** boxes.
5. Click **Change Password**.

Any user can change their password for their account, but only the Admin account name can change the password for another user's account. If the administrator does not know the user's original password, the administrator must remove the account, and then add the account again.

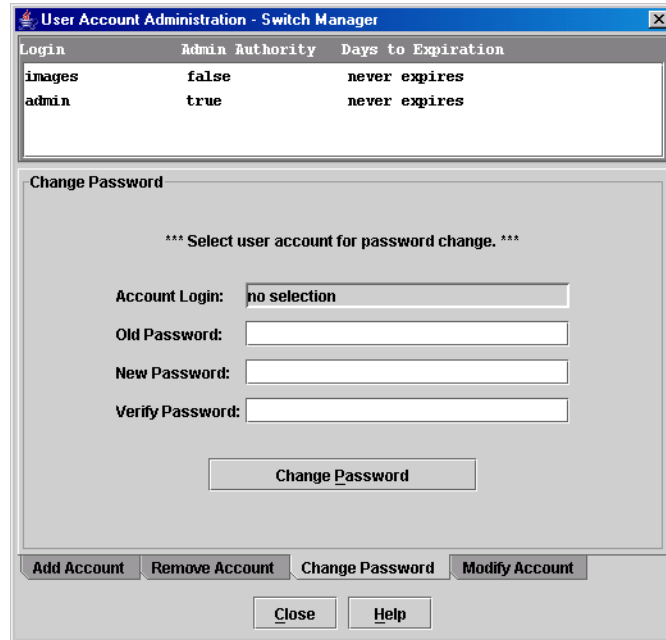


Figure 20: User Account Administration dialog box – Change Password

## Modifying a user account

1. Select **Switch > User Accounts**. The User Account Administration dialog box is displayed.
2. Click the **Modify Account** tab at the bottom of the dialog box. The Modify Account tab is displayed (Figure 21).

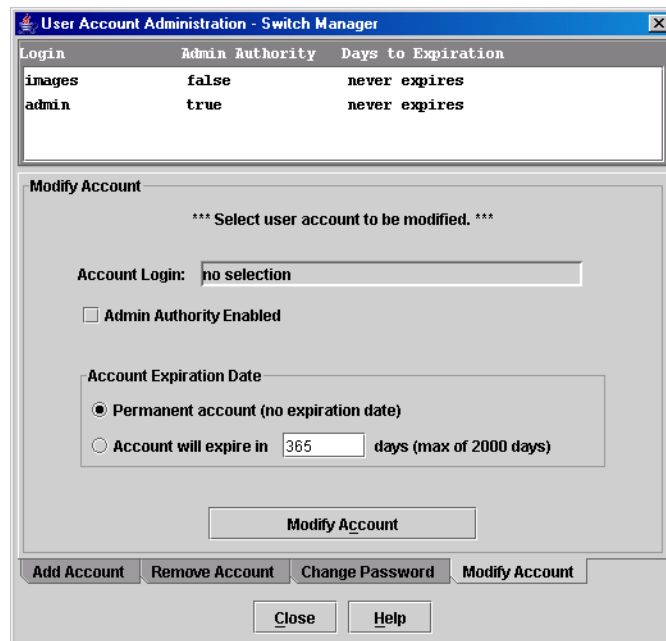


Figure 21: User Account Administration dialog box—Modify Account

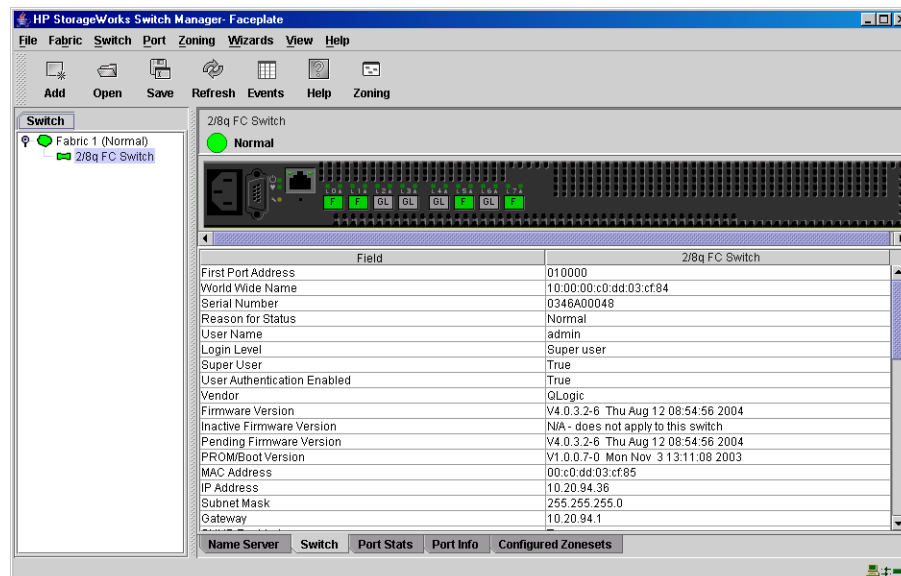
3. Select the account (login) name from the list of accounts at the top of the dialog box.

4. Click the **Admin Authority Enabled** check box to grant admin authority to the account name.
5. Select an option from the **Account Expiration Date** area.
6. Click **Modify Account**.
7. Click **Close**.

## Displaying switch information

The following faceplate display and data windows provide information about the name server, the device and HBA, switch specifications and addresses, configuration parameters, performance statistics, port information and configured zone sets information.

- [Name Server data window](#), page 63
- [Switch data window](#), page 63
- [Link data window](#), page 64
- [Port Statistics data window](#), page 64
- [Port Information data window](#), page 65
- [Configured Zonesets data windows](#), page 65



**Figure 22: Faceplate display—Switch data window**

The fabric updates the topology and faceplate displays by forwarding changes in status to the management system as they occur. You can allow the fabric to update the switch status, or you can refresh the display at any time.

To refresh switch status in the display, do one of the following:

- Click **Refresh**.
- Select **View > Refresh**.
- Press **F5**.
- Right-click a switch in the topology display, and then select **Refresh Switch**.
- Right-click in the graphic window of the faceplate display, and then select **Refresh Switch**.

## Name Server data window

The Name Server data window displays information about the devices that are logged into the fabric. Click the **Name Server** tab below the data window to display name server information for all devices that are logged into the selected fabric. To narrow the display to devices that are logged into specific switches, select one or more switches in the fabric tree or the topology display. See [Table 10](#) for a description of the entries in the Name Server data window and refer to “[Exporting name server information to a file](#)” on page 67 for more information.

**Table 10: Name Server data window entries**

Entry	Description
Target/Initiator	Device type: target or initiator
Switch	Switch name
Port	Switch port address
Address	Fibre Channel address
Type	Node type
WWNN	World Wide Node Name
WWPN	World Wide Port Name
Vendor	Host Bus Adapter/Device vendor
FC-4 types	Device Fibre Channel protocol types
Active zones	The active zone to which the device belongs

## Switch data window

The Switch data window displays current network and switch information for the selected switches. See “[Configuring a switch](#)” on page 68 for more information about the Switch data window. To open the Switch data window, select one or more switches in the topology display, or open the faceplate display, and then click the **Switch** tab below the data window. [Table 11](#) describes the Switch data window entries.

**Table 11: Switch data window entries**

Entry	Description
First port address	Switch Fibre Channel address
World Wide Name	Switch World Wide Name
Serial number	Number assigned to each switch chassis (required for license keys)
Reason for status	Additional status information
User name	Account name
Login level	Authority level
Super user	Super user privileges enabled/disabled
User authentication enabled	Enforcement of account names and authority
Vendor	Switch manufacturer
Firmware version	Active firmware version
Inactive firmware version	This does not apply to this switch
Pending firmware version	Firmware version that is activated at the next reset

**Table 11: Switch data window entries (Continued)**

Entry	Description
PROM/Boot version	PROM boot version
MAC address	Media Access Control address
IP address	Internet Protocol address
Subnet mask	Mask that determines the IP address subnet
Gateway	Gateway address
SNMP enabled	SNMP enabled/disabled
Negotiated domain ID	The domain ID currently being used by the fabric
Configured domain ID	The domain ID defined by the network administrator
Domain ID lock	Domain ID lock status (prevents (true) or permits (false) dynamic domain ID reassignment)
Number of ports	Number of ports activated on the switch
Switch type	Switch model
Operational state	Switch operational state: online, offline, diagnostic
Administrative state	Current switch administrative state
Configured admin state	Switch administrative state that is stored in the switch configuration
R_A_TOV	Resource allocation timeout value
E_D_TOV	Error detect timeout value

## Link data window

The Link data window displays information about all switch links in the fabric or selected links. This information includes the switch name, the port number at the end of each link, and the link status.

To open the Link data window, click the **Link** tab below the data window in the topology display.

## Port Statistics data window

The Port Statistics data window displays port performance data for the selected ports.

To open the Port Statistics data window, click the **Port Stats** tab below the data window in the faceplate display. See [Table 23](#) for a description of the Port Statistics data window entries.

The **Statistics** menu is available on the Port Statistics data window, and provides different ways to view detailed port information. Click the down arrow to open the menu. Open the menu, and then select **Absolute** to view the total count of statistics since the last switch reset. Select **Rate** to view the number of statistics counted per second over the polling period. Select **Baseline** to view the total count of statistics since the last time the baseline was set. Click **Clear Baseline** to set the current baseline.



## Port Information data window

The Port Information data window displays port detail information for the selected ports. To open the Port Statistics data window, click the **Port Info** tab below the data window in the faceplate display. Refer to [Table 24](#) for a description of the Port Information data window entries.

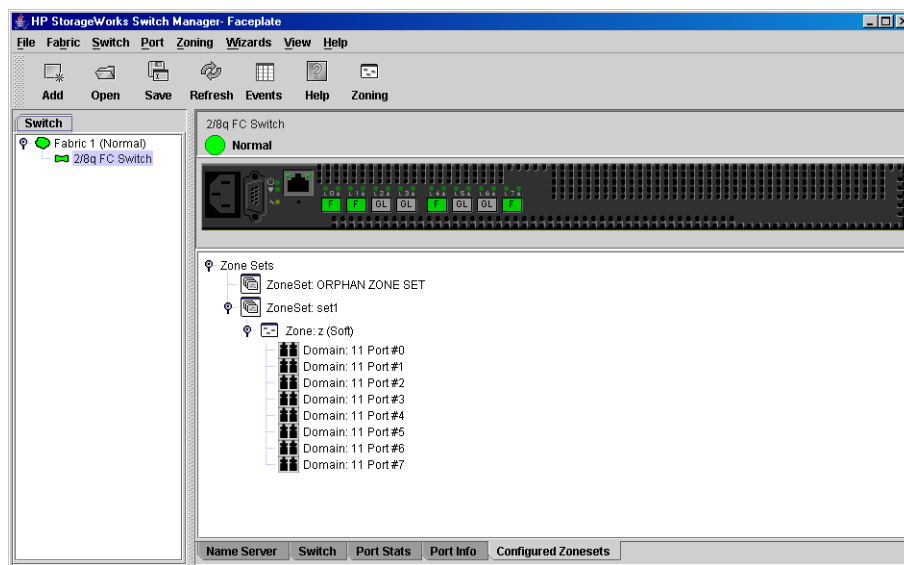
## Configured Zonesets data windows

The Configured Zonesets data window displays all zone sets, zones, aliases, and zone membership in the zoning database ([Figure 23](#)).

To open the Configured Zonesets data window, click the **Configured Zonesets** tab below the data window in the faceplate display. To view the active zonesets in the Active Zonesets data window, open the topology display, and then click the **Active Zonesets** data window tab.

The Configured Zonesets data window uses display conventions for expanding and contracting entries that are similar to the fabric tree. An entry handle located to the left of an entry in the tree indicates that the entry can be expanded. Click this handle or double-click the following entries to expand or collapse them.

- A zone set entry expands to show its member zones.
- A zone entry expands to show its members by port number, World Wide Name, or Fibre Channel address.
- The alias entry expands to show its entries.



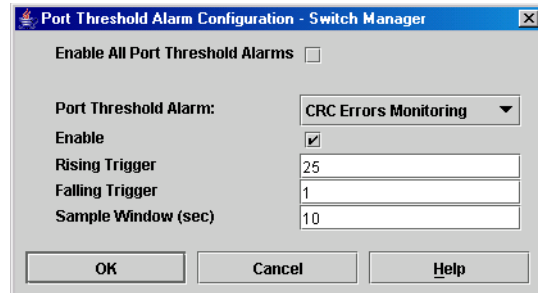
**Figure 23: Configured Zonesets data window**

## Configuring port threshold alarms

You can configure the switch to generate alarms for selected events. Configuring an alarm involves choosing an event type, rising and falling triggers, a sample window, and finally enabling or disabling the alarm.

1. Select **Switch > Port Threshold Alarm Configuration**. The Port Threshold Alarm Configuration dialog box is displayed (Figure 24).

The Port Threshold Alarm Configuration dialog box prompts you to enable or disable all alarms, select an event, set triggers, set a sample window and enable or disable an individual alarm.



**Figure 24: Port Threshold Alarm Configuration dialog box**

2. Check **Enable All Port Threshold Alarms** to enable monitoring for all the individual alarm types that are enabled.

The **Enable All Port Threshold Alarms** check box is the master control for the individual alarms. For example, the switch monitors CRC errors only if both **CRC Error Enable** and **Enable All Port Threshold Alarms** are checked.

3. Select an event type from the **Port Threshold Alarm** drop-down list. Choose from the following options:
  - CRC error monitoring
  - Decode error monitoring
  - Login monitoring
  - Logout monitoring
  - Loss of signal monitoring
4. Check **Enable** to make the alarm eligible for use.
5. Enter a value for the rising trigger.

A rising trigger alarm is generated when the event count per interval exceeds the rising trigger. The switch does not generate another rising trigger alarm for that event until the count descends below the falling trigger and rises again above the rising trigger. Consider the example in Figure 25.

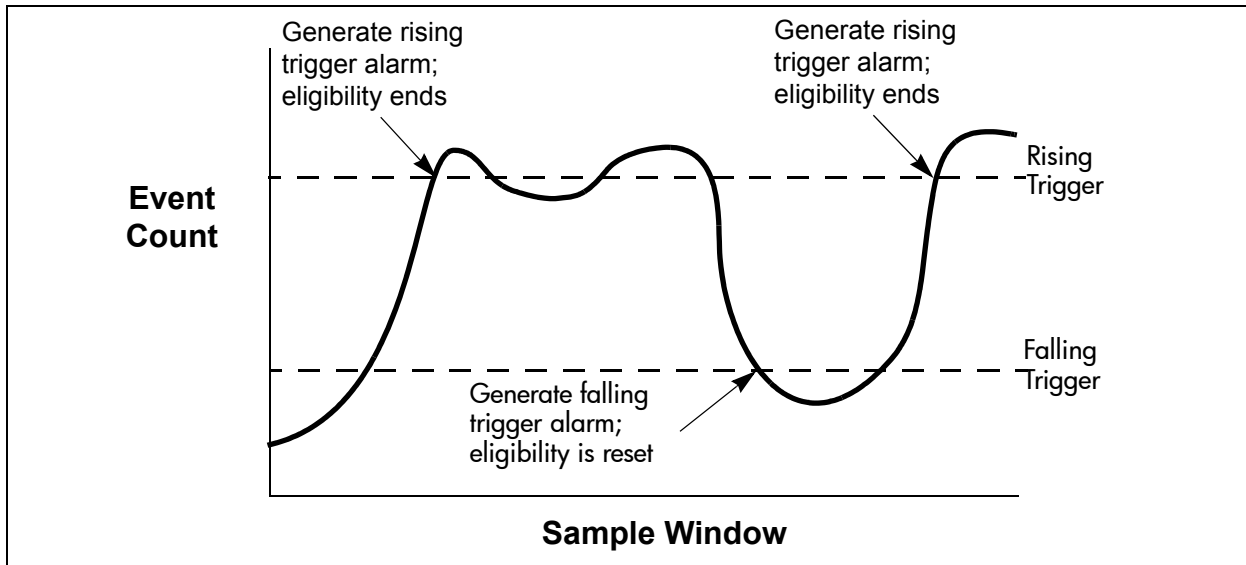
6. Enter a value for the falling trigger.

A falling trigger alarm is generated when the event count per interval descends below the falling trigger.

---

**Note:** The switch disables a port if a rising trigger alarm is not cleared after three consecutive sample windows.

---



**Figure 25: Port Threshold Alarm example**

7. Enter a sample window in seconds.  
The sample window defines the period of time in which to count events.
8. Repeat [step 3](#) through [step 7](#) for each alarm you want to configure or enable.
9. Click **OK**.

## Exporting name server information to a file

To save name server information to a file, open the topology display and do the following:

1. Select one or more switches. If no switches are selected, name server information is gathered for all switches.
2. Select **Switch > Export Name Server**. The Save dialog box is displayed.
3. Enter a file name in the Save dialog box.
4. Click **Save**.

## Paging a switch

You can use the beacon feature to page a switch. The beacon feature causes all Logged-In LEDs to flash, making it easier to recognize.

To page a switch, select **Switch > Toggle Beacon**.

To cancel the beacon, reselect **Toggle Beacon**.

## Setting the date/time and NTP client

The Date/Time and Network Time Protocol (NTP) dialog box enables you to set the date and time manually on a switch, or to enable NTP Client to synchronize the date and time on the switch with an NTP server. Enabling the NTP client ensures the consistency of date and time stamps in alarms and log entries. An Ethernet connection to an NTP server is required.

1. Select a switch in the topology display, and open the faceplate display.
2. Select **Switch > Set Date/Time**. The Switch Date/Time dialog box is displayed.
3. Choose one of the following:
  - Enter the year, month, day and time in the Switch Date/Time dialog box, and then click **OK**. The new date and time take effect immediately.
  - Click **NTP Client Enabled** to enable the switch to synchronize its time with an NTP server. Enter the IP address of the NTP server. Ethernet connection to NTP server is required.
4. Click **OK**.

## Resetting a switch

Resetting a switch reboots the switch using configuration parameters in memory. Depending on the reset type, a switch reset may or may not include a Power On Self Test. [Table 12](#) describes the types of switch resets.

**Table 12: Switch resets**

Type	Description
Reset without Power On Self Test (POST)	Resets a switch without a Power On Self Test. This reset activates the pending firmware and it is disruptive to switch traffic.
Hard reset	Resets a switch with a Power On Self Test. This reset activates the pending firmware and it is disruptive to switch traffic.

1. Select the switch to be reset, and then open the faceplate display.
2. Select **Switch > Reset Switch**.
  - Select **Reset** to perform a standard reset.
  - Select **Hard Reset** to perform a hard reset.

## Configuring a switch

Switch configuration is divided into areas:

- [Configuration wizard](#)
- [Switch properties](#)
- [Network properties](#)

Switch properties specify switch-wide Fibre Channel settings and Network properties specify Ethernet and SNMP settings.

Each of these configuration options are discussed in the following sections.

## Configuration wizard

The Configuration wizard is a series of dialog boxes you can use to configure the IP address and other basic parameters on new or replacement switches. Switch Manager detects the first time use and present the Initial Start Dialog—Switch Manager dialog box, from which the Configuration wizard can be launched. You can also launch the Configuration wizard from the **Wizards** menu in either the topology display or the faceplate display by opening the **Wizards** menu, and then selecting **Configuration Wizard**.

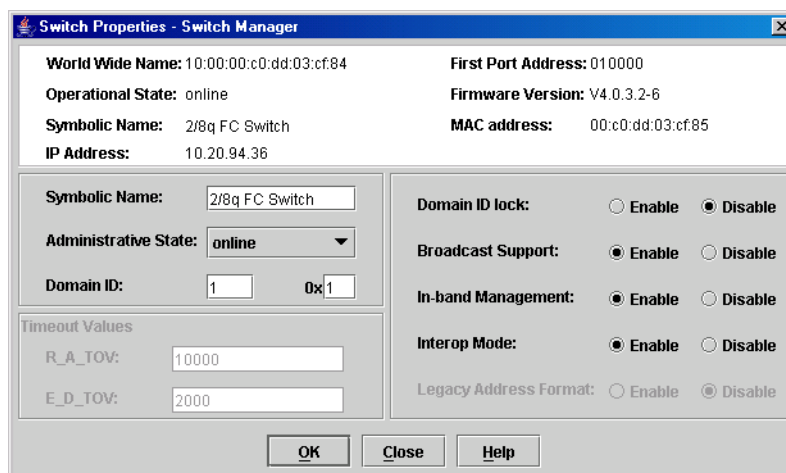
## Switch properties

To open the Switch Properties dialog box, either select a switch in the topology display or open the faceplate display for the switch you are configuring, and then select **Switch > Switch Properties**. You may also right-click a switch graphic in the topology display or faceplate display, and then select **Switch Properties** from the menu.

Use the Switch Properties dialog box to change the following switch configuration parameters:

- [Symbolic Name parameter](#)
- [Administrative State parameter](#)
- [Domain ID and Domain ID Lock parameters](#)
- [Broadcast Support parameter](#)
- [In-band Management parameter](#)
- [Interop Mode parameter](#)
- [Legacy Address Format parameter](#)

The timeout values are displayed only for reference purposes when the switch is online; they become active when the switch is taken offline. After making changes, click **OK** to put the new values into effect.



**Figure 26: Switch Properties dialog box**

### Symbolic Name parameter

The symbolic name is a user-defined name of up to 32 characters that identifies the switch. The symbolic name is used in the topology and faceplate displays, as well as many data windows to more easily identify switches. Illegal characters are the pound sign (#), semi-colon (;), and comma (,).

### Administrative State parameter

The switch administrative state determines the operational state of the switch. The switch administrative state exists in two forms: the configured administrative state and the current administrative state.

- The configured administrative state is the state that is saved in the switch configuration and is preserved across switch resets. Switch Manager always makes changes to the configured administrative state. The configured administrative state is displayed in the Switch Properties dialog box.
- The current administrative state is the state that is applied to the switch for temporary purposes and is not retained across switch resets. The current administrative state is set using the Set Switch command. See the “[Set command](#)” on page 135.

[Table 13](#) describes the administrative state values.

**Table 13: Switch administrative states**

Parameter	Description
Online	The switch is available.
Offline	The switch is unavailable.
Diagnostics	The switch is in diagnostics mode, is unavailable, and tests can then be run on all ports of the switch.

### Domain ID and Domain ID Lock parameters

The domain ID is a unique Fibre Channel identifier for the switch. The Fibre Channel address consists of the domain ID, port ID, and the Arbitrated Loop Physical Address (ALPA). The maximum number of switches within a fabric is 239 with each switch having a unique domain ID.

Switches come from the factory with the domain IDs unlocked. This means that if there is a domain ID conflict in the fabric, the switch with the highest principal priority, or the principal switch, reassigns any domain ID conflicts and establishes the fabric. If you lock the domain ID on a switch and a domain ID conflict occurs, one of the switches isolates as a separate fabric and the Logged-In LEDs on both switches flash to show the affected ports. See the “[Set Config command](#)” on page 137 for information about the switch keyword and the Domain ID Lock and Principal Priority parameters.

If you connect a new switch to an existing fabric with its domain ID unlocked, and a domain conflict occurs, the new switch isolates as a separate fabric. However, you can remedy this by resetting the new switch or taking it offline then back online. The principal switch reassigns the domain ID and the switch joins the fabric.

---

**Note:** Domain ID reassignment is not reflected in zoning that is defined by domain ID and port number pair. You must reconfigure zones that are affected by domain ID reassignment.

---

### Broadcast Support parameter

Broadcast is supported, which allows for TCP/IP support. Broadcast is implemented using the proposed standard specified in *Multi-Switch Broadcast for FC-SW-3, T11 Presentation Number T11/02-031v0*. Fabric Shortest Path First (FSPF) is used to set up a fabric spanning tree used in transmission of broadcast frames. Broadcast frames are retransmitted on all online F\_Ports. Broadcast zoning is supported with Access Control List (ACL) hard zones. When a broadcast frame is received, these hard zones are enforced at the F\_Port. If the originator of

the broadcast is in a hard zone, the frame is retransmitted on all online F\_Ports within the hard zone. If the originator of the broadcast frame is not in a hard zone, the frame is retransmitted on online F\_Ports that are not in a hard zone. The default setting is disabled.

#### In-band Management parameter

In-band Management is the ability to manage switches across inter-switch links using Switch Manager, SNMP, management server. The switch comes from the factory with in-band management enabled. If you disable in-band management on a particular switch, you can no longer communicate with that switch by means other than a direct Ethernet or serial connection. In-band Management is not supported at this time.

#### Interop Mode parameter

When a zone set is activated, this and other FC-SW-2 compliant switches propagate the active zone set to all switches in the fabric. Some non-FC-SW-2 compliant switches propagate not only the active zone set, but the entire zoning database. Disabling the Interop Mode parameter causes the Switch switch to propagate the zoning database, and therefore, interoperate with non-FC-SW-2 switches. For FC-SW-2 compliant fabrics, the Interop Mode parameter should be enabled. Interop Mode is not supported at this time.

#### Legacy Address Format parameter

Legacy Address Format should be enabled only to permit interoperation with certain older non-FC-SW-2 switches. Enabling this setting under other circumstances disables zoning that is defined by domain ID and port number. This setting is available only when the Interop Mode setting is disabled. Contact your HP authorized service provider for assistance in using this feature. Legacy Address Format is not supported at this time.

#### Timeout Values parameters

The switch timeout values determine the timeout values for all ports on the switch. [Table 14](#) describes the switch timeout parameters. The timeout values must be the same for all switches in the fabric.

---

**Note:** Mismatched timeout values disrupt the fabric. These values should not be changed unless absolutely necessary. The switch must be offline to change the values. Use the Switch Properties dialog box to take the switch offline.

---

**Table 14: Timeout values**

Parameter	Description
R_A_TOV	Resource Allocation Timeout: Represents the maximum time a frame could be delayed in the fabric and still be delivered. The default is 10000 milliseconds.
E_D_TOV	Error Detect Timeout: Represents the maximum round trip time that an operation between two N_Ports could require. The default is 2000 milliseconds.

## Network properties

Use the Network Properties dialog box to change the following network settings:

- [IP Configuration parameters](#)
- [SNMP Configuration parameters](#)
- [SNMP Trap Configuration](#)
- [Remote Logging parameter](#)

1. Select a switch in the topology display or open the faceplate display.
2. Select **Switch > Network Properties**. The Network Properties dialog box is displayed (Figure 27).
3. After making changes, click **OK** to put the new values into effect.

**Note:** Read Community, Trap Community, and Write Community are similar to passwords and are write-only boxes. Current settings are not displayed.

**Figure 27: Network Properties dialog box**

### IP Configuration parameters

The IP configuration identifies the switch on the Ethernet network and determines which network discovery method to use. [Table 15](#) describes the IP configuration parameters.



**Table 15: IP configuration parameters**

Parameter	Description
Network Discovery	<p>Use one of the following methods to assign the IP address:</p> <ul style="list-style-type: none"> <li>■ Static—Uses the IP configuration parameters entered in the Switch Properties dialog box.</li> <li>■ BootP—Acquires the IP configuration from a BootP server.</li> <li>■ RARP (Reverse Address Resolution Protocol)—Acquires the IP address from an RARP server. An RARP request is broadcast with up to three retries, each at 5 second intervals. If no IP address is obtained, the switch reverts to the previously configured IP address.</li> <li>■ DHCP (Dynamic Host Configuration Protocol)—Acquires the IP configuration from a DHCP server. If no satisfactory lease is obtained, the DHCP client attempts to use the previously configured lease. If the previous lease cannot be used, no IP address is assigned to this switch in order to avoid an IP address conflict. The DHCP server must then be made available.</li> </ul> <p>If a BootP, RARP, or DHCP server is not available, the switch attempts to use a previously assigned valid lease. If no lease was ever assigned, the switch attempts to use the previously assigned static IP address.</p>
IP Address	Internet Protocol (IP) address for the Ethernet port. Default: 10.0.0.1.
Subnet mask	Subnet mask address for the Ethernet port. Default value: 255.0.0.0.
Gateway	IP gateway address. Default: 10.0.0.254.

**SNMP Configuration parameters**

The SNMP configuration defines how authentication traps are managed. [Table 16](#) describes the SNMP configuration parameters. Illegal characters for the user-defined boxes are the pound sign (#), semi-colon (;), and comma (,).

**Table 16: SNMP Configuration parameter**

Parameter	Description
SNMP Enabled	Enables or disables SNMP communication with other switches in the fabric.
Contact	Specifies the name (up to 64 characters) of the person who is to be contacted to respond to trap events. The default is "undefined".
Read Community	Read community password (up to 32 characters) that authorizes an SNMP agent to read information from the switch. This is a write-only box. The value on the switch and the SNMP management server must be the same. The default is "public".
Trap Community	Trap community password (up to 32 characters) that authorizes an SNMP agent to receive traps. This is a write-only box. The value on the switch and the SNMP management server must be the same. The default is "public".
SNMP Proxy	If enabled, you can use SNMP to monitor and configure any switch in the fabric.

**Table 16: SNMP Configuration parameter (Continued)**

Parameter	Description
Location	Specifies the name (up to 64 characters) for the switch location. The default is "undefined".
Authentication Trap	Enables or disables the reporting of SNMP authentication failures. If enabled, a notification trap is sent when incorrect community string values are used. The default is "False".
Write Community	Write community password (up to 32 characters) that authorizes an SNMP agent to write information to the switch. This is a write-only box. The value on the switch and the SNMP management server must be the same. The default is "private".

**SNMP Trap Configuration**

The SNMP trap configuration defines how traps are set. Choose from the tabs Trap1 – Trap 5 to configure each trap. [Table 17](#) describes the SNMP configuration parameters.

**Table 17: SNMP trap configuration parameters**

Parameter	Description
Trap Version	Specifies the SNMP version (1 or 2) with which to format traps.
Trap 1 Enabled	Enables or disables the trap. If disabled, traps are not configurable.
Trap Address*	Specifies the IP address to which SNMP traps are sent. A maximum of 5 trap addresses are supported. The default address for trap 1 is 10.0.0.254. The default address for traps 2–5 is 0.0.0.0.
Trap Port*	The port number on which the trap is sent. The default is 162.
Trap Severity	Specifies a severity level to assign to the trap. Open the menu and choose a level. The <b>Trap 1 Enabled</b> check box on the Network Properties dialog box must be enabled to access this menu. Trap severity levels include Unknown, Emergency, Alert, Critical, Error, Warning, Notify, Info, Debug, and Mark.
* Trap address (other than 0.0.0.0) and trap port combinations must be unique. For example, if trap 1 and trap 2 have the same address, they must have different port values. Similarly, if trap 1 and 2 have the same port value, they must have different addresses.	

**Remote Logging parameter**

The Remote Logging (syslog) parameter enables saving of the log information to a remote host that supports the syslog protocol. When enabled, the log entries are sent to the syslog host at the IP address entered in the **Logging Host IP Address** box. Log entries are saved in the internal switch log whether this feature is enabled or not.

To save log information to a remote host, you must edit the `syslog.conf` file (located on the remote host) and then restart the syslog daemon. Consult your operating system documentation for information on how to configure Remote Logging. The `syslog.conf` file on the remote host must contain an entry that specifies the name of the log file in which to save error messages.

Add the following line to the `syslog.conf` file:

```
local0.info <tab> /var/adm/messages.name
```

A `<tab>` separates the **Selector** (`local0.info`) and **Action** (`/var/adm/messages/messages.name`).

## Archiving a switch configuration

You can create an XML archive file containing the configuration parameters. Basically, any data received by Switch Manager is archived. However, user accounts and passwords are available only through the command line interface, and are not received by Switch Manager, and thus are not archived. Archived parameters include the following:

- Switch properties and statistics
- IP configuration
- SNMP configuration
- Port properties and statistics
- Alarm configuration
- Zoning configuration

This archive file can be used to restore the configuration on the same switch or on a replacement switch. You can also use the archive file as a template for configuring new switches to add to a fabric. User account information is not archived. The archive can be used later to restore the switch. See “[Restoring a switch configuration](#)” on page 75 for more information.

1. Select **Switch > Archive**. The Save dialog box is displayed.
2. Enter a file name in the Save dialog box.
3. Click **Save**.

## Restoring a switch configuration

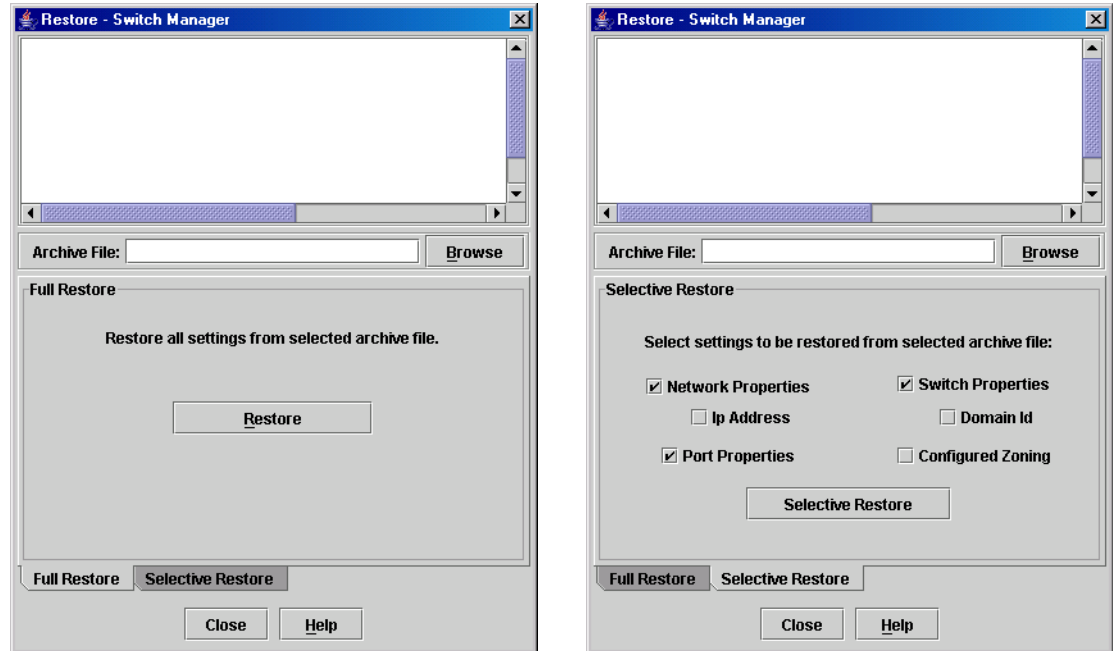
Restoring a switch loads the archived switch configuration parameters to the switch. The switch configuration must be archived before it can be restored. See “[Archiving a switch configuration](#)” on page 75 for more information.



**Caution:** The switch being restored should be physically disconnected from the fabric. Restoring a switch in a fabric can severely disrupt the fabric. After the restore process is complete, the switch can be reconnected to the fabric.

1. Log in to the fabric through the switch you want to restore.
2. Select **Switch > Restore**. The Restore dialog box is displayed ([Figure 28](#)).

The Restore dialog box offers a **Full Restore** and a **Selective Restore** tab.



**Figure 28: Restore dialog boxes – Full and Selective**

3. Enter the archive file name or browse for the file. This archive file must be one that was produced by the Switch Manager Archive function. Configuration backup files created with the Config Backup CLI command are not compatible with the Switch Manager Restore function.
4. To restore all configuration settings, click the **Full Restore** tab, and then click **Restore**. To restore selected configuration settings, click the **Selective Restore** tab and check one or more of the following boxes, and then click **Restore**:
  - **Network Properties**—Restores all settings presented in the Network Properties dialog box except the IP address. Refer to “[Network properties](#)” on page 72.
  - **IP Address**—Restores switch IP address in addition to the other network properties.
  - **Switch Properties**: Restores all settings presented in the Switch Properties dialog box except the domain ID. Refer to “[Switch properties](#)” on page 69.
  - **Domain ID**—Restores switch domain ID in addition to the other switch properties.
  - **Port Properties**—Restores all settings presented in the Port Properties dialog box. Refer to “[Configuring ports](#)” on page 85.
  - **Configured Zoning**—Restores all zone sets, zones, and aliases in the switches zoning database.
5. If you select the **Configured Zoning** or **Full Restore** option *and* the file contains zone sets, a dialog box prompts you to activate one of those zone sets.
6. Click **Yes**.
7. Select a zone set from the drop-down list in the Select Zone Set to be Activated dialog box.
8. Click **OK** and view the results in the top pane of the Restore dialog box.

## Restoring the factory default configuration

You can restore the switch and port configuration settings to the factory default values. To restore the factory configuration on a switch, select **Switch > Restore Factory Defaults**. [Table 18](#) lists the factory default switch configuration settings.

Restoring the switch to the factory default configuration does not restore the account name and password settings. To restore user accounts, select **Maintenance > Reset Password File**. Refer to “Recovering a Switch” in the Installation Guide for your switch for information about maintenance mode and the **Maintenance** menu.

**Table 18: Factory default configuration settings**

Setting	Value
Symbolic Name	2/8q FC Switch
Administrative State	Online
Domain ID	1
Domain ID Lock	False
In-band Management	True
Broadcast Support	Enable
Resource Allocation Timeout (R_A_TOV)	10000 milliseconds
Interop Mode	True (not supported)
I/O Stream Guard	Disabled
Device Scan Enabled	True
Interop Credits	0 (not supported)
Error Detect Timeout (E_D_TOV)	2000 milliseconds
SNMP Enabled	True
SNMP Proxy	True
IP Address	10.0.0.1
Subnet Mask Address	255.0.0.0
Gateway Address	10.0.0.254
Network Discovery	Static
Remote Logging	False
Remote Logging Host Ip Address	10.0.0.254
Contact	Undefined
Location	Undefined
Trap Enabled	False
Trap Port	162
Trap Address	Trap 1: 10.0.0.254; Traps 2-5: 0.0.0.0
Trap Community	Public
Read Community	Public
Write Community	Private
Port State	Online
Port Speed	Auto-detect
Port Type	GL

## Downloading a support file

The **Download Support File** menu option assembles all log files and switch memory data into a core dump file (`dump_support.tgz.zip`). This file can be sent to technical support personnel for troubleshooting switch problems. The menu option is not displayed for switches that don't support the download support file function.

1. Select **Switch > Download Support File**. The Download Support File dialog box is displayed.
2. Click **Browse** to define a location for the support file or type the path in the **Text** box.
3. Click **Start** to begin the process of creating and downloading the support file to your workstation.
4. Observe the status in the **Status** area.
5. After the support file is saved to your workstation, click **Close**.

## Installing firmware

Installing firmware involves loading, unpacking, and activating the firmware image on the switch. Switch Manager does this in one operation. To provide consistent performance throughout the fabric, ensure that all switches are running the same version of firmware.

The switch only supports one firmware image, and thus there is no inactive firmware image. The pending firmware version only differs from the active version during the brief period while the switch is resetting to activate the firmware. Firmware management tools enable you to install and activate new firmware.

You can load and activate firmware on an operating switch without disrupting data traffic or having to re-initialize attached devices. If you attempt to perform a non-disruptive activation without satisfying the following conditions, the switch performs a disruptive activation:

- No changes are being made to switches in the fabric including powering up, powering down, and switch configuration changes.
- No port in the fabric is in the diagnostic state.
- No zoning changes are being made in the fabric.
- No changes are being made to attached devices including powering up, powering down, disconnecting, connecting, and HBA configuration changes.

Ports that are stable when the non-disruptive activation begins and then change states, are reset. When the non-disruptive activation is complete, Switch Manager sessions reconnect automatically. However, Telnet sessions must be restarted manually.

Select a switch in the topology display and double-click to open the Faceplate display.

6. Select **Switch > Load Firmware**. The Firmware Upload dialog box is displayed.
7. Click **Select** to browse and then select the firmware file to be uploaded.
8. Click **Start** to begin the firmware load process.
9. Click **OK** to continue firmware installation or click **Cancel** to cancel the firmware installation.

Switch Manager attempts a hot reset, if possible, to activate the firmware without disrupting data traffic. During a non-disruptive activation, all Logged-In LEDs are extinguished for several seconds. If a non-disruptive activation is not possible, Switch Manager gives you the opportunity to reset the switch and perform a disruptive activation.

## Displaying hardware status

To display a summary of the hardware status information in a popup text box, rest the cursor over the chassis LED cluster in the faceplate display.

- **Input Power LED**—Indicates the voltage status of the switch.
- **Heartbeat LED**—Indicates the status of the switch processor and the results of the POST.
- **System Fault LED**—Indicates an over temperature condition or a POST error.

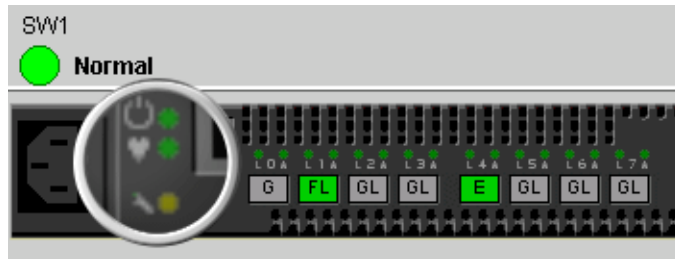


Figure 29: Hardware status LEDs

## Managing ports

This section describes the following tasks that manage ports and devices:

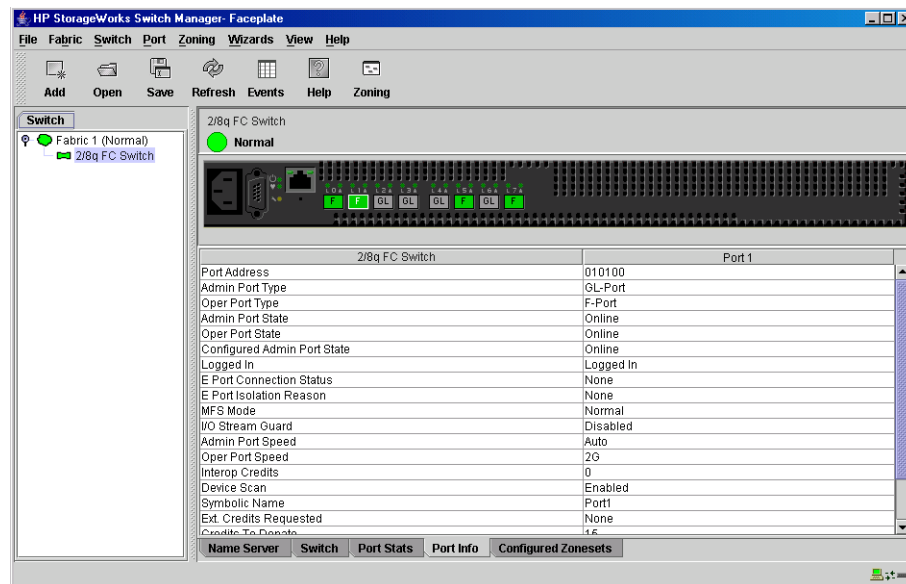
- [Displaying port information](#), page 80
- [Configuring ports](#), page 85
- [Resetting a port](#), page 89
- [Testing ports](#), page 89

## Displaying port information

Port information is available primarily in the faceplate display ([Figure 30](#)) and includes:

- [Port status](#)
- [Port Statistics data window](#)
- [Port Information data window](#)
- [Name Server data window](#)

The faceplate display data windows provide information and statistics for switches and ports. Use the topology display to view status information on fabrics, switches, and links between switches.



**Figure 30: Faceplate Display – Port Information data window**

## Port status

To display port number and status information for a port, position the cursor over a port on the faceplate display. The status information changes depending on the **View** menu option.

- [Displaying port types](#)
- [Displaying port operational states](#)
- [Displaying port speeds](#)
- [Displaying transceiver media status](#)



### Displaying port types

To display port type status, select **View > View Port Types**. [Table 19](#) lists the possible port types and their meanings.

**Table 19: Port type**

State	Description
F_Port	Fabric port—Supports a single public device (N_Port).
FL_Port	Fabric loop port—Self discovers a single device (N_Port) or a loop of up to 126 public devices (NL_Port).
G_Port	Generic port—Self discovers as an F_Port.
GL_Port	Generic loop port—Self discovers as an F_Port or an FL_Port. GL_Port is the default port type. A single device on a public loop attempts to configure as an F_Port first, if that fails it attempts to configure as an FL_Port.
Donor	Donor port—Allows buffer credits to be used by another port.

### Displaying port operational states

To display the operational state on each port, select **View > View Port States**. [Table 20](#) lists the possible operational states and their meanings. The port operational state refers to actual port state and not the administrative state you may have assigned.

**Table 20: Port operational states**

State	Description
On	Online—Port is active and ready to send data.
la	Inactive—Port operational state is offline, but administrative state is online.
Off	Offline—Port is active, can receive signal, but cannot accept a device login.
Dia	Diagnostics—Port is in diagnostics mode in preparation for testing
Dn	Down—Port is disabled, power is removed from the lasers, and cannot be logged in.

### Displaying port speeds

To display the speed of each port, select **View > View Port Speeds**. [Table 21](#) lists the possible port speeds.



**Table 21: Port speeds**

State	Description
Au	Auto-detect
1Gbps	1 Gbps transmission speed (not supported)
2Gbps	2 Gbps transmission speed

### Displaying transceiver media status

To display transceiver media status, select **View > View Port Media**. [Table 22](#) lists the port media states and their meanings.

**Table 22: Port/transceiver states**

State	Description
	Optical SFP, Online (Green)
	Optical SFP, Offline (Gray)
None	Empty port, no transceiver installed

## Port Statistics data window

The Port Statistics data window displays statistics about port performance. To open the Port Statistics window, select one or more ports in the faceplate display, and then click the **Port Stats** tab below the data window. [Table 23](#) describes the Port Statistics data window entries.

The **Statistics** menu is available on the Port Statistics data window, and provides different ways to view detailed port information. Click the down arrow to open the menu. Open the menu and then select **Absolute** to view the total count of statistics since the last switch or port reset. Select **Rate** to view the number of statistics counted per second over the polling period. Select **Baseline** to view the total count of statistics since the last time the baseline was set. When viewing baseline statistics, click **Clear Baseline** to set the current baseline. The baseline is also set when the switch status changes from unreachable to reachable.

**Table 23: Port Statistics data window entries**

Entry	Description
Start Time	The beginning of the period over which the statistics apply. The start time for the Absolute view is not applicable. The start time for the Rate view is the beginning of polling interval. The start time for the Baseline view is the last time the baseline was set.
End Time	The last time the statistics were updated on the display.
Total Time	Total time period from start time to end time.
Al Init	Number of times the port entered the initialization state.
Al Init Error	Number of times the port entered initialization and the initialization failed. Increments count when port has a sync loss.
Bad Frames	Number of frames that were truncated due to a loss of sync or the frame did not end with an EOF.
Class 3 Frames In	Number of class 3 frames received by this port.
Class 3 Frames Out	Number of class 3 frames transmitted by this port.
Class 3 Toss	Number of class 3 sequences discarded by this port. A sequence can be discarded because of detection of a missing frame (based on SEQ_CNT), detection of an E_D_TOV timeout, receiving a reject frame, receiving frames for a stopped sequence, or other causes.
Class 3 Words In	Number of class 3 words received by this port.
Class 3 Words Out	Number of class 3 words transmitted by this port.
Decode Errors	Number of invalid transmission words detected during decoding. Decoding is from the 10-bit characters and special K characters.
Ep Connects	Number of E_Port logins.

**Table 23: Port Statistics data window entries (Continued)**

Entry	Description
FBusy	Number of class 3 fabric busy (F_BSY) frames generated by this port in response to incoming frames. This usually indicates a busy condition on the fabric or N_port that is preventing delivery of this frame.
Flow Errors	Number of times a frame is received and all the switch ports receive buffers are full. The normal Fabric Login exchange of flow control credit should prevent this from occurring. The frame is discarded.
FReject	Number of frames, from devices, that have been rejected. Frames can be rejected for any of a large number of reasons.
Invalid CRC	Number of invalid Cyclic Redundancy Check (CRC) frames detected.
Invalid Destination Address	Number of address identifier (S_ID, D_ID) errors. AL_PA equals non-zero AL_PA found on F_Port.
Link Failures	Number of optical link failures detected by this port. A link failure is a loss of synchronization or by loss of signal while not in the offline state. A loss of signal causes the switch to attempt to re-establish the link. If the link is not re-established, a link failure is counted. A link reset is performed after a link failure.
LIP (AL_PD,AL_PS)	Number of F7, AL_PS LIPs, or AL_PD (vendor specific) resets performed.
LIP(f7,AL_PS)	Used to reinitialize the loop. An L_port, identified by AL_PS, may have noticed a performance degradation and is trying to restore the loop.
LIP(f7,f7)	A loop initialization primitive frame used to acquire an AL_PA.
LIP(f8,AL_PS)	Denotes a loop failure detected by the L_port identified by AL_PS.
Login Count	Number of device logins that have occurred on the switch.
Logout Count	Number of device logouts that have occurred on the switch.
Loop Timeouts	Number of loop timeouts.
Loss Of Sync	Number of synchronization losses (>100 ms) detected by this port. A loss of synchronization is detected by receipt of an invalid transmission word.
Primitive Sequence Errors	Number of bad primitives received by the port.
Rx Link Resets	Number of link reset primitives received from an attached device.
Rx Offline Sequences	Number of offline sequence primitives received by the port.
Total Errors	Total number of primitive and non-primitive port link errors.
Total Link Resets	Number of link-reset primitives the transmitted by the port.
Total LIPs Received	Number of loop initialization primitive frames received.
Total LIPs Transmitted	Number of loop initialization primitive frames transmitted.
Tx Offline Sequences	Number of offline primitives transmitted by the port.
Total Rx Frames	Total number of frames received by the port.
Total Rx Words	Total number of words received by the port.
Total Tx Frames	Total number of frames transmitted by the port.
Total Tx Words	Total number of words transmitted by the port.
Tx Link Resets	Number of link reset primitives sent from this port to an attached port.
Total Offline Sequences	Total number of offline sequences transmitted and received by the port.

## Port Information data window

The Port Information data window displays port detail information for the selected port. To open the Port Information data window, click the **Port Info** tab below the data window in the faceplate display. [Table 24](#) describes the Port Information data window entries.

**Table 24: Port Information data window entries**

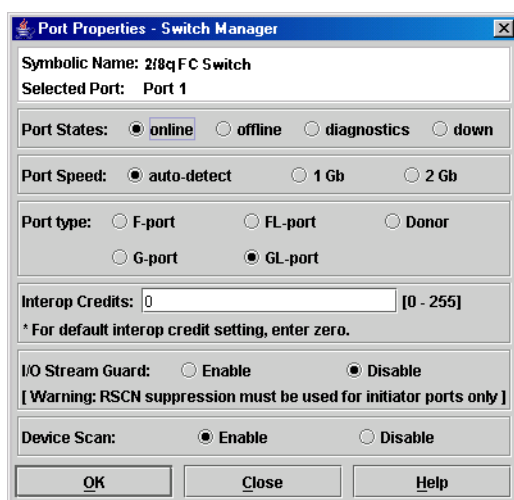
Entry	Description
Port Address	Port Fibre Channel address.
Administrative Port Type	The port type (G, GL, F, FL, or Donor) that the port is configured as. This value is persistent; it is maintained during a switch reset. During a port auto-configuration it is used to determine which operational port states are allowed.
Operational Port Type	The port type that is currently active. This is set during port auto-configuration based on the administrative port type.
Administrative Port State	The port state (Online, Offline, Diagnostics, or Down) which has been set by the user. This state may be different from the configured administrative state if the user has not saved it in the switch configuration. This state is used at the time it is set to try to set the port operational state. This value is not persistent and is lost on a switch reset.
Operational Port State	The port state that is currently active. This value may be different from the administrative port state, for example due to an error condition.
Configured Administrative Port State	The port state (Online, Offline, Diagnostics, or Down) which is saved in the switch configuration, either by the user or at the factory. This value is persistent; it is maintained during a switch reset, and is used after a reset to set the port operational state.
Logged In	Indicates whether logged in or not.
MFS Mode	Port tuning indicator.
I/O Stream Guard	Whether RSCN suppression is enabled or disabled.
Administrative Port Speed	The speed requested by the user.
Operational Port Speed	The speed actually being used by the port.
Interop Credits	Whether Interop credits have been set. (not supported)
Device Scan	Queries the connected device during login for FC-4 descriptor information. Disable this parameter only if the scan creates a conflict with the connected device.
Symbolic Name	Port symbolic name.
Ext Credits Requested	Whether extended credits have been requested for ports.
Credits to Donate	The number of credits available to be donated by the selected port.
Donor Group	The donor group of the selected port.
Valid Donor Groups	The number of separate groups within which extended credits may be donated and assigned.
Medium	The transceiver type.

## Name Server data window

The Name Server data window displays information about devices (hosts and storage targets) connected to the switch. To open the Name Server data window from the topology or faceplate display, click the **Name Server** tab below the data window. In the topology display, if no switches are selected, the name-server entries for the entire fabric are displayed in the data window; if switches are selected, only the devices attached to the selected switches are displayed. In the faceplate display, only the devices attached the switch being viewed are displayed. See [Table 10](#) for a description of the Name Server data window entries.

## Configuring ports

The port settings or characteristics are configured using the **Port** menu and the Port Properties dialog box as shown in [Figure 31](#). To open the Port Properties dialog box for a port, select one or more ports, and then select **Port > Port Properties**.



**Figure 31: Port Properties dialog box**

The Port Properties dialog box displays the switch name and the selected port(s). Use the Port Properties dialog box to view and change the following:

- [Port States parameters](#)
- [Port Speed parameters](#)
- [Port Type parameters](#)
- [Interoperability Credits parameters](#)
- [I/O Stream Guard parameters](#)
- [Device Scan parameter](#)
- [Changing the port symbolic name](#)
- [Extending port credits](#)

## Port States parameters

The port administrative state determines the operational state of a port. The port administrative state exists in two forms:

- The configured administrative state is the state that is saved in the switch configuration and is preserved across switch resets. Switch Manager always makes changes to the configured administrative state.
- The current administrative state is the state that is applied to the port for temporary purposes and is not preserved across switch resets. The current administrative state is set using the Set Port command. See the “[Set Port command](#)” on page 146.

[Table 25](#) describes the port administrative states.

1. Select one or more ports in the faceplate display.
2. Select **Port > Port Properties**. The Port Properties dialog box is displayed.
3. Click the **Port States** option that corresponds to the port state you want.
4. Click **OK**.

**Table 25: Port states**

State	Description
Online	Activates and prepares port to send data.
Offline	Prevents port from receiving signal and accepting a device login.
Diagnostics	Prepares port for testing and prevents the port from accepting a device login.
Down	Disables the port.

## Port Speed parameters

Ports are capable of transmitting and receiving at 1 or 2 Gbps. The ports can be configured for either transmission speed or to sense the transmission speed of the device to which it is connected. [Table 26](#) describes the port speeds.

1. Select one or more ports in the faceplate display.
2. Select **Port > Port Properties**. The Port Properties dialog box is displayed.
3. Click the **Port Speed** option that corresponds to the port speed you want.
4. Click **OK**.

**Table 26: Port speeds**

State	Description
Auto-Detect	Matches the transmission speed of the connected device. This is the default.
1 Gbps	Sets the transmission speed to 1 Gbps.
2 Gbps	Sets the transmission speed to 2 Gbps.

## Port Type parameters

The ports can be configured to self-discover the proper type to match the device or switch to which it is connected. [Table 27](#) describes the port types.

1. Select one or more ports in the faceplate display.
2. Select **Port > Port Properties**. The Port Properties dialog box is displayed.
3. Click the **Port Type** option for the port type you want.
4. Click **OK**.

**Table 27: Port types**

State	Description
F_Port	Fabric port—Supports a single public device (N_Port).
FL_Port	Fabric loop port—Self discovers a single device (N_Port) or a loop of up to 126 public devices (NL_Port).
G_Port	Generic port—Self discovers as an F_Port.
GL_Port	Generic loop port—Self discovers as an F_Port or an FL_Port. GL_Port is the default port type. A single device on a public loop attempts to configure as an F_Port first; if that fails it attempts to configure as an FL_Port.
Donor	Donor port—Allows buffer credits to be used by another port.

## Interoperability Credits parameters

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**Note:** Interoperability Credits is not supported at this time.

---

Switches negotiate with other switches to resolve differences in the number of port buffer credits.

## I/O Stream Guard parameters

The I/O Stream Guard feature suppresses the generation of Registered State Change Notification (RSCN) messages on a port basis. I/O Stream Guard should be enabled only on ports connected to initiator devices.

To suppress the generation of RSCN messages for the selected port, open the **Port** menu, and then click the **Enable** option in the I/O Stream Guard area of the Port Properties dialog box.

## Device Scan parameter

The Device Scan feature queries the connected device during login for FC-4 descriptor information. Disable this parameter only if the scan creates a conflict with the connected device.

## Changing the port symbolic name

To change the symbolic name of a port from the faceplate display:

1. Open the faceplate display and then select a port.
2. Select **Port > Port Symbolic Name**. The Port Symbolic Name dialog box is displayed.

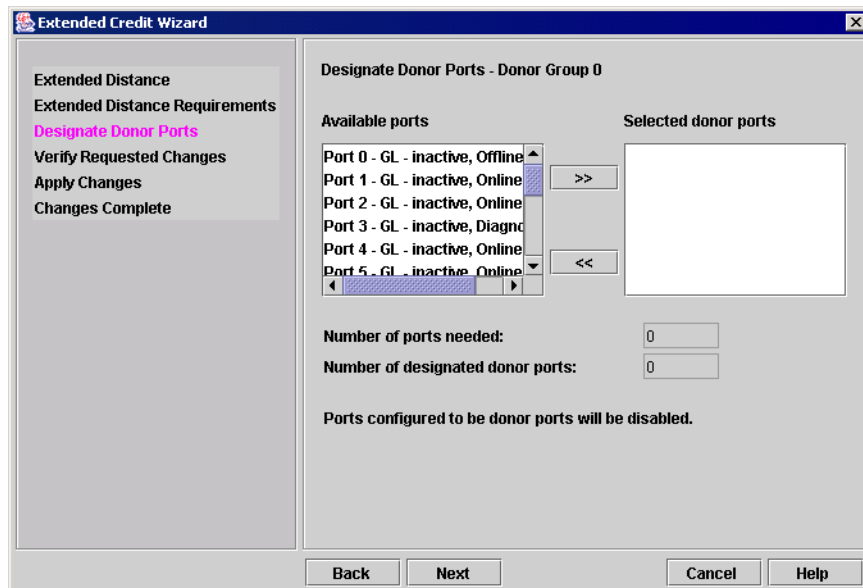
3. Select one of the following in the Port Symbolic Name dialog box:
  - Enter a new name for the port in the **Set Port Symbolic Name** box.
  - Check the **Restore Default Port Symbolic Name** check box to restore the default name.
4. Click **OK**.

## Extending port credits

Each port is supported by a data-buffer with a 16-credit capacity; that is, 16 maximum sized frames. For fiber optic cables, this enables full bandwidth service over a distance of 10 kilometers at 2 Gbps. For fiber optic cables, this enables full bandwidth service over a distance of 13 kilometers at 2 Gbps (1.2 credits/Km). Longer distances can be spanned at full bandwidth by borrowing credits from designated donor ports thus pooling the buffer capacities. This is called credit extension. Each donor port contributes 15 credits to the pool from which the recipient ports can draw. The recipient port also loses one credit in the process. For example, one donor port contributes 15 credits to the pool from which a recipient draws for a total of 30 credits (15+15). This provides approximately 25 Km at 2 Gbps ( $30 \div 1.2$ ).

To extend credits, select **Wizards > Ext Credit Wizard**. The Extended Credit Wizard leads you through the following process to extend credits based on transmission distance requirements:

1. Extended Distance on Switch—Explains the concepts and principles of extending port credits. Click **Next**.
2. Extended Distance Requirements—Specify speed and distance requirements for each port. Click **Next**.
3. Designate Donor Ports—Select available ports and then click >> to move the port into the **Selected Donor Port** column (Figure 32). Match the number of ports needed with the number of designated donor ports. Click **Next**.



**Figure 32: Designating donor ports**



4. Verify Requested Changes—Review the extended distance requests and the selected donor ports. Click **Finish** to apply the changes, and redistribute the credits.

---

**Note:** As credits are used, the Logged-In LEDs on the corresponding donor ports illuminate continuously. In addition, donor port Activity LEDs reflect the same traffic as the recipient port. Donor ports whose credits are being used are unavailable to devices that are connected to them.

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## Resetting a port

The Reset Port option reinitializes the port using the saved configuration.

1. In the faceplate display, select the port(s) to be reset.
2. Select **Port > Reset Port**.

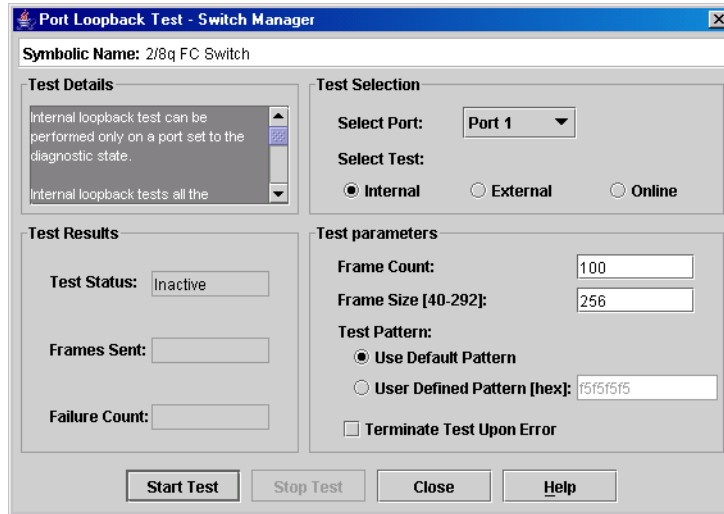
## Testing ports

The port loopback tests verify correct port operation by sending a frame out through the loop, and then verifying that the frame received matches the frame that was sent. Only one port can be tested at a time for each type of test. The Port Loopback Test dialog box presents the following loopback tests:

- **SerDes level (Internal)**—The SerDes level test verifies port circuitry. The SerDes level test sends a test frame from the ASIC through the SerDes chip and back to the ASIC for the selected ports. The port passes the test if the frame that was sent by the ASIC matches the test frame that was received. This test requires that the port be in diagnostics mode, and therefore, disrupts communication.
- **SFP level (External)**—The SFP level test verifies port circuitry. The SFP level test sends a test frame from the ASIC through the SerDes chip, through the SFP transceiver fitted with an external loopback plug, and back to the ASIC for the selected ports. The port passes the test if the test frame that was sent by the ASIC matches the test frame that was received. This test requires that the port be in diagnostics mode, and therefore, disrupts communication.
- **Node-to-Node (Online)**—The Node-to-Node test verifies communications between the port and its device node or device loop. The port being tested must be online and connected to a remote device. The port passes the test if the frame that was sent by the ASIC matches the frame that was received. This test does not disrupt communication on the selected port. This test requires that the port be online, and therefore, does not disrupt communication.

To run the internal, external, or online port loopback test on a port:

1. In the faceplate display, select the port to be tested, and then select **Port > Port Loopback Test**. The Port Loopback Test dialog box is displayed ([Figure 33](#)).



**Figure 33: Port Loopback Test dialog box**

2. Select the type of loopback test to be run (**Internal**, **External**, or **Online**) in the **Test Selection** area.

If you choose the internal or external test, Switch Manager prompts you to confirm that the port state needs to be changed to the diagnostic state.

3. Click **OK**.
4. Enter the frame count in the **Frame Count** box.
5. Enter the frame size in the **Frame Size (40-492)** box.
6. Select a **Test Pattern** option.

You may use the default pattern or enter an 8-digit pattern (hex). For online test, you can select the **Terminate Test Upon Error** check box if you want the test to stop should it encounter an error.

7. Click **Start Test**.

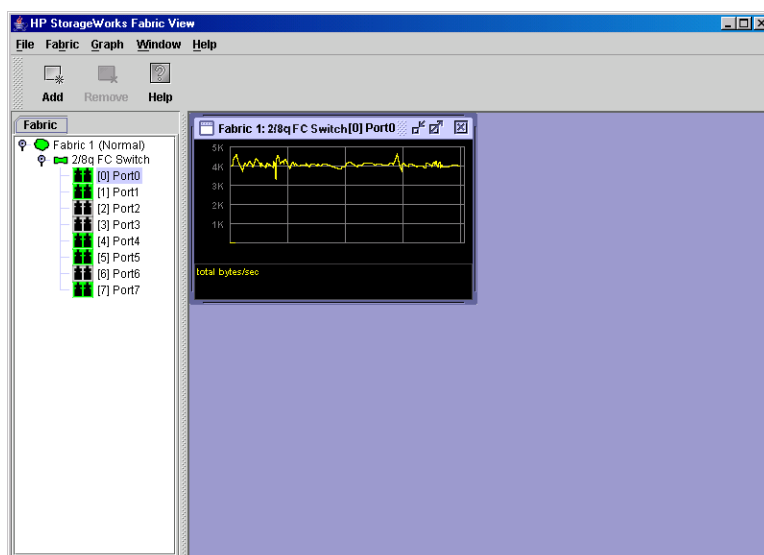
The Test Results area displays the test status, number of frames sent, and number of errors found.

8. Click **Close**.

## Graphing port performance

The HP StorageWorks Fabric View application displays port performance using graphs. HP StorageWorks Fabric View plots data communication rates and total errors for selected ports as shown in Figure 34. When graphing data communication rates, you can choose either frames/second or KB/second.

Fabric status is displayed in text format after the fabric name in the fabric tree. The color of the icon indicates the current connection status as normal (green), warning (yellow), critical (red), or unmanageable (blue).



**Figure 34: Fabric View graphs**

This section describes the following:

- [Starting HP StorageWorks Fabric View](#), page 91
- [Exiting HP StorageWorks Fabric View](#), page 92
- [Saving and opening Fabric View files](#), page 92
- [Changing the Default Fabric View File encryption key](#), page 93
- [Setting HP StorageWorks Fabric View preferences](#), page 93
- [Setting the polling frequency](#), page 93
- [Displaying graphs](#), page 94
- [Arranging graphs in the display](#), page 94
- [Customizing graphs](#), page 94
- [Printing graphs](#), page 96
- [Rescaling a selected graph](#), page 96
- [Saving graph statistics to a file](#), page 96

## Starting HP StorageWorks Fabric View

To start HP StorageWorks Fabric View from within Switch Manager, open the topology display and then select **Fabric > Start Fabric View**.

## Exiting HP StorageWorks Fabric View

To exit a HP StorageWorks Fabric View session, select **File > Exit**. The current fabric view is automatically saved to your default fabric view file upon exit, if you have defined an encryption key. The key is encrypted and saved with your default fabric view file. A fabric view file contains the set of fabrics that have been added and the graphs that have been opened during a HP StorageWorks Fabric View session. If you have not yet defined an encryption key, the Save Default Fabric View File dialog box (Figure 2) prompts you to save the current fabric view as the default fabric view file. See “[Changing the encryption key for the default fabric view file](#)” on page 23 for information about defining and changing this encryption key.

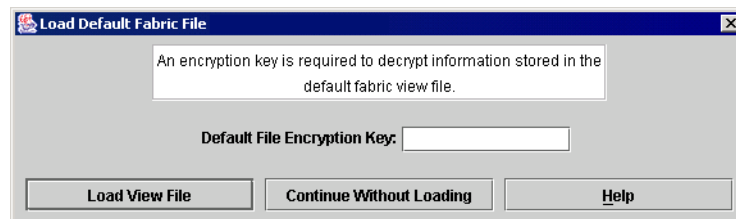
In the Save Default Fabric View File dialog box, enter an encryption key in the **Default Fabric File Encryption Key** box. Re-enter the encryption key in the **Re-enter Encryption Key to Confirm** box. Click **OK** to save the current set of HP StorageWorks Fabric View fabrics to the default fabric view file in the working directory.

To prevent HP StorageWorks Fabric View from prompting you to save the default fabric view file between sessions, set the **Auto Load and Save Graphing Environment** setting to Enable (default). See “[Setting HP StorageWorks Fabric View preferences](#)” on page 93 for more information.



**Figure 35: Save Default Fabric View File dialog box – HP StorageWorks Fabric View**

In your next HP StorageWorks Fabric View session, the Load Default Fabric File dialog box (Figure 3) prompts you to load the default fabric view file and to specify its encryption key, if there is one. In the **Default Fabric File Encryption Key** box, enter the encryption key and then click **Load View File**. If you do not want to load the default fabric view file, click **Continue Without Loading** to open the HP StorageWorks Fabric View with no fabric displayed.



**Figure 36: Load Default Fabric File dialog box – HP StorageWorks Fabric View**

## Saving and opening Fabric View files

In addition to the HP StorageWorks Fabric View default fabric view file, you can save and open your own fabric view files. The fabric view file contains the set of fabrics, graphs, and graphing options.

1. Select **File > Save View As**. The Save View dialog box is displayed.
2. Enter a name for the fabric file or click **Browse** to select an existing file.

Files are saved in the working directory.

3. Enter a password.

When you attempt to open this fabric file, you are prompted for this password. If you leave the **File Password** box blank, no password is required.

To open a fabric view file:

1. Select **File > Open View File**. The Open View dialog box is displayed.
2. Enter a name for the fabric file or click **Browse** to select an existing file.

## Changing the Default Fabric View File encryption key

1. Select **File > Save Default File Fabric View File**. The Save Default File Fabric View File dialog box is displayed.
2. Enter the new password in the **Default File Encryption Key** box.
3. Re-enter the same password in the **Re-enter Encryption Key to Confirm** box.
4. Click **OK** to save the changes.

## Setting HP StorageWorks Fabric View preferences

To set preferences, select **File > Preferences**. The Preferences dialog box is displayed (Figure 37). Set the following preferences and then click **OK** to save the changes:

- Change the location of the working directory in which to save files.
- Change the location of the browser used to view the online help.
- Enable or disable the **Auto Load and Auto Save Graphing Options** preference. When enabled, HP StorageWorks Fabric View prompts you to save and load the default fabric file between sessions. See “[Exiting HP StorageWorks Fabric View](#)” on page 92 for more information on the default fabric view file.

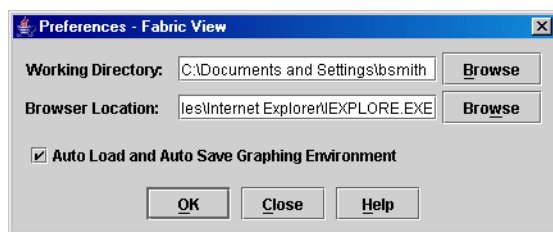


Figure 37: Preferences – HP StorageWorks Fabric View

## Setting the polling frequency

Fabric View updates the graphs once per second by default. To change this polling frequency:

1. Select **Graph > Set Polling Frequency**. The Set Graph Polling Frequency dialog box is displayed.
2. Enter the new polling interval in seconds [1–60].

Fabric View updates the graphs once during the interval. For example, setting the polling frequency to 5 seconds returns 1 second’s worth of data every 5 seconds.

3. Click **OK**.

## Displaying graphs

1. Select **Fabric > Add Fabric**. The Add a New Fabric dialog box is displayed.
2. Enter a fabric name and an IP address.
3. Enter an account name and a password, if required.
4. Set the graphing options and polling frequency.

By default, HP StorageWorks Fabric View plots total bytes transmitted and received at a polling frequency of once per second. See “[Customizing graphs](#)” on page 94 for information about changing what is plotted and how it is plotted.

5. You can display graphs in the following ways:
  - Click on a switch entry handle and select one or more ports.
  - Right-click on a switch icon in the fabric tree, and then select **Open Graph for All Ports on Switch** or **Open Graph for All Logged-In Ports on Switch** from the menu.
6. You can move graphs around individually by clicking and dragging, or you can arrange them as a group. See “[Arranging graphs in the display](#)” on page 94 for more information.

## Removing graphs

1. After viewing the graph, click **Remove**.
2. To remove all graphs, select **Window > Close All**.

To remove a fabric and its graphs:

1. Select the fabric in the fabric tree.
2. Select **Fabric > Remove Fabric**. You can also right-click on a fabric and then select **Remove Fabric** for the menu.

Right-clicking on a graph opens a menu from which you can change graph options, print a graph, or save the graph statistics to a file.

## Arranging graphs in the display

To arrange and size graphs in the display, select **Window > Cascade, Tile, or Close All**.

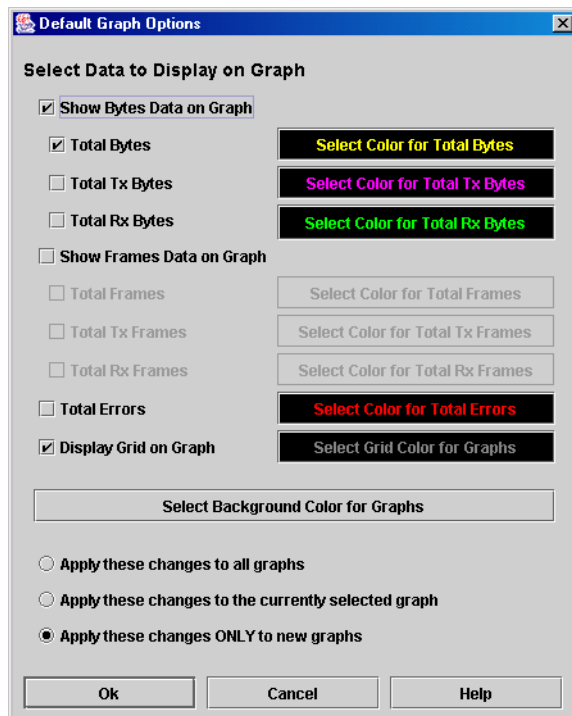
- **Cascade** overlaps the graphs so that all graphs are at least partially visible.
- **Tile** arranges the graphs in non-overlapping rows and columns.
- **Close All** closes all graphs.

You can also click a graph on the **Window** menu to bring that graph to the front.

## Customizing graphs

You can customize the graph polling frequency, what is plotted in the graphs, and the graph color scheme. To set the polling frequency for all graphs, refer to “[Setting the polling frequency](#)” on page 93.

1. Select **Graph > Modify Graph Options**. The Default Graph Options dialog box is displayed ([Figure 38](#)).



**Figure 38: Default Graph Options dialog box**

You can also right-click on a graph, and then select **Change Graph Options**.

1. Choose the units for the graph:
  - Select the **Show Bytes Data on Graph** check box to plot data in KBytes/second.
  - Select the **Show Frames Data on Graph** check box to plot data in frames/second.
2. Choose what data type to plot. For example, if you selected **Show Frames Data on Graph** in [step 1](#), you can plot one or all of the following:
  - Total frames transmitted and received (**Total Frames**)
  - Total frames transmitted (**Total Tx Frames**)
  - Total frames received (**Total Rx Frames**)

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**Note:** In addition to these, you can also plot total errors by selecting the **Total Errors** check box.

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3. Select **Display Grid on Graph** to display the unit grid.
4. Choose the color scheme for the graph:
  - a. Click **Select Color** to open its corresponding Select Color dialog box.
  - b. Select the color for each data type, the unit grid, and the background by clicking the corresponding color box or button.
 

In each case, you can choose a color using the Swatches, Red-Green-Blue (RGB), or Hue-Saturation-Brightness (HSB) method.

**Note:** Clicking **Reset** in the Swatches, HSB, and RGB tab pages of the Select Color dialog box resets the colors in the Preview area to the last saved color scheme. At this point you are only selecting a new color scheme to be saved.

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- Swatches – Click the **Swatches** tab. Select a swatch from the palette.
  - HSB – Click the **HSB** tab. Select a color using any of the following methods:
    - Click in the color palette.
    - Select **H**, **S**, or **B** and use the slide to vary the selected value.
    - Enter values in the **H**, **S**, or **B** input boxes.
  - RGB – Click the **RGB** tab. Select a color by moving the slides to adjust the values for red, blue, and green; or enter values in the input boxes.
- c. Click **OK**.
  5. Click the corresponding option to apply changes to all graphs, the currently selected graph, or all new graphs.
  6. Click **OK**.

## Printing graphs

1. Select a graph.
2. Select **File > Print Graph Window**.  
You can also right-click on a graph and then select **Print Graph Window** from the menu.

## Rescaling a selected graph

The Rescale Selected Graph option auto-scales downward and re-positions the data within a graphic window to display all new data captured by the graph.

1. Select a graph.
2. Select **Graph > Rescale Selected Graph** or right-click on the graph, and then select **Rescale** from the menu.
3. View the data in the graph window.

## Saving graph statistics to a file

Statistics for graphs can be saved to a file that can be opened with a spreadsheet application.

1. Select a graph.
2. Select **File > Save Current Graph Statistics to a File** or **Save All Graph Statistics to a File**. The Save dialog box is displayed.  
You can also right-click on a graph and select **Save Statistics to File**.
3. Enter a path name for the file.  
By default, the file is saved in the working directory.
4. Click **Save**.



## Interpreting Switch Manager messages

This section lists the Switch Manager messages by task, dialog box, or display. To find a message and what to do about it, consider what task you are performing, and refer to the corresponding subsection.

- [Fabrics File—Open, Save messages](#), page 97
- [Add a Fabric messages](#), page 97
- [Network Properties dialog box messages](#), page 98
- [Switch Properties dialog box messages](#), page 99
- [Port Properties dialog box messages](#), page 101
- [Faceplate display messages](#), page 102
- [Load Firmware dialog box messages](#), page 104
- [Port Loopback Test dialog box messages](#), page 104
- [Extended Credits wizard messages](#), page 106
- [Zoning dialog box messages](#), page 106
- [Restore Configuration dialog box messages](#), page 108
- [Save Fabric View dialog box messages](#), page 108
- [Trap Configuration dialog box messages](#), page 109

### Fabrics File—Open, Save messages

**Table 28: Fabrics file—Open, Save messages**

Message	User action
Failed opening fabrics list file <i>filename</i> .	Verify that the specified file exists on a file system that is reachable, and that the user has permissions to read the file.
Failed saving fabrics list file <i>filename</i> .	Verify that the specified file system is reachable, and that the user has permissions to write to the file system, to the directory, and to the file.

### Add a Fabric messages

**Table 29: Add a Fabric messages**

Message	User action
Fabric <i>fabricname</i> already exists! or Fabric name already in use.	Specify a name for the fabric that is not already assigned to an existing fabric.
Invalid IP Address	Verify that the IP address specified is syntactically correct.
The entry switch is of a type that is not supported.	The switch hardware or firmware version of the switch at the specified IP address is not supported. Choose the IP address of a different switch, or update the firmware using Telnet or the appropriate version of the application.

**Table 29: Add a Fabric messages (Continued)**

Message	User action
The maximum number of management sessions on the entry switch has been exceeded.	The application cannot establish a session with the fabric because too many sessions are already open. Close any other application or Telnet sessions to the fabric and try again.
Unable to login to switch. Reason: ...	Verify that the user name and password entered in the dialog box are valid login information for an account on the switch specified by the IP address box.
Unknown host <i>hostname</i> .	Verify that the host name specified for the IP address is a valid hostname for a switch in the fabric, and that the switch is reachable from the user's workstation.
Verify correct user name and password and retry.	Either the user name or password is incorrect. Enter the correct values and retry.

## Network Properties dialog box messages

**Table 30: Network Properties dialog box messages**

Message	User action
Attempt to change snmp community strings failed. or Attempt to change syslog configuration failed.	Verify that the data is valid, that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.
Unable to apply invalid syslog host address.	Verify that either a syntactically correct IP address was specified for the syslog host, or that a host name was specified for a valid syslog host that is reachable from the user's workstation.

## Switch Properties dialog box messages

**Table 31: Switch Properties dialog box messages**

Message	User action
Attempt to change chassis name failed. or Attempt to set in-band management failed. or Attempt to change domain ID lock failed. or Attempt to change SNMP configuration failed. or Attempt to change IP configuration failed. or Attempt to change chassis configuration failed. or Attempt to change timeout values failed. or Attempt to change broadcast support failed.	Verify that the data is valid, that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.
Disabling in-band management makes the switch unreachable. Do you wish to continue with this change?	If this feature is disabled, this switch is no longer manageable through this session to the fabric.  If this is acceptable, continue; otherwise cancel the operation.
Duplicate domain ID specified.	Verify that all information is valid and retry the configuration change. Consult the documentation for valid configurations.  Valid domain IDs must be in the range 1 to 239, and must be unique within a fabric.
If you set this in-band switch offline you need an ethernet connection to the switch to put it back online. Do you want to set switch offline? or If you set this in-band switch in diagnostics mode you need an ethernet connection to the switch to put it back online. Do you want to set switch in diagnostics mode?	These changes prevent the application from communicating with the switch in the fabric. Before applying the changes, verify that the switch is reachable through its own Ethernet port, and then add a new fabric (Fabric>Add Fabric) at the switch's own IP address.
IP configuration changes do not take effect until switch is reset.	The new IP configuration has been set on the switch, but the user has decided not to reset the switch at this time. Arrange a time when it is acceptable to disrupt communications between the hosts and storage systems, and then reset the switch to make the changes effective.
Modification of IP configuration requires a switch reset to take effect. The reset may disrupt traffic. Do you wish to continue?	This configuration information does not become effective unless the switch is reset. Resetting a switch in the fabric causes the servers and storage systems attached to the fabric to lose communications until the switch reset is complete and the fabric has re-initialized. If this is acceptable, continue; otherwise cancel the reset operation.

**Table 31: Switch Properties dialog box messages (Continued)**

Message	User action
Out of range domain ID specified.	<p>Verify that all information is valid and retry the configuration change. Consult the documentation for valid configurations.</p> <p>Valid domain IDs must be in the range 1 to 239, and must be unique within a fabric. If the fabric contains Switch with E_Port switches, all domain IDs must be in the same range of sixteen values: 1...16, 17...32, and so on.</p>
<p>Received error in attempting to edit switch configuration.</p> <p>or</p> <p>Received error in attempting to save switch configuration.</p> <p>or</p> <p>Received error in attempting to activate switch configuration.</p>	<p>Verify that the data is valid, that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.</p>
Reset will complete shortly. There is a brief loss of connectivity with switch.	<p>Wait for the switch to become reachable again. This may take up to one minute.</p>
<p>The new domain ID specified is invalid.</p> <p>Unable to apply invalid chassis/fabric ID values</p>	<p>Verify that all information is valid and retry the configuration change. Consult the documentation for valid configurations.</p> <p>Valid domain IDs must be in the range 1 to 239, and must be unique within a fabric. If the fabric contains Switch with E_Port switches, all domain IDs must be in the same range of sixteen values: 1...16, 17...32, and so on.</p>
Unable to apply changes. Failed to obtain admin privileges.	<p>Verify that another user is not currently modifying the switch configuration, using either the management application, or a telnet login, or any application.</p>
<p>Unable to apply invalid timeout values.</p> <p>or</p> <p>Unable to apply invalid IP address.</p> <p>or</p> <p>Unable to apply invalid trap address.</p> <p>or</p> <p>Unable to apply invalid subnet mask.</p> <p>or</p> <p>Unable to apply invalid gateway address.</p> <p>or</p> <p>Unable to apply invalid ARP timeout value.</p>	<p>Verify that all information is valid and retry the configuration change. Consult the documentation for valid configurations.</p> <p>Valid domain IDs must be in the range 1 to 239, and must be unique within a fabric. If the fabric contains Switch with E_Port switches, all domain IDs must be in the same range of sixteen values: 1...16, 17...32, and so on.</p>

## Port Properties dialog box messages

Table 32: Port Properties dialog box messages

Message	User action
Invalid value entered for interop credits. or Failed to set I/O stream guard change. or Failed to set new interop credits. or Request to save and activate config failed. or Received error in attempting to edit switch configuration. or Received error in attempting to save switch configuration. or Received error in attempting to activate switch configuration.	Verify that the data is valid, that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change. Interop Credits is not supported at this time.
Received error in attempting to release admin privileges.	The application did not receive a required response from the switch. This may be caused by a momentary or extended loss of communications with the fabric.  First refresh the information in the display to determine whether the changes took effect. If not, retry the changes.  If the error persists, determine whether communications with the switch have stopped, and resolve any network problems. When communication with the fabric has resumed, return to the application to view the properties for the port and verify whether the changes took effect. If not, retry the changes.
Request to save and activate config failed.	Verify that the data is valid, that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.

**Table 32: Port Properties dialog box messages (Continued)**

Message	User action
Unable to apply changes. Failed to obtain admin privileges.	Verify that another user is not currently modifying the switch configuration, using either the management application, or a Telnet login, or any other application, and then retry the operation.
Unable to confirm that port changes were successful.	<p>The application did not receive a required response from the switch. This may be caused by a momentary or extended loss of communications with the fabric.</p> <p>First refresh the information in the display to determine whether the changes took effect. If not, retry the changes.</p> <p>If the error persists, determine whether communications with the switch have stopped, and resolve any network problems. When communication with the fabric has resumed, return to the application to view the properties for the port and verify whether the changes took effect. If not, retry the changes.</p>
Unable to successfully apply port speed change. or Unable to successfully apply port state change. or Unable to successfully apply port type change.	Verify that the data is valid, that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.

## Faceplate display messages

**Table 33: Faceplate display messages**

Message	User action
Failed to clear the trap log.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.
Necessary information is missing for this switch. Firmware version on this switch is unsupported.	The user has attempted an action which cannot be completed because it requires information from the switch which the switch does not support. Update the firmware on the switch to the latest version.
Necessary information is missing for this switch. Retry later.	<p>The user has attempted an action which cannot be completed until specific information has been retrieved from the switch. This condition usually corrects within several seconds.</p> <p>If the condition doesn't correct itself, verify that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation. When the switch is reachable again, wait for the application to retrieve complete information from the switch (this may take up to one minute), or refresh the display.</p>

**Table 33: Faceplate display messages (Continued)**

Message	User action
One of the selected ports is currently in use as a donor port to allow for extended credits on another port. Modifications to donor ports are not permitted.	Deselect the donor ports, and then retry the operation.
Port reset failed. or Request to reset to factory defaults has failed. or Request for switch reset failed.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.
Request for switch reset failed because admin access was not available.	Verify that another user is not currently modifying the switch configuration, using either the management application, or a telnet login, or any application, and then retry the operation.
Reset will complete shortly. There is a brief loss of connectivity with switch.	Wait for the switch to become reachable again. This may take up to one minute.
Resetting the switch will disrupt traffic. Do you wish to continue? or Deactivating the active zone set will disrupt traffic. Do you wish to continue?	The requested action causes the servers and storage systems attached to the fabric to lose communications until the switch reset is complete and the fabric has re-initialized. If this is acceptable, continue; otherwise cancel the operation.
Resetting to factory defaults will disrupt traffic and cause current switch configuration to be lost.	This action is disruptive to the fabric. Verify that this is the action that you want to take.
Showing Last Known State.	The switch state displayed by the application cannot be updated because the switch has become unreachable. Verify that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation.
The file currently exists.	The selected switch archive file already exists. If it is acceptable to overwrite the file, continue. Otherwise, return and select a different archive file.
The online port loopback test can only be performed on a single port at a time. There are multiple ports selected. Continue with loopback test on first selected port.	Select only a single port, and then retry the operation.
The zoning information you are about to edit is incomplete. If you apply changes you will possibly lose zoning information.	The application has not been able to completely read the current zoning database from the switch. If the user edits the incomplete database information and applies the changes, any information which has not been read from the switch is lost.  If this is acceptable, continue. Otherwise, verify that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation then refresh the display and verify that the zoning database has been completely read, and then retry the operation.
Unable to perform request. Switch is currently unreachable.	Verify that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the operation.

## Load Firmware dialog box messages

**Table 34: Load Firmware dialog box messages**

Message	User action
Bad checksum/CRC for the firmware image or incorrect firmware image for this type of switch.	Select the correct firmware file for this switch.
File was not found.	Verify that the firmware file specified actually exists, or specify a new firmware file.
Firmware image had a bad CRC or was invalid for this type of switch.	Select a valid firmware image for this type of switch and retry the operation.
Firmware upload status unknown. Image has been uploaded, but confirmation from the switch was not received.	The application lost communications with the switch while the switch was unpacking the firmware image. If the problem was temporary, examine the firmware versions on the switch to verify that the firmware was unpacked correctly, or upload a new firmware image to the switch.
The flash memory on the switch may be too small for this image.	Select an appropriate firmware image for this type of switch and retry the operation.
Unable to load firmware.	An unspecified error has occurred. Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the firmware upload.
Unable to read file.	Verify that the firmware file specified exists and is readable by the user, on a file system readable by the user, or specify a new firmware file.

## Port Loopback Test dialog box messages

**Table 35: Port Loopback test dialog box messages**

Message	User action
Attempt to put port in diagnostic state has failed. Unable to continue with port test.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.
External port test requires a loopback device be plugged into the selected port. Click "OK" when loopback device is installed.	Verify that a loopback device is attached to the port before starting loopback test.
Failed to correctly restore port states for one or more ports.	Return to the faceplate view and then select <b>View&gt;Port State</b> to determine which port was not restored to its original state. Select the port, and then select <b>Port&gt;Port Properties</b> to restore the port state.
Invalid frame count value. or Invalid frame size. Must be 36 to 2148. or Invalid hex pattern. Up to 8 hex digits allowed.	Verify that all information is valid, and then retry the loopback test.



**Table 35: Port Loopback test dialog box messages (Continued)**

Message	User action
No device detected in selected port yet. Test will not be run on empty port.	Verify that a loopback device is attached to the port before starting loopback test. Verify that the port is online with an active login before starting the loopback test.
Request to get admin privileges failed.	Verify that another user is not currently modifying the switch configuration, using either the management application, or a telnet login, or any application, and then retry the operation.
Request to start loopback test failed. or Request to stop loopback test failed. or Request for loopback test results failed. or Request to reset loopback test results failed.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration change.
Switch is currently unreachable. Unable to accurately report status of port test.	The application lost communications with the switch while the switch was running the loopback tests, and could not determine whether the tests completed. If the problem was temporary, restart the loopback tests.
The port selected for online port test must be online with active login.	Verify that the port is online with an active login before starting the loopback test.
Timed out on response notifications. Test terminated.	The application lost communications with the switch while the switch was running the loopback tests, and could not determine whether the tests completed. If the problem was temporary, restart the loopback tests.
Unable to perform loopback test on port... ■ because port is not in diagnostic state. ■ because port is a donor port. ■ because there is already a port test in progress.	Correct the error indicated, and then retry the loopback test.

## Extended Credits wizard messages

**Table 36: Extended Credits wizard messages**

Message	User action
Request for admin failed.	Verify that another user is not currently modifying the switch configuration, using either the management application, or a telnet login, or any application, and then retry the operation.
Request for extended credits failed.	Verify that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the operation.
Request to edit config failed. or Request to save and activate config failed.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the operation.

## Zoning dialog box messages

**Table 37: Zoning dialog box messages**

Message	User action
Error loading zoning.	Verify that the specified zoning configuration file exists on a file system that is reachable, and that the user has permissions to read the file.
Error returned from switch.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then refresh the zoning information from the switch to determine whether any of the zoning configuration has been applied.  If necessary, re-edit the zoning configuration and apply to the switch again.
Error saving zoning.	Verify that the specified zoning configuration file exists on a file system that is reachable, and that the user has permissions to write the file.
Failed to obtain admin privileges.	Verify that another user is not currently modifying the switch configuration, using either the management application, or a telnet login, or any application, and then retry the operation.
Invalid name. Valid names start with a letter and valid chars include: all alphanumeric chars [aA - zZ] [0 - 9] symbols ['\$', '_', and '-']	Select a valid name for the object, and then retry the operation.
Maximum number of zones created.	Remove unnecessary objects from the zoning configuration, and then retry the operation.
No member(s) selected; nothing to add.	Select the members to add, and then retry the operation.

Table 37: Zoning dialog box messages (Continued)

Message	User action
No response from the switch. or Saving zoning data failed.	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then refresh the zoning information from the switch to determine whether any of the zoning configuration has been applied. If necessary, re-edit the zoning configuration and apply to the switch again.
The maximum number of members has been reached. or The maximum number of members per zone has been reached	Remove unnecessary objects from the zoning configuration and retry the operation.
The Orphan set is a place a holder for zones that are not in a set. It can not be deleted.	Do not attempt to delete the orphan zone set.
The zone set you are attempting to activate contains port based zoning and there are switches in the fabric that might not support this type of zoning. Some E_Ports may isolate. Do you wish to continue?	Not all switch vendors support port-based zoning. Consult the manual for these vendors' switches to determine whether to apply this zoning configuration to the fabric. This feature is not supported by HP.
The zoning configuration has been changed. Would you like to apply your changes?	The zoning configuration includes changes that have not been applied to the switch. Click <b>Yes</b> to apply the changes to the switch before continuing, or click <b>No</b> to discard the changes and continue.
There is already a zone by that name in a different Zone set. Would you like to add that zone to this Zone Set?	If the existing zone is the same as zone that the user wants to add to this zoneset, continue. Otherwise, select a unique name for the new zone, and then retry the operation.
There is already a zone set with that name. or There is already a zone with that name. or There is already a alias with that name.	Select a unique name for the new object, and then retry the operation.
This zoning configuration exceeds the limits for this switch.	Remove unnecessary objects from the zoning configuration, and then retry the operation.

**Table 37: Zoning dialog box messages (Continued)**

Message	User action
Unable to create alias.	The zoning configuration already contains the maximum allowed zoning aliases. Delete any unwanted aliases, and then retry the operation.
You are about to save a zoning configuration that was not completely read in. Saving this version will make the incomplete database permanent.	An error was encountered while reading the zoning database from the switch, and so the database edited by the user may be missing some zoning information.  Cancel the save, close the Zoning dialog, refresh the switch, and then retry the operation.
You have zones in the orphan zone set. These are not saved in the switch. Would you like to continue?	Orphan zones are not applied to the switch. If the orphan zones are to be applied to the switch, they must first be added to a configured zoneset. Orphan set is not saved on 2/8q FC switches, and is used only in the application while configuring zoning information.

## Restore Configuration dialog box messages

**Table 38: Restore Configuration dialog box messages**

Message	User action
Failed parsing filename.	Verify that the file specified is a valid archive file, and then retry the operation.
Possibly failed check switch!	The application lost communications with the switch while restoring the archived configuration, and could not determine whether the operation completed. If the problem was temporary, retry the operation.
Restore failed!	Verify that the user has permissions to modify the configuration on the switch, that the switch is reachable in the fabric, and that the fabric is reachable from the user's workstation, and then retry the configuration restore.

## Save Fabric View dialog box messages

**Table 39: Save Fabric View dialog box messages**

Message	User action
File filename already exists. Do you want to overwrite?	The specified view file already exists. Cancel, or continue to overwrite the file.

## Trap Configuration dialog box messages

Table 40: Trap Configuration dialog box messages

Message	User action
Invalid rising threshold. or Invalid falling threshold. or Invalid sample interval.	Verify that the information is correct, and then retry.
You must wait for trap information to be read first. or You must wait for alarm threshold information to be read first.	The application has not completely read in some configuration information which is needed for this operation. Wait until the information has been completely read and then retry.



# Command Line Interface

## 2

The command line interface (CLI) enables you to perform a variety of fabric and switch management tasks through an Ethernet or a serial port connection.

This section describes the following:

- [Logging on to a switch](#), page 112
- [Working with user accounts](#), page 112
- [Working with switch configurations](#), page 113
- [Commands](#), page 116

## Logging on to a switch

To log on to a switch using a Telnet session, open a command line window on the workstation and enter the Telnet command followed by the switch IP address:

```
# telnet ip_address
```

A Telnet window opens prompting you for a login. Enter an account name and password.

To log on to a switch through the serial port, configure the workstation port with the following settings and enter an account name and password when prompted.

**Table 41: Workstation port settings**

Parameter	Setting
Baud rate	9600 bits per second
Data bits	8
Parity	None
Stop bits	1

## Working with user accounts

Switches come from the factory with the following user account already defined:

**Table 42: Predefined user accounts**

Account name	Password	Authority
admin	password	admin

This user account provides full access to the switch and its configuration. After planning your fabric management needs and creating your own user accounts, consider changing the password for this account. See “[Commands](#)” on page 116 for more information about authority levels. See the “[User command](#)” on page 171 for information about creating user accounts.

---

**Note:** A switch supports a combined maximum of 19 logins or sessions reserved as follows:

- 4 logins or sessions for internal applications such as management server and SNMP.
  - 9 high priority Telnet sessions.
  - 6 logins or sessions for Switch Manager inband and out-of-band logins, and Telnet logins. Additional logins are refused.
-



## Working with switch configurations

Successful management of switches and fabrics with the command line interface depends on the effective use of switch configurations. Key switch management tasks include:

- [Modifying a configuration](#)
- [Backing up a switch configuration](#)
- [Restoring a switch configuration](#)

### Modifying a configuration

A switch supports up to 10 configurations including the default configuration. Each switch configuration contains switch, port, port threshold alarm, and zoning components.

The `Show Switch` command displays the name of the active configuration. A configuration name can have up to 31 characters excluding the pound symbol (#), semicolon (;), and comma (.). By editing the latest configuration and saving the results under a new name, you can create a history of configuration changes. Use the `Config List` command to display the names of the configurations stored on the switch:

```
2/8q FC Switch #> config list
Current list of configurations
-----
default
config_10132003
```

To modify a switch configuration you must open an Admin session with the `Admin Start` command. An Admin session prevents other accounts from making changes at the same time either through Telnet or Switch Manager. You must also open a `Config Edit` session with the `Config Edit` command and indicate which configuration you want to modify. If you do not specify a configuration name, the active configuration is assumed. The `Config Edit` session provides access to the `Set Config` commands with which you make modifications to the port, switch, port threshold alarm, or zoning configuration components as shown:

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config edit default
The config named default is being edited.
2/8q FC Switch (admin-config)#> set config port . . .
2/8q FC Switch (admin-config)#> set config switch . . .
2/8q FC Switch (admin-config)#> set config threshold . . .
2/8q FC Switch (admin-config)#> set config zoning . . .
```

The `Config Save` command saves the changes you made during the `Config Edit` session. In this case, changes to the configuration named `Default` are being saved to a new configuration named `config_10132003`. However, the new configuration does not take effect until you activate it with the `Config Activate` command as shown:

```
2/8q FC Switch (admin-config)#> config save config_10132003
2/8q FC Switch (admin)#> config activate config_10132003
2/8q FC Switch (admin)#> admin end
2/8q FC Switch #>
```

The `Admin End` command releases the Admin session for other administrators when you are done making changes to the switch.

## Backing up a switch configuration

Backing up and restoring a configuration is useful to protect your work or for use as a template in configuring other switches. The `Config Backup` command creates a file on the switch, named `configdata`. This file can be used to restore a switch configuration only from the command line interface; it cannot be used to restore a switch using Switch Manager.

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config backup
```

The `configdata` file contains all of the switch configuration information including the following:

- All named switch configurations including the default configuration. This includes port, switch, port threshold alarm, and zoning configuration components.
- All SNMP and network information defined with the `Set Setup` command.
- The zoning database included all zone sets, zones, and aliases.

Use FTP to download the `configdata` file to your workstation for safe keeping and to upload the file back to the switch for the restore function. To download the `configdata` file, open an FTP session on the switch and login with the account name `images` and password `images`. Transfer the file in binary mode using the `Get` command as shown:

```
>ftp ip_address
user:images
password: images

ftp>bin
ftp>get configdata
xxxxx bytes sent in xx secs.
ftp>quit
```

You should rename the `configdata` file on your workstation with the switch name and date, `config_switch_169_10112003`, for example.

## Restoring a switch configuration

The restore operation begins with FTP to upload the configuration file from the workstation to the switch, and then finishes with a Telnet session and the `Config Restore` command. To upload the configuration file, `config_switch_169_10112003` in this case, open and FTP session with account name `images` and password `images`. Transfer the file in binary mode using the `Put` command as shown:

```
ftp ip_address
user:images
password: images
ftp> bin
ftp> put config_switch_169_10112003 configdata
  Local file config_switch_169_10112003
  Remote file configdata
ftp>quit
```

The restore process replaces all configuration information on the switch and afterwards the switch is automatically reset. If the restore process changes the IP address, all management sessions are terminated. Use the `Set Setup System` command to return the IP configuration to the values you want. See the “[Set Setup command](#)” on page 147. To restore the switch, open a Telnet session, and then enter the `Config Restore` command from within an Admin session as shown:

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config restore
  The switch will be reset after restoring the configuration.
  Please confirm (y/n): [n] y
```

## Commands

The command is followed by one or more keywords. Consider the following rules and conventions:

- Commands and keywords are case insensitive.
- Required keyword values appear in standard font: [value]. Optional values are shown in italics: *[value]*.
- Underlined portions of the keyword in the command format indicate the abbreviated form that can be used. For example the Delete keyword can be abbreviated Del.

The command-line completion feature makes entering and repeating commands easier.

[Table 43](#) describes the command-line completion keystrokes.

**Table 43: Command line completion**

Keystroke	Effect
Tab	Completes the command line. Enter at least one character and press <b>Tab</b> to complete the command line. If more than one possibility exists, press <b>Tab</b> again to display all possibilities.
Up Arrow	Scrolls backward through the list of previously entered commands.
Down Arrow	Scrolls forward through the list of previously entered commands.
Ctrl-A	Moves the cursor to the beginning of the command line.
Ctrl-E	Moves the cursor to the end of the command line.

The command set performs monitoring and configuration tasks. Commands related to monitoring tasks are available to all account names. Commands related to configuration tasks are available only within an admin session. An account must have Admin authority to enter the `Admin Start` command, which opens an admin session. See the “[Admin command](#)” on page 117.

The commands and their page numbers are listed in [Table 44](#).

**Table 44: Commands listed by Authority Level**

Monitoring commands		Administrative commands	
<a href="#">Help command</a>	page 125	<a href="#">Admin command</a>	page 117
<a href="#">History command</a>	page 126	<a href="#">Alias command</a>	page 118
<a href="#">Ping command</a>	page 130	<a href="#">Config command</a>	page 119
<a href="#">Ps command</a>	page 130	<a href="#">Create Support command</a>	page 122
<a href="#">Quit command</a>	page 131	<a href="#">Date command</a>	page 123
<a href="#">Show command</a>	page 150	<a href="#">Firmware Install command</a>	page 123
<a href="#">Show Config command</a>	page 160	<a href="#">Hardreset command</a>	page 124
<a href="#">Show Log command</a>	page 163	<a href="#">Hotreset command</a>	page 126
<a href="#">Show Perf command</a>	page 165	<a href="#">Image command</a>	page 127
<a href="#">Show Setup command</a>	page 166	<a href="#">Lip command</a>	page 129
<a href="#">Uptime command</a>	page 171	<a href="#">Passwd command</a>	page 129

**Table 44: Commands listed by Authority Level (Continued)**

Monitoring commands		Administrative commands	
<a href="#">Whoami command</a>	page 173	<a href="#">Reset command</a>	page 131
		<a href="#">Set command</a>	page 135
		<a href="#">Set Config command</a>	page 137
		<a href="#">Set Log Command</a>	page 144
		<a href="#">Set Port command</a>	page 146
		<a href="#">Set Setup command</a>	page 147
		<a href="#">Shutdown command</a>	page 169
		<a href="#">Test command</a>	page 169
		<a href="#">User command</a>	page 171
		<a href="#">Zone Command</a>	page 174
		<a href="#">Zoneset command</a>	page 176

## Admin command

Opens and closes an Admin session. The Admin session provides commands that change the fabric and switch configurations. Only one Admin session can be open on the switch at any time. An inactive Admin session times out after a period of time which can be changed using the `Set Setup System` command. See the “[Set Setup command](#)” on page 147.

### Authority

Admin

### Syntax

ADMIN

### Keywords

START

Opens the admin session.

END

Closes the admin session. The `Hardreset`, `Logout`, `Shutdown`, and `Reset Switch` commands also end an admin session.

CANCEL

Terminates an Admin session opened by another user. Use this keyword with care because it terminates the Admin session without warning the other user and without saving pending changes.

### Notes

Closing a Telnet window during an admin session does not release the session. In this case, you must either wait for the admin session to time out, or use the `Admin Cancel` command.

## Examples

The following example shows how to open and close an Admin session:

```
2/8q FC Switch #> admin start

2/8q FC Switch (admin) #>

.
.
.

2/8q FC Switch (admin) #> admin end
2/8q FC Switch #>
```

## Alias command

Creates a named set of ports/devices. Aliases make it easier to assign a set of ports/devices to many zones. An alias can not have a zone or another alias as a member.

### Authority

Admin session for all keywords except `List` and `Members`.

### Syntax

```
ALIAS
```

### Keywords

```
ADD [ALIAS] [ MEMBER_LIST]
```

Specifies one or more ports/devices given by [member\_list] to add to the alias named [alias]. Use a <space> to delimit ports/devices in [member\_list]. An alias can have a maximum of 2000 members. The application verifies that the [alias] format is correct, but does not validate that such a port/device exists. A port/device in [member\_list] can have any of the following formats:

- Domain ID and port number pair (Domain ID, Port Number). Domain IDs can be 1--239; port numbers can be 0--255.
- 6-character hexadecimal device Fibre Channel address (hex)
- 16-character hexadecimal worldwide port name (WWPN) with the format `XX:XX:XX:XX:XX:XX:XX:XX`

```
COPY [ALIAS_SOURCE] [ALIAS_DESTINATION]
```

Creates a new alias named [alias\_destination] and copies the membership into it from the alias given by [alias\_source].

```
CREATE [ALIAS]
```

Creates an alias with the name given by [alias]. An alias name must begin with a letter and be no longer than 64 characters. Valid characters are 0-9, A-Z, a-z, \_, \$, ^, and -. The zoning database supports a maximum of 256 aliases.

DELETE [ALIAS]

Deletes the specified alias given by [alias] from the zoning database. If the alias is a member of the active zone set, the alias will not be removed from the active zone set until the active zone set is deactivated.

LIST

Displays a list of all aliases. This keyword does not require an admin session.

MEMBERS [ALIAS]

Displays all members of the alias given by [alias]. This keyword does not require an admin session.

REMOVE [ALIAS] [MEMBER\_LIST]

Removes the ports/devices given by [member\_list] from the alias given by [alias]. Use a <space> to delimit ports/devices in [member\_list]. A port/device in [member\_list] can have any of the following formats:

- Domain ID and port number pair (Domain ID, Port Number). Domain IDs can be 1–239; port numbers can be 0–255.
- 6-character hexadecimal device Fibre Channel address (hex)
- 16-character hexadecimal worldwide port name (WWPN) for the device with the format xx:xx:xx:xx:xx:xx:xx:xx.

RENAME [ALIAS\_OLD] [ALIAS\_NEW]

Renames the alias given by [alias\_old] to the alias given by [alias\_new].

## Config command

Manages the Fibre Channel configurations on a switch. For information about setting the port and switch configurations, refer to the “[Set Config command](#)” on page 137.

### Authority

Admin session for all keywords except Backup and List.

### Syntax

config

### Keywords

ACTIVATE [*config\_name*]

Activates the configuration given by [config\_name]. If you omit [config\_name], the currently active configuration is used. Only one configuration can be active at a time.

BACKUP

Creates a file named `configdata`, which contains the system configuration information. To download this file, open an FTP session, log in with account name/password of `images` for both, and type `get configdata`. See “[Backing up a switch configuration](#)” on page 114. This keyword does not require an Admin session.

CANCEL

Terminates the current configuration edit session without saving changes that were made.

`COPY [config_source] [config_destination]`

Copies the configuration given by [config\_source] to the configuration given by [config\_destination]. The switch supports up to 10 configurations including the default configuration.

`DELETE [config_name]`

Deletes the configuration given by [config\_name] from the switch.

`EDIT [config_name]`

Opens an edit session for the configuration given by [config\_name]. If you omit [config\_name], the currently active configuration is used.

`LIST`

Displays a list of all available configurations on the switch. This keyword does not require an admin session.

`RESTORE`

Restores configuration settings to an out-of-band switch from a backup file named `configdata`, which must be first uploaded on the switch using FTP. You create the backup file using the `Config Backup` command. Use FTP to load the backup file on a switch, and then enter the `Config Restore` command. After the restore is complete, the switch automatically resets. See [“Backing up a switch configuration”](#) on page 114.

---

**Note:**

- If the restore process changes the IP address, all management sessions are terminated. Use the `Set Setup System` command to return the IP configuration to the values you want. See the [“Set Setup command”](#) on page 147.
  - Configuration archive files created with the Switch Manager Archive function are not compatible with the `Config Restore` command.
- 

`SAVE [config_name]`

Saves changes made during a configuration edit session in the configuration given by [config\_name]. If you omit [config\_name], the value for [config\_name] you chose for the most recent `Config Edit` command is used. [config\_name] can be up to 31 characters excluding #, semicolon (;), and comma (.). The switch supports up to 10 configurations including the default configuration.

**Notes**

If you edit the active configuration, changes are held in suspense until you reactivate the configuration or activate another configuration.

**Examples**

The following shows an example of how to open and close a Config Edit session:

```
2/8q FC Switch #> admin start
```

```
2/8q FC Switch (admin) #> config edit
```

```
    The config named default is being edited.
```

```
.
```

```
.
```



```
2/8q FC Switch (admin-config) #> config cancel
Configuration mode will be canceled. Please confirm (y/n): [n] y
2/8q FC Switch (admin) #> admin end
```

The following is an example of how to create a backup file (configdata) and download the file to the workstation:

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config backup
2/8q FC Switch (admin) #> admin end
2/8q FC Switch #> exit
```

```
#>ftp symbolic_name or ip_address
user: images
password: images
ftp> bin
ftp> get configdata
ftp> quit
```

The following is an example of how to upload a configuration backup file (configdata) from the workstation to the switch, and then restore the configuration:

```
#> ftp symbolic_name or ip_address
user: images
password: images
ftp> bin
ftp> put configdata
ftp> quit
```

```
2/8q FC Switch #> admin start
```

```
2/8q FC Switch (admin) #> config restore
```

The switch will be reset after restoring the configuration.

```
Please confirm (y/n): [n] y
```

```
Alarm Msg: [Tue Jun 10 09:25:56.938 2003][A1005.0021][SM][Configuration
is being restored - this could take several minutes !]
```

```
Alarm Msg: [Tue Jun 10 09:26:19.266 2003][A1000.000A][SM][The switch
will be reset in 3 seconds due to a config restore]
```

```
2/8q FC Switch (admin) #>
```

```
Alarm Msg: [Tue Jun 10 09:26:22.296 2003][A1000.0005][SM][The switch is
being reset]
```

```
Good bye.
```

## Create Support **command**

Assembles all log files and switch memory data into a core dump file (`dump_support.tgz` zip) and prompts you to send it to a remote host. This file is useful to technical support personnel for troubleshooting switch problems. Use this command when directed by your HP Authorized Service Provider. The command prompts for the IP address of the remote host, an account name and password on the remote host, and a pathname for an existing folder on the remote host.

### Authority

Admin

### Syntax

```
CREATE SUPPORT
```

### Examples

```
2/8q FC Switch # (admin) #> create support
Log Msg: [day month date time UTC 2004][C][8400.003B][Switch][Creating the
support file - this will take several seconds]

FTP the dump support file to another machine? (y/n): y
Enter IP Address of remote computer: 10.20.33.130
Login name: johndoe
Enter remote directory name: bin/support
Would you like to continue downloading support file? (y/n) [n]: y

Connected to 10.20.33.130 (10.20.33.130).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
331 Password required for johndoe.
Password: xxxxxxxx
230 User johndoe logged in.
cd bin/support
250 CWD command successful.
lcd /itasca/conf/images
Local directory now /itasca/conf/images
bin

200 Type set to I.
put dump_support.tgz
local: dump_support.tgz remote: dump_support.tgz
227 Entering Passive Mode (10,20,33,130,232,133)
150 Opening BINARY mode data connection for dump_support.tgz.
226 Transfer complete.
43430 bytes sent in 0.292 secs (1.5e+02 Kbytes/sec)
```

```
Remote system type is UNIX.  
Using binary mode to transfer files.  
221-You have transferred 43430 bytes in 1 files.  
221-Total traffic for this session was 43888 bytes in 1 transfers.  
221 Thank you for using the FTP service on localhost.localdomain.  
  
FTP the dump support file to another machine? (y/n): n
```

## Date **command**

This command displays or sets the system date and time. To set the date and time the information string must be provided in this format: MMDDhhmmCCYY. The new date and time takes effect immediately.

### Authority

Admin session, except to display the date.

### Syntax

```
DATE
```

### Keywords

```
[MMDDhhmmCCYY]
```

Specifies the date—this requires an admin session. If you omit [MMDDhhmmCCYY], the current date is displayed, which does not require an admin session.

### Examples

```
2/8q FC Switch #> date  
Mon Apr 07 07:51:24 2003
```

## Firmware Install **command**

Downloads firmware from a remote host to the switch, installs the firmware, and then resets the switch (without a power-on self test) to activate the firmware. If possible, a non-disruptive firmware activation is performed. The command prompts you for the IP address of the remote host, an account name and password on the remote host, and a pathname for the firmware image file.

### Authority

Admin

### Syntax

```
FIRMWARE INSTALL
```

## Examples

```
2/8q FC Switch (admin) #> firmware install
Warning: Installing new firmware requires a switch reset.
Continuing with this action will terminate all management sessions,
including any Telnet sessions. When the firmware activation is complete,
you may log in to the switch again.

Do you want to continue? [y/n]: y
    Press 'q' and the ENTER key to abort this command.

User Account      : johndoe
IP Address        : 10.20.33.130
Source Filename   : 4.0.3.04.00_mpc

About to install image. Do you want to continue? [y/n] y

Connected to 10.20.33.130 (10.20.33.130).
220 localhost.localdomain FTP server (Version wu-2.6.1-18) ready.
331 Password required for johndoe.
Password: xxxxxxxxx
230 User johndoe logged in.
bin
200 Type set to I.
verbose
Verbose mode off.
    This may take several seconds...
    The switch will now reset.
Connection closed by foreign host.
```

## Hardreset command

Resets the switch and performs a power-on self test. This reset disrupts traffic, activates the pending firmware, and clears the alarm log. To save the alarm log before resetting, refer to the [“Set Log Command”](#) on page 144.

### Authority

Admin

### Syntax

```
HARDRESET
```

### Notes

To reset the switch without a power-on self test, refer to the [“Reset command”](#) on page 131.

## Help command

Displays a brief description of the specified command, its keywords, and usage.

### Authority

None

### Syntax

```
HELP [COMMAND] [KEYWORD]
```

### Keywords

[COMMAND]

Displays a summary of the command given by [command] and its keywords. If you omit [command], the system displays all available commands.

[KEYWORD]

Displays a summary of the keyword given by [keyword] belonging to the command given by [command]. If you omit [keyword], the system displays the available keywords for the specified command.

ALL

Displays a list of all available commands (including command variations).

### Examples

```
2/8q FC Switch #> help config
```

```
config CONFIG_OPTIONS
```

The config command operates on configurations.

```
Usage: config { activate | backup | cancel | copy | delete |
              edit | list | restore | save }
```

The following is an example of the Help Config Edit command:

```
2/8q FC Switch #> help config edit
```

```
config edit [CONFIG_NAME]
```

This command initiates a configuration session and places the current session

into config edit mode.

If CONFIG\_NAME is given and it exists, it gets edited; otherwise, it gets created. If it is not given, the currently active configuration is edited.

Admin mode is required for this command.

```
Usage: config edit [CONFIG_NAME]
```

## History command

Displays a numbered list of the previously entered commands from which you can re-execute selected commands.

### Authority

None

### Syntax

```
HISTORY
```

### Notes

Use the `History` command to provide context for the `!` command:

- Enter `![command]` to re-enter the most recent execution of that command.
- Enter `![line number]` to re-execute the corresponding command from the History display.
- Enter `![partial command string]` to re-execute a command that matches the command string.
- Enter `!!` to re-execute the most recent command.

### Examples

```
2/8q FC Switch #> history
 1 show switch
 2 date
 3 help set
 4 history
```

```
2/8q FC Switch #> !3
help set
```

```
set SET_OPTIONS
There are many attributes that can be set.
Type help with one of the following to get more information:
```

```
Usage: set { alarm      | beacon      | config      | log          | pagebreak |
           port        | setup       | switch     }
```

## Hotreset command

Resets the switch for the purpose of activating the pending firmware without disrupting traffic. This command terminates all management sessions, saves all configuration information, and clears the alarm log. After the pending firmware is activated, the configuration is recovered. This process takes less than 80 seconds. To save the alarm log to a file before resetting, refer to the [“Set Log Command”](#) on page 144.

### Authority

Admin

**Syntax**

```
hotreset
```

**Notes**

You can load and activate firmware on an operating switch without disrupting data traffic or having to re-initialize attached devices under the following conditions:

- No changes are being made to switches in the fabric including powering up, powering down, and switch configuration changes.
- No port in the fabric is in the diagnostic state.
- No zoning changes are being made in the fabric.
- No changes are being made to attached devices including powering up, powering down, disconnecting, connecting, and HBA configuration changes.

Ports that are stable when the non-disruptive activation begins and then change states, are reset. When the non-disruptive activation is complete, Switch Manager sessions reconnect automatically. However, Telnet sessions must be restarted manually. This command clears the event log and all counters.

**Image command**

Manages and installs switch firmware.

**Authority**

Admin

**Syntax**

```
IMAGE
```

**Keywords**

```
CLEANUP
```

Removes all firmware image files from the switch. All firmware image files are removed automatically each time the switch is reset.

```
FETCH [ACCOUNT_NAME] [IP_ADDRESS] [FILE_SOURCE] [FILE_DESTINATION]
```

Retrieves image file given by [file\_source] and stores it on the switch with the file name given by [file\_destination]. The image file is retrieved from the FTP server with the IP address given by [ip\_address] and an account name given by [account\_name]. If an account name needs a password to access the FTP server, the system prompts you for it.

```
INSTALL
```

Downloads firmware from a remote host to the switch, unpacks the firmware, and then activates the firmware. The command prompts you for IP address of the remote host, an account name and password, and path name for the firmware image file.

```
LIST
```

Displays the list of image files that reside on the switch.

```
UNPACK [FILE]
```

Installs the firmware file given by [file]. After unpacking the file, a message is displayed confirming successful unpacking. The switch must be reset for the new firmware to take effect.

**Notes**

To install firmware when the management workstation has an FTP server, use the `Image Install` command or the “[Firmware Install command](#)” on page 123. To install firmware when the management workstation does not have an FTP server:

1. Connect to the switch through the Ethernet or the serial port.
2. Move to the folder or directory on the workstation that contains the new firmware image file.
3. Establish communications with the switch using the File Transfer Protocol (FTP). Enter one of the following on the command line:

```
>ftp xxx.xxx.xxx.xxx
```

```
or
```

```
>ftp switchname
```

where `xxx.xxx.xxx.xxx` is the switch IP address, and `switchname` is the switch name associated with the IP address.

4. Enter the following account name and password:

```
user:images
```

```
password: images
```

5. Activate binary mode and copy the firmware image file on the switch:

```
ftp>bin
```

```
ftp>put filename
```

6. Wait for the transfer to complete, and then close the FTP session.

```
xxxxx bytes sent in xx secs.
```

```
ftp>quit
```

7. Establish communications with the switch using the CLI. Enter one of the following on the command line:

```
telnet xxx.xxx.xxx.xxx
```

```
or
```

```
telnet switchname
```

where `xxx.xxx.xxx.xxx` is the switch IP address, and `switchname` is the switch name associated with the IP address.

8. A Telnet window opens prompting you for a login. Enter an account name and password. The default account name and password are (admin, password).
9. Open an Admin session to acquire the necessary authority.

```
2/8q FC Switch $>admin start
```

10. Display the list of firmware image files on the switch to confirm that the file was loaded.

```
2/8q FC Switch (admin) $>image list
```

11. Unpack the firmware image file to install the new firmware in flash memory.

```
2/8q FC Switch (admin) $>image unpack filename
```

12. Wait for the unpack to complete.

```
image unpack command result: Passed
```



13. A message prompts you to reset the switch to activate the firmware.  
Enter the `hotreset` command to perform a non-disruptive firmware activation.
- ```
2/8q FC Switch (admin) $>hotreset
```

## Lip command

Reinitializes the specified loop port.

### Authority

Admin

### Syntax

```
LIP [PORT_NUMBER]
```

### Keywords

```
[PORT_NUMBER]
```

The number of the port to be reinitialized.

### Examples

```
2/8q FC Switch (admin) #> lip 2
```

## Passwd command

Changes a user account's password.

### Authority

Admin account name and an admin session to change another account's password; you can change you own password without an Admin session.

### Syntax

```
PASSWD [ACCOUNT_NAME]
```

### Keywords

```
[ACCOUNT_NAME]
```

The user account name. To change the password for an account name other than your own, you must open an admin session with the account name Admin. If you omit [account\_name], you are prompted to change the password for the current account name.

### Examples

```
2/8q FC Switch (admin) #> passwd user2
```

Press 'q' and the ENTER key to abort this command.

```
account OLD password           : *****
account NEW password (4-20 chars) : *****
```

```
please confirm account NEW password: *****
password has been changed.
```

## Ping command

Initiates an attempt to communicate with another switch over an Ethernet network and reports the result.

### Authority

None

### Syntax

PING

### Keywords

IP\_ADDRESS

The IP address of the switch to query.

### Examples

The following is an example of a successful Ping command:

```
2/8q FC Switch #> ping 10.20.11.57
Ping command issued. Waiting for response...
2/8q FC Switch #>
Response successfully received from 10.20.11.57.
```

This following is an example of an unsuccessful Ping command:

```
2/8q FC Switch #> ping 10.20.10.100
Ping command issued. Waiting for response...
No response from 10.20.10.100. Unreachable.
```

## PS command

Displays current system process information.

### Authority

None

### Syntax

PS

### Examples

```
2/8q FC Switch #> ps
PID  PPID  %CPU   TIME      ELAPSED  COMMAND
338   327   0.0   00:00:00  3-01:18:35  cns
339   327   0.0   00:00:01  3-01:18:35  ens
340   327   0.0   00:00:21  3-01:18:35  dlog
341   327   0.1   00:05:35  3-01:18:35  ds
342   327   0.2   00:11:29  3-01:18:35  mgmtApp
343   327   0.0   00:00:04  3-01:18:35  fc2
344   327   0.0   00:02:16  3-01:18:35  nserver
345   327   0.0   00:02:44  3-01:18:35  mserver
```

```
346 327 0.8 00:35:12 3-01:18:35 util
347 327 0.0 00:00:29 3-01:18:35 snmpservicepath
348 327 0.0 00:02:46 3-01:18:34 eport
349 327 0.0 00:00:21 3-01:18:34 PortApp
350 327 5.6 04:08:24 3-01:18:34 port_mon
351 327 0.0 00:01:38 3-01:18:34 zoning
352 327 0.0 00:00:01 3-01:18:34 diagApp
404 327 0.0 00:00:04 3-01:18:27 snmpd
405 327 0.0 00:00:02 3-01:18:27 snmpmain
406 405 0.0 00:00:00 3-01:18:26 snmpmain
```

## Quit **command**

Closes the Telnet session.

### **Authority**

None

### **Syntax**

QUIT

or

EXIT

or

LOGOUT

### **Notes**

You can also press **Ctrl+D** to close the Telnet session.

## Reset **command**

Resets the switch configuration parameters. If you omit the keyword, the default is the Reset Switch command.

### **Authority**

Admin

### **Syntax**

RESET

**Keywords****CONFIG** [*CONFIG\_NAME*]

Resets the configuration given by [config\_name] to the factory default values for switch, port, port threshold alarm, and zoning configuration. If [config\_name] does not exist on the switch, a configuration with that name is created. If you omit [config\_name], the active configuration is reset. You must activate the configuration for the changes to take effect. See [Table 45](#) through [Table 47](#) for switch, port, and port threshold alarm configuration default values.

**FACTORY**

Resets switch configuration, port configuration, port threshold alarm configuration, zoning configuration, SNMP configuration, system configuration, and zoning to the factory default values. The switch configuration is activated automatically. See [Table 45](#) through [Table 50](#).

---

**Note:** Because this keyword changes network parameters, the workstation could lose communication with the switch and release the Admin session.

---

**PORT** [*PORT\_NUMBER*]

Reinitializes the port given by [port\_number]. Ports are numbered beginning with 0.

**SNMP**

Resets the SNMP configuration settings to the factory default values. See [Table 49](#) for SNMP configuration default values.

**SWITCH**

Resets the switch without a power-on self test. This is the default. This reset disrupts traffic and does the following:

- Activates the pending firmware.
- Closes all management sessions.
- Clears the alarm log. To save the alarm log before resetting, refer to the “[Set Log Command](#)” on page 144.

To reset the switch with a power-on self test, refer to the “[Hardreset command](#)” on page 124.

**SYSTEM**

Resets the system configuration settings to the factory default values. See [Table 50](#) for system configuration default values.

---

**Note:** Because this keyword changes network parameters, the workstation could lose communication with the switch.

---

**ZONING**

Clears the zoning database and deactivates the active zone set. The zoning configuration values (autosave, default visibility) remain unchanged.

**Notes**

The following tables specify the various factory default settings:

**Table 45: Switch configuration default settings**

| Parameter                 | Default setting                |
|---------------------------|--------------------------------|
| Admin State               | Online                         |
| Broadcast Enabled         | True                           |
| Inband Enabled            | True                           |
| Domain ID                 | 1 (0x Hex)                     |
| Domain ID Lock            | False                          |
| Symbolic Name             | 2/8q FC Switch                 |
| R_A_TOV                   | 10000                          |
| E_D_TOV                   | 2000                           |
| Principal Priority        | 254                            |
| Configuration Description | HP StorageWorks 2/8q FC Switch |

**Table 46: Port configuration default settings**

| Parameter         | Default setting                    |
|-------------------|------------------------------------|
| Admin State       | Online                             |
| Link Speed        | Auto                               |
| Port Type         | GL                                 |
| Symbolic Name     | Port n, where n is the port number |
| ALFairness        | False                              |
| DeviceScanEnabled | True                               |
| ForceOfflineRSCN  | False                              |
| ARB_FF            | False                              |
| InteropCredit     | 0                                  |
| ExtCredit         | 0                                  |
| FANEnable         | True                               |
| LCFEnable         | False                              |
| MFSEnable         | True                               |
| MSEnable          | True                               |
| NoClose           | False                              |
| IOStreamGuard     | Disabled                           |
| VIEnable          | False                              |
| PDISCPingEnable   | True                               |

**Table 47: Port threshold alarm configuration default settings**

| Parameter                     | Default setting |
|-------------------------------|-----------------|
| ThresholdMonitoringEnabled    | False           |
| CRCErrorsMonitoringEnabled    | True            |
| RisingTrigger                 | 25              |
| FallingTrigger                | 1               |
| SampleWindow                  | 10              |
| DecodeErrorsMonitoringEnabled | True            |
| RisingTrigger                 | 200             |
| FallingTrigger                | 0               |
| SampleWindow                  | 10              |
| LoginMonitoringEnabled        | True            |
| RisingTrigger                 | 5               |
| FallingTrigger                | 1               |
| SampleWindow                  | 10              |
| LogoutMonitoringEnabled       | True            |
| RisingTrigger                 | 5               |
| FallingTrigger                | 1               |
| SampleWindow                  | 10              |
| LOSMonitoringEnabled          | True            |
| RisingTrigger                 | 100             |
| FallingTrigger                | 5               |
| SampleWindow                  | 10              |

**Table 48: Zoning configuration default settings**

| Parameter          | Default setting      |
|--------------------|----------------------|
| InteropAutoSave    | True (not supported) |
| Default Visibility | All                  |

**Table 49: SNMP configuration default settings**

| Parameter           | Default setting                        |
|---------------------|----------------------------------------|
| SNMPEnabled         | True                                   |
| Contact             | <syscontact undefined>                 |
| Location            | <sysLocation undefined>                |
| Description         | HP StorageWorks 2/8q FC Switch         |
| Trap [1-5] Address  | Trap 1: 10.0.0.254; Traps 2-5: 0.0.0.0 |
| Trap [1-5] Port     | 162                                    |
| Trap [1-5] Severity | Warning                                |
| Trap [1-5] Version  | 2                                      |
| Trap [1-5] Enabled  | False                                  |

**Table 49: SNMP configuration default settings (Continued)**

| Parameter       | Default setting             |
|-----------------|-----------------------------|
| Object ID       | 1.3.6.1.4.1.1663.1.1.1.1.31 |
| AuthFailureTrap | False                       |
| ProxyEnabled    | True                        |

**Table 50: System configuration default settings**

| Parameter                   | Default setting |
|-----------------------------|-----------------|
| Ethernet Network Discovery  | Static          |
| Ethernet Network IP Address | 10.0.0.1        |
| Ethernet Network IP Mask    | 255.0.0.0       |
| Ethernet Gateway Address    | 10.0.0.254      |
| Admin Timeout               | 30 minutes      |
| LocalLogEnabled             | True            |
| RemotelogEnabled            | False           |
| RemoteLogHostAddress        | 10.0.0.254      |
| NTPClientEnabled            | False           |
| NTPServerAddress            | 10.0.0.254      |

## Set command

Sets a variety of switch parameters.

### Authority

Admin for all keywords except Alarm, Beacon, and Pagebreak.

### Syntax

SET

### Keywords

ALARM [option]

Controls the display of alarms in the session output stream or clears the alarm log. [option] can be one of the following:

CLEAR—Clears the alarm log history. This value requires an Admin session.

ON—Enables the display of alarms in the session output stream.

OFF—Disables the display of alarms in the session output stream.

BEACON [state]

Enables or disables the flashing of the Logged-In LEDs according to [state]. This keyword does not require an admin session. [state] can be one of the following:

ON—Enables the flashing beacon.

OFF—Disables the flashing beacon.

CONFIG [option]

Sets switch, port, port threshold alarm, and zoning configuration parameters. See the “[Set Config command](#)” on page 137.

LOG [option]

Specifies the type of entries to be entered in the event log. See the “[Set Log Command](#)” on page 144.

PAGEBREAK [state]

Specifies how much information is displayed on the screen at a time according to the value given by [state]. This keyword does not require an admin session. [state] can be one of the following:

ON—Limits the display of information to 20 lines at a time. The page break functions affects the following commands: Alias (List, Members), Show (Alarm, Log), Zone (List, Members), Zoneset (List, Zones), Zoning (Active, List).

OFF—Allows continuous display of information without a break.

PORT [option]

Sets port state and speed for the specified port. The previous Set Config Port settings are restored after a switch reset or a reactivation of a switch configuration. See the “[Set Port command](#)” on page 146.

SETUP [option]

Changes SNMP and system configuration settings. See the “[Set Setup command](#)” on page 147.

SWITCH [state]

Changes the administrative state for all ports on the switch to the state given by [state]. The previous Set Config Switch settings are restored after a switch reset or a reactivation of a switch configuration. [state] can be one of the following:

ONLINE—Places all ports online

OFFLINE—Places all ports offline.

DIAGNOSTICS—Prepares all ports for testing.

### Examples

```
2/8q FC Switch #> set beacon on
2/8q FC Switch $> set beacon off
```



## Set Config **command**

Sets switch, port, port threshold alarm, and zoning configuration parameters. The changes you make with this command are not retained when you reset or power cycle the switch unless you save them using the `Config Save` command. See the “[Config command](#)” on page 119.

### Authority

Admin and Config Edit

### Syntax

`SET CONFIG`

### Keywords

`PORT [port_number]`

Initiates an edit session in which to change configuration parameters for the port number given by `[port_number]`. If you omit `[port_number]`, the system begins with port 0 and proceeds in order through the last port. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets. Enter `q` to end the configuration for one port, or `qq` to end the configuration for all ports. [Table 51](#) describes the port parameters.

`PORTS [port_number]`

Initiates an editing session in which to change configuration parameters for all ports based on the configuration for the port given by `[port_number]`. If you omit `[port_number]`, port 0 is used. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets. Enter `q` to end the configuration. [Table 51](#) describes the port parameters.

**Table 51: Set Config port parameters**

| Parameter         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AdminState        | Port administrative state: <ul style="list-style-type: none"> <li>■ Online – Activates and prepares the port to send data. This is the default.</li> <li>■ Offline – Prevents the port from receiving signal and accepting a device login.</li> <li>■ Diagnostics – Prepares the port for testing and prevents the port from accepting a device login.</li> <li>■ Down – Disables the port by removing power from the port lasers.</li> </ul> |
| LinkSpeed         | Transmission speed: 2 Gbps or Auto. The default is Auto.                                                                                                                                                                                                                                                                                                                                                                                      |
| PortType          | Port type: GL, G, F, FL, Donor. The default is GL.                                                                                                                                                                                                                                                                                                                                                                                            |
| SymbolicPortName  | Descriptive name for the port. The name can be up to 32 characters excluding #, semicolon (;), and comma (,). The default is Port n where n is the port number.                                                                                                                                                                                                                                                                               |
| ALFairness        | Arbitration loop fairness. Enables (True) or disables (False) the switch's priority to arbitrate on the loop. The default is False.                                                                                                                                                                                                                                                                                                           |
| DeviceScanEnabled | Enables (True) or disables (False) the scanning of the connected device for FC-4 descriptor information during login. The default is True.                                                                                                                                                                                                                                                                                                    |
| ForceOfflineRSCN  | Enables (False) or disables (True) the immediate transmission of RSCN messages when communication between a port and a device is interrupted. If enabled, the RSCN message is delayed for 200 ms for locally attached devices and 400 ms for devices connected through other switches. The default is False. This parameter is ignored if IOStreamGuard is enabled.                                                                           |
| ARB_FF            | Send ARB_FF (True) instead of IDLEs (False) on the loop. The default is False.                                                                                                                                                                                                                                                                                                                                                                |
| InteropCredit     | Interoperability credit. The number of buffer-to-buffer credits per port. 0 means the default (16) is unchanged. Changing interoperability credits is necessary only for E_Ports that are connected to non-FC-SW-2-compliant switches. (not supported)                                                                                                                                                                                        |
| ExtCredit         | Extended credits. The number of port buffer credits that this port can acquire from donor ports. The default is 0.                                                                                                                                                                                                                                                                                                                            |
| FANEnable         | Fabric address notification. Enables (True) or disables (False) the communication of the FL_Port address, port name, and node name to the logged-in NL_Port. The default is True.                                                                                                                                                                                                                                                             |
| LCFEnable         | Link control frame preference routing. Enables (True) or disables (False) preferred routing of frames with R_CTL = 1100. The default is False. Enabling LCFEnable will disable MFSEnable.                                                                                                                                                                                                                                                     |
| MFSEnable         | Multi-Frame Sequence bundling. Prevents (True) or allows (False) the interleaving of frames in a sequence. The default is False. Enabling MFSEnable disables LCFEnable and VIEenable.                                                                                                                                                                                                                                                         |
| MSEnable          | Management server enable. Enables (True) or disables (False) management server on this port. The default is True.                                                                                                                                                                                                                                                                                                                             |

**Table 51: Set Config port parameters (Continued)**

| Parameter       | Description                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NoClose         | Loop circuit closure prevention. Enables (True) or disables (False) the loop's ability to remain in the open state indefinitely. True reduces the amount of arbitration on a loop when there is only one device on the loop. The default is False. |
| IOStreamGuard   | I/O Stream Guard. Enable (Enable) or disables (Disable) the suppression of RSCN messages. I/O Stream Guard should be enabled only for ports connected to initiator devices. The default is Disable.                                                |
| VIEnable        | Enables (True) or disables (False) VI preference routing. The default is False. Enabling VIEnable will disable MFSEnable.                                                                                                                          |
| PDISCPingEnable | Enables (True) or disables (False) the transmission of ping messages from the switch to all devices on a loop port. The default is True.                                                                                                           |

## SWITCH

Initiates an editing session in which to change switch configuration settings. The system displays each parameter one line at a time and prompts you for a value. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets. [Table 52](#) describes the Set Config Switch parameters.

**Table 52: Set config switch parameters**

| Parameter           | Description                                                                                                                                                                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AdminState          | Switch administrative state: online, offline, or diagnostics. The default is Online.                                                                                                                                                                              |
| BroadcastEnabled    | Broadcast. Enables (True) or disables (False) forwarding of broadcast frames. The default is True.                                                                                                                                                                |
| DefaultDomainID     | Default domain ID. The default is 1.                                                                                                                                                                                                                              |
| DomainIDLock        | Prevents (True) or allows (False) dynamic reassignment of the domain ID. The default is False.                                                                                                                                                                    |
| SymbolicName        | Descriptive name for the switch. The name can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is 2/8q FC Switch.                                                                                                                    |
| R_A_TOV             | Resource Allocation Timeout Value. The number of milliseconds the switch waits to allow two ports to allocate enough resources to establish a link. The default is 10000.                                                                                         |
| E_D_TOV             | Error Detect Timeout Value. The number of milliseconds a port is to wait for errors to clear. The default is 2000.                                                                                                                                                |
| PrincipalPriority   | The priority used in the FC-SW-2 principal switch selection algorithm. 1 is high, 255 is low. The default is 254.                                                                                                                                                 |
| ConfigDescription   | Switch configuration description. The configuration description can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is 2/8q FC Switch.                                                                                              |
| InteropMode         | Propagates just the active zone set throughout the fabric (True, compliant) or the entire zoning database (False, non-compliant). The default is True. (not supported)                                                                                            |
| LegacyAddressFormat | Available only when the InteropMode parameter is False, this parameter enables (True) or disables (False) the use of legacy address formatting for interoperating with non-FC-SW-2 switches. See <a href="#">Table 52</a> . The default is False. (not supported) |

THRESHOLD

Initiates a configuration session by which to generate and log alarms for selected events. The system displays each event, its triggers, and sampling window one line at a time and prompts you for a value. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets. These parameters must be saved in a configuration and activated before they take effect. See the “[Config command](#)” on page 119 for information about saving and activating a configuration. [Table 53](#) describes the Set Config Threshold parameters. The switch shuts down a port if an alarm condition is not cleared within three consecutive sampling windows (by default 30 seconds). Reset the port to bring it back online. An alarm is cleared when the threshold monitoring detects that the error rate has fallen below the falling trigger.

**Table 53: Set config threshold parameters**

| Parameter                                                                                                                                | Description                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Threshold Monitoring Enabled                                                                                                             | Master enable/disable parameter for all events. Enables (True) or disables (False) the generation of all enabled event alarms. The default is False.                                                                                                                                                                           |
| CRCErrorsMonitoringEnabled<br>DecodeErrorsMonitoringEnabled<br>LoginMonitoringEnabled<br>LogoutMonitoringEnabled<br>LOSMonitoringEnabled | The event type enable/disable parameter. Enables (True) or disables (False) the generation of alarms for each of the following events: <ul style="list-style-type: none"> <li>■ CRC errors</li> <li>■ Decode errors</li> <li>■ Device login errors</li> <li>■ Device logout errors</li> <li>■ Loss-of-signal errors</li> </ul> |
| Rising Trigger                                                                                                                           | The event count above which a rising trigger alarm is logged. The switch will not generate another rising trigger alarm for that event until the count descends below the falling trigger and again exceeds the rising trigger.                                                                                                |
| Falling Trigger                                                                                                                          | The event count below which a falling trigger alarm is logged. The switch will not generate another falling trigger alarm for that event until the count exceeds the rising trigger and descends again below the falling trigger.                                                                                              |
| Sample Window                                                                                                                            | The period of time in seconds in which to count events.                                                                                                                                                                                                                                                                        |

## ZONING

Initiates an editing session in which to change switch zoning attributes. The system displays each parameter one line at a time and prompts you for a value. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets.

**Table 54: Set config zoning parameters**

| Parameter          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| InteropAutoSave    | Available only when the InteropMode parameter is True, this parameter enables (True) or disables (False) the saving of changes to active zone set in the switch's permanent memory. See " <a href="#">Set config threshold parameters</a> " on page 140. The default is True. (not supported)<br><br>Disabling the Autosave parameter can be useful to prevent the propagation of zoning information when experimenting with different zoning schemes. However, leaving the Autosave parameter disabled can disrupt device configurations should a switch have to be reset. For this reason, the Autosave parameter should be enabled in a production environment. |
| Default Visibility | Enables (All) or disables (None) communication among the switch's ports/devices and the fabric in the absence of an active zone set. The default is All.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**Examples**

The following is an example of the SET CONFIG PORT command:

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config edit
2/8q FC Switch (admin-config) #> set config port 1
```

A list of attributes with formatting and current values will follow.

Enter a new value or simply press the ENTER key to accept the current value.

If you wish to terminate this process before reaching the end of the list

press 'q' or 'Q' and the ENTER key to do so.

```
Configuring Port Number: 1
```

```
-----
```

```
AdminState      (1=Online, 2=Offline, 3=Diagnostics, 4=Down)      [Online]
LinkSpeed       (1=1Gb/s, 2=2Gb/s, 3=Auto)                          [Auto ]
PortType        (GL / G / F / FL / Donor)                            [GL   ]
SymPortName     (string, max=32 chars)                               [Port1 ]
ALFairness      (True / False)                                       [False ]
DeviceScanEnable (True / False)                                       [True  ]
ForceOfflineRSCN (True / False)                                       [False ]
ARB_FF          (True / False)                                       [False ]
InteropCredit   (decimal value, 0-255)                               [0    ]
```

```

ExtCredit      (dec value, increments of 15, non-loop only)      [0      ]
FANEnable      (True / False)                                    [True   ]
LCFEnable      (True / False)                                    [False  ]
MFSEnable      (True / False)                                    [False  ]
MSEnable       (True / False)                                    [True   ]
NoClose        (True / False)                                    [False  ]
IOStreamGuard (Enable / Disable)                                [Disable]
VIEnable       (True / False)                                    [False  ]
PDISCPingEnable (True / False)                                  [True   ]

```

Finished configuring attributes.

This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect.

To discard this configuration use the config cancel command.

2/8q FC Switch (admin-config) #>

The following is an example of the SET CONFIG SWITCH command:

```

2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config edit
2/8q FC Switch (admin-config) #> set config switch

```

A list of attributes with formatting and default values will follow. Enter a new value or simply press the ENTER key to accept the current value.

If you wish to terminate this process before reaching the end of the list

press 'q' or 'Q' and the ENTER key to do so.

```

AdminState      (1=Online, 2=Offline, 3=Diagnostics) [Online   ]
BroadcastEnable (True / False)                            [False    ]
InbandEnabled   (True / False)                            [False    ]
DefaultDomainID (decimal value, 1-239)                  [11       ]
DomainIDLock    (True / False)                            [True     ]
SymbolicName    (string, max=32 chars)                  [2/8q FC Switch]
R_A_TOV         (decimal value, 100-100000 msec)       [10000    ]
E_D_TOV         (decimal value, 10-20000 msec)         [2000     ]
PrincipalPriority (decimal value, 1-255)                [254      ]
ConfigDescription (string, max=32 chars)                [2/8q FC Switch]
InteropMode     (True / False)                            [True     ]

```

The following is an example of the SET CONFIG THRESHOLD command:

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config edit
2/8q FC Switch (admin-config) #> set config threshold
```

A list of attributes with formatting and current values will follow.  
Enter a new value or simply press the ENTER key to accept the current value.

If you wish to terminate this process before reaching the end of the list press 'q' or 'Q' and the ENTER key to do so.

```
ThresholdMonitoringEnabled      (True / False)          [False  ]
CRCErrorsMonitoringEnabled      (True / False)          [True   ]
  RisingTrigger                  (decimal value, 1-1000) [25     ]
  FallingTrigger                  (decimal value, 0-1000) [1      ]
  SampleWindow                    (decimal value, 1-1000 sec) [10    ]
DecodeErrorsMonitoringEnabled   (True / False)          [True   ]
  RisingTrigger                  (decimal value, 1-1000) [200    ]
  FallingTrigger                  (decimal value, 0-1000) [0      ]
  SampleWindow                    (decimal value, 1-1000 sec) [10    ]
LoginMonitoringEnabled          (True / False)          [True   ]
  RisingTrigger                  (decimal value, 1-1000) [5      ]
  FallingTrigger                  (decimal value, 0-1000) [1      ]
  SampleWindow                    (decimal value, 1-1000 sec) [10    ]
LogoutMonitoringEnabled         (True / False)          [True   ]
  RisingTrigger                  (decimal value, 1-1000) [5      ]
  FallingTrigger                  (decimal value, 0-1000) [1      ]
  SampleWindow                    (decimal value, 1-1000 sec) [10    ]
LOSMonitoringEnabled           (True / False)          [True   ]
  RisingTrigger                  (decimal value, 1-1000) [100    ]
  FallingTrigger                  (decimal value, 0-1000) [5      ]
  SampleWindow                    (decimal value, 1-1000 sec) [10    ]
```

Finished configuring attributes.  
This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect.  
To discard this configuration use the config cancel command.

The following is an example of the SET CONFIG ZONING command:

```
2/8q FC Switch #> admin start
2/8q FC Switch (admin) #> config edit
2/8q FC Switch (admin-config) #> set config zoning
```

A list of attributes with formatting and current values will follow.  
Enter a new value or simply press the ENTER key to accept the current value.

If you wish to terminate this process before reaching the end of the list press 'q' or 'Q' and the ENTER key to do so.

```
InteropAutoSave      (True / False)  [True]
Default Visibility   (All / None)    [All ]
```

Finished configuring attributes.

This configuration must be saved (see config save command) and activated (see config activate command) before it can take effect.

To discard this configuration use the config cancel command.

## Set Log Command

Specifies the events to record in the event log and display on the screen. You determine what events to record in the switch event log using the Component, Level, and Port keywords. You determine what events are automatically displayed on the screen using the Display keyword. Alarms are always displayed on the screen.

### Authority

Admin

### Syntax

```
SET LOG
```

### Keywords

ARCHIVE

Collects the most recent 200 entries plus the previous 1000 entries and stores the result in new file named logfile that is maintained in switch memory where it can be downloaded using FTP. To download logfile, open an FTP session, log in with account name/password of images for both, and type get logfile.

CLEAR

Clears all log entries.

COMPONENT [filter\_list]

Specifies one or more components given by [filter\_list] to monitor for events. A component is a firmware module that is responsible for a particular portion of switch operation. Use a <space> to delimit values in the list. [filter\_list] can be one or more of the following:

MGMTSERVER—Monitors management server status.

NAMESERVER—Monitors name server status.



PORT—Monitors all port events.  
SNMP—Monitors SNMP events.  
SWITCH—Monitors switch management events.  
ZONING—Monitors zoning conflict events.  
ALL—Monitors all components.  
NONE—Monitor none of the component events.

DISPLAY [filter]

Specifies the log events to automatically display on the screen according to the event severity levels given by [filter]. [filter] can be one of the following values:

CRITICAL—Critical severity level events. The critical level describes events that are generally disruptive to the administration or operation of the fabric, but require no action.

WARN—Warning severity level events. The warning level describes events that are generally not disruptive to the administration or operation of the fabric, but are more important than the informative level events.

INFO—Informative severity level events. The informative level describes routine events associated with a normal fabric.

NONE—Specifies no severity levels for display on the screen.

LEVEL [filter]

Specifies the severity level given by [filter] to use in monitoring and logging events for the specified components or ports. [filter] can be one of the following values:

CRITICAL—Monitors critical events. The critical level describes events that are generally disruptive to the administration or operation of the fabric, but require no action.

WARN—Monitors warning and critical events. The warning level describes events that are generally not disruptive to the administration or operation of the fabric, but are more important than the informative level events.

INFO—Monitors informative, warning, and critical events. The informative level describes routine events associated with a normal fabric. This is the default severity level.

NONE—Monitors none of the severity levels.

PORT [port\_list]

Specifies one or more ports to monitor for events. Choose one of the following values:

[port\_list]—Specifies port or ports to monitor. Use a <space> to delimit values in the list. Ports are numbered beginning with 0.

ALL—Specifies all ports.

NONE—Disables monitoring on all ports.

RESTORE

Restores and saves the port, component, and level settings to the default values.

**SAVE**

Saves the log settings for the component, severity level, port, and display level. These settings remain in effect after a switch reset. The log settings can be viewed using the `Show Log Settings` command. To export log entries to a file, use the `Set Log Archive` command.

**START**

Starts the logging of events based on the `Port`, `Component`, and `Level` keywords assigned to the current configuration. The logging continues until you enter the `Set Log Stop` command.

**STOP**

Stops logging of events.

**Notes**

In addition to critical, warn, and informative severity levels, the highest event severity level is alarm. The alarm level describes events that are disruptive to the administration or operation of a fabric and require administrator intervention. Alarms are always logged and always displayed on the screen.

## Set Port **command**

Sets port state and speed for the specified port temporarily until the next switch reset or new configuration activation. This command also clears port counters.

**Authority**

Admin, except for the `Clear` keyword

**Syntax**

```
SET PORT [PORT_NUMBER]
```

**Keywords**

[PORT\_NUMBER]

Specifies the port. Ports are numbered beginning with 0.

BYPASS [ALPHA]

Sends a Loop Port Bypass (LPB) to a specific Arbitrated Loop Physical Address (ALPA) or to all ALPAs on the arbitrated loop. [alpha] can be a specific ALPA or the keyword ALL to choose all ALPAs.

CLEAR

Clears the counters on the port. This keyword does not require an admin session.

ENABLE

Sends a Loop Port Enable (LPE) to all ALPAs on the arbitrated loop.

SPEED [TRANSMISSION\_SPEED]

Specifies the transmission speed for the specified port. Choose one of the following port speed values:

2Gb/s—Two gigabits per second.

Auto—The port speed is automatically detected.

STATE [STATE]

Specifies one of the following administrative states for the specified port:

**Online**—Places the port online. This activates and prepares the port to send data.

**Offline**—Places the port offline. This prevents the port from receiving signal and accepting a device login.

**Diagnostics**—Prepares the port for testing. This prepares the port for testing and prevents the port from accepting a device login.

**Down**—Disables the port by removing power from the port lasers.

## Set Setup **command**

Changes SNMP and system configuration settings. The switch maintains one SNMP configuration and one system configuration.

### Authority

Admin

### Syntax

SET SETUP

### Keywords

SNMP

Prompts you in a line-by-line fashion to change SNMP configuration settings.

[Table 55](#) describes the SNMP parameters. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets.

**Table 55: SNMP configuration settings**

| Entry               | Description                                                                                                                                                                                                                 |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SNMPEnabled         | Enables (True) or disables (False) SNMP on the switch. The default is True.                                                                                                                                                 |
| Contact             | Specifies the name of the person to be contacted to respond to trap events. The name can be up to 64 characters excluding #, semicolon (;), and comma (.). The default is undefined.                                        |
| Location            | Specifies the name of the switch location. The name can be up to 64 characters excluding #, semicolon (;), and comma (.). The default is undefined.                                                                         |
| Trap [1-5] Address  | Specifies the workstation IP address to which SNMP traps are sent. The default address for trap 1 is 10.0.0.254. The default address for traps 2–5 is 0.0.0.0. Addresses, other than 0.0.0.0, for all traps must be unique. |
| Trap [1-5] Port     | Specifies the workstation port to which SNMP traps are sent. Valid workstation port numbers are 1–65535. The default is 162.                                                                                                |
| Trap [1-5] Severity | Specifies the severity level to use when monitoring trap events. The default is Warning                                                                                                                                     |
| Trap [1-5] Version  | Specifies the SNMP version (1 or 2) to use in formatting traps. The default is 2.                                                                                                                                           |
| Trap [1-5] Enabled  | Specifies whether traps (event information) are enabled or disabled (default).                                                                                                                                              |

**Table 55: SNMP configuration settings (Continued)**

| Entry           | Description                                                                                                                                                                                                                                                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ReadCommunity   | Read community password that authorizes an SNMP agent to read information from the switch. This is a write-only field. The value on the switch and the SNMP management server must be the same. The read community password can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is "public".   |
| WriteCommunity  | Write community password that authorizes an SNMP agent to write information to the switch. This is a write-only field. The value on the switch and the SNMP management server must be the same. The write community password can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is "private". |
| TrapCommunity   | Trap community password that authorizes an SNMP agent to receive traps. This is a write-only field. The value on the switch and the SNMP management server must be the same. The trap community password can be up to 32 characters excluding #, semicolon (;), and comma (.). The default is "public".                      |
| AuthFailureTrap | Enables (True) or disables (False) the generation of traps in response to trap authentication failures. The default is False.                                                                                                                                                                                                |
| ProxyEnabled    | Enables (True) or disables (False) SNMP communication with other switches in the fabric. The default is True.                                                                                                                                                                                                                |

system

Prompts you in a line-by-line fashion to change system configuration settings.

[Table 56](#) describes the system configuration parameters. For each parameter, enter a new value or press **Enter** to accept the current value shown in brackets.

---

**Note:** Changing the IP address will terminate all Ethernet management sessions.

---

**Table 56: System configuration settings**

| Entry                | Description                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eth0NetworkDiscovery | Ethernet boot method: 1 - Static, 2 - Bootp, 3 - DHCP, 4 - RARP. The default is 1 - Static.                                                                                          |
| Eth0NetworkAddress   | Ethernet Internet Protocol (IP) address. The default is 10.0.0.1.                                                                                                                    |
| Eth0NetworkMask      | Ethernet subnet mask address.                                                                                                                                                        |
| Eth0GatewayAddress   | Ethernet IP address gateway.                                                                                                                                                         |
| AdminTimeout         | Specifies the amount of time in minutes the switch waits before terminating an idle Admin session. Zero (0) disables the time out threshold. The default is 30, the maximum is 1440. |
| LocalLogEnabled      | Enables (True) or disables (False) the saving of log information on the switch. The default is True.                                                                                 |
| RemoteLogEnabled     | Enables (True) or disables (False) the recording of the switch event log on a remote host that supports the syslog protocol. The default is False.                                   |

**Table 56: System configuration settings (Continued)**

| Entry                | Description                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RemoteLogHostAddress | The IP address of the host that will receive the switch event log information if remote logging is enabled. The default is 10.0.0.254.                                                                                                                                                                                                                                                                                               |
| NTPClientEnabled     | Enables (True) or disables (False) the Network Time Protocol (NTP) client on the switch. This client enables the switch to synchronize its time with an NTP server. This feature supports NTP version 4 and is compatible with version 3. An Ethernet connection to the server is required and you must first set an initial time and date on the switch. The synchronized time becomes effective immediately. The default is False. |
| NTPServerAddress     | The IP address of the NTP server from which the NTP client acquires the time and date. The default is 10.0.0.254.                                                                                                                                                                                                                                                                                                                    |

**Examples**

The following is an example of the Set Setup SNMP command:

```
2/8q FC Switch #> admin start
```

```
2/8q FC Switch (admin) #> set setup snmp
```

A list of attributes with formatting and current values will follow.

Enter a new value or simply press the ENTER key to accept the current value.

If you wish to terminate this process before reaching the end of the list press 'q' or 'Q' and the ENTER key to do so.

Trap Severity Options

-----

unknown, emergency, alert, critical, error, warning, notify, info, debug, mark

```
SNMPEnabled      (True / False)      [True          ]
Contact          (string, max=64 chars) [ <sysContact undefined]
Location         (string, max=64 chars) [sysLocation undefined]
Trap1Address     (dot-notated IP Address) [10.20.71.15   ]
Trap1Port        (decimal value)      [162           ]
Trap1Severity    (see allowed options above) [warning       ]
Trap1Version     (1 / 2)                [2             ]
Trap1Enabled     (True / False)       [False        ]
Trap2Address     (dot-notated IP Address) [0.0.0.0       ]
Trap2Port        (decimal value)      [162           ]
Trap2Severity    (see allowed options above) [warning       ]
Trap2Version     (1 / 2)                [2             ]
Trap2Enabled     (True / False)       [False        ]
Trap3Address     (dot-notated IP Address) [0.0.0.0       ]
Trap3Port        (decimal value)      [162           ]
Trap3Severity    (see allowed options above) [warning       ]
Trap3Version     (1 / 2)                [2             ]
Trap3Enabled     (True / False)       [False        ]
Trap4Address     (dot-notated IP Address) [0.0.0.0       ]
Trap4Port        (decimal value)      [162           ]
Trap4Severity    (see allowed options above) [warning       ]
Trap4Version     (1 / 2)                [2             ]
Trap4Enabled     (True / False)       [False        ]
```

|                 |                             |          |   |
|-----------------|-----------------------------|----------|---|
| Trap5Address    | (dot-notated IP Address)    | [0.0.0.0 | ] |
| Trap5Port       | (decimal value)             | [162     | ] |
| Trap5Severity   | (see allowed options above) | [warning | ] |
| Trap5Version    | (1 / 2)                     | [2       | ] |
| Trap5Enabled    | (True / False)              | [False   | ] |
| ReadCommunity   | (string, max=32 chars)      | [public  | ] |
| WriteCommunity  | (string, max=32 chars)      | [private | ] |
| TrapCommunity   | (string, max=32 chars)      | [public  | ] |
| AuthFailureTrap | (True / False)              | [False   | ] |
| ProxyEnabled    | (True / False)              | [True    | ] |

The following is an example of the Set Setup System command:

```
2/8q FC Switch (admin) #> set setup system
A list of attributes with formatting and current values will follow.
Enter a new value or simply press the ENTER key to accept the current value.
If you wish to terminate this process before reaching the end of the list
press 'q' or 'Q' and the ENTER key to do so.
```

|                      |                                     |                 |   |
|----------------------|-------------------------------------|-----------------|---|
| Eth0NetworkDiscovery | (1=Static, 2=Bootp, 3=Dhcp, 4=Rarp) | [Static         | ] |
| Eth0NetworkAddress   | (dot-notated IP Address)            | [10.0.0.1       | ] |
| Eth0NetworkMask      | (dot-notated IP Address)            | [255.255.255.0] | ] |
| Eth0GatewayAddress   | (dot-notated IP Address)            | [10.0.0.254     | ] |
| AdminTimeout         | (dec value 0-1440 minutes, 0=never) | [30             | ] |
| LocalLogEnabled      | (True / False)                      | [True           | ] |
| RemoteLogEnabled     | (True / False)                      | [False          | ] |
| RemoteLogHostAddress | (dot-notated IP Address)            | [10.0.0.254     | ] |
| NTPClientEnabled     | (True / False)                      | [False          | ] |
| NTPServerAddress     | (dot-notated IP Address)            | [10.0.0.254     | ] |

## Show command

Displays fabric, switch, and port operational information.

### Authority

None

### Syntax

SHOW

### Keywords

about

Displays an introductory set of information about operational attributes of the switch. This keyword is equivalent to the Version keyword.

alarm *[option]*

Displays the alarm log and session display setting. If you omit *[option]*, the command displays the last 200 alarm entries. The alarm log is cleared when the switch is reset or power cycled. *[option]* has the following value:

*setting*—Displays the status of the parameter that controls the display of alarms in the session output stream. This parameter is set using the `Set Alarm` command.

broadcast

Displays the broadcast tree information and all ports that are currently transmitting and receiving broadcast frames.

chassis

Displays chassis component status and temperature.

config *[option]*

Displays switch, port, and zoning configuration attributes. See the “[Show Config command](#)” on page 160.

domains

Displays list of each domain and its worldwide name in the fabric.

donor

Displays list of current donor configuration for all ports.

fabric

Displays list of each domain, symbolic name, worldwide name, node IP address, and port IP address.

interface

Displays the status of the active network interfaces.

log *[option]*

Displays log entries. See the “[Show Log command](#)” on page 163. The log is cleared when the switch is reset or power cycled.

lsdb

Displays Link State database information.

mem *[count]*

Displays information about memory activity for the number of seconds given by *[count]*. If you omit *[count]*, the value 1 is used. Displayed memory values are in 1K block units.

---

**Note:** This keyword will display memory activity updates until *[count]* is reached – it cannot be interrupted. Therefore, avoid using large values for *[count]*.

---

ns *[option]*

Displays name server information for the specified *[option]*. If you omit *[option]*, name server information for the local domain ID is displayed. *[option]* can have the following values:

*all*—Displays name server information for all switches and ports.

*[domain\_id]*—Displays name server information for the switch given by *[domain\_id]*. *[domain\_id]* is a switch domain ID.

[port\_id]—Displays name server information for the port given by [port\_id].  
 [port\_id] is a port Fibre Channel address.

pagebreak

Displays the current pagebreak setting. The pagebreak setting limits the display of information to 20 lines (On) or allows the continuous display of information without a break (Off).

perf [option]

Displays performance information for all ports. See the “[Show Perf command](#)” on page 165.

port [port\_number]

Displays operational information for the port given by [port\_number]. Ports are numbered beginning with 0. If [port number] is omitted, information is displayed for all ports. [Table 57](#) describes the port parameters.

**Table 57: Show Port parameters**

| Entry           | Description                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alinit          | Incremented each time the port begins AL initialization.                                                                                                                                                       |
| AlinitError     | Number of times the port entered initialization and the initialization failed.                                                                                                                                 |
| Bad Frames      | Number of frames that have framing errors.                                                                                                                                                                     |
| ClassXFramesIn  | Number of class <i>x</i> frames received by this port.                                                                                                                                                         |
| ClassXFramesOut | Number of class <i>x</i> frames sent by this port.                                                                                                                                                             |
| ClassXWordsIn   | Number of class <i>x</i> words received by this port.                                                                                                                                                          |
| ClassXWordsOut  | Number of class <i>x</i> words sent by this port.                                                                                                                                                              |
| ClassXToss      | Number of times an SOFi3 or SOFn3 frame is tossed from TBUF.                                                                                                                                                   |
| DecodeError     | Number of decode errors detected                                                                                                                                                                               |
| FBusy           | Number of class 3 fabric busy (F_BSY) frames generated by this port in response to incoming frames. This usually indicates a busy condition on the fabric or N_Port that is preventing delivery of this frame. |
| Flowerrors      | Received a frame when there were no available credits.                                                                                                                                                         |
| FReject         | Number of frames from devices that were rejected.                                                                                                                                                              |
| InvalidCRC      | Invalid CRC detected.                                                                                                                                                                                          |
| InvalidDestAddr | Invalid destination address detected.                                                                                                                                                                          |
| LIP_AL_PD_ALPS  | Number of F7, AL_PS LIPs, or AL_PD (vendor specific) resets, performed.                                                                                                                                        |
| LIP_F7_AL_PS    | This LIP is used to reinitialize the loop. An L_Port, identified by AL_PS, may have noticed a performance degradation and is trying to restore the loop.                                                       |
| LIP_F8_AL_PS    | This LIP denotes a loop failure detected by the L_Port identified by AL_PS.                                                                                                                                    |
| LIP_F7_F7       | A loop initialization primitive frame used to acquire a valid AL_PA.                                                                                                                                           |
| LIP_F8_F7       | A loop initialization primitive frame used to indicate that a loop failure has been detected at the receiver.                                                                                                  |



**Table 57: Show Port parameters (Continued)**

| Entry           | Description                                                                                                                                                                                                                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Link Failures   | Number of optical link failures detected by this port. A link failure is a loss of synchronization or a loss of signal while not in the offline state. A loss of signal causes the switch to attempt to re-establish the link. If the link is not re-established, a link failure is counted. A link reset is performed after a link failure. |
| Login           | Number of device logins                                                                                                                                                                                                                                                                                                                      |
| Logout          | Number of device logouts                                                                                                                                                                                                                                                                                                                     |
| LoopTimeouts    | A two (2) second timeout as specified by FC-AL-2.                                                                                                                                                                                                                                                                                            |
| LossOfSync      | Number of synchronization losses (>100 ms) detected by this port. A loss of synchronization is detected by receipt of an invalid transmission word.                                                                                                                                                                                          |
| PrimSeqErrors   | Primitive sequence errors detected.                                                                                                                                                                                                                                                                                                          |
| RxLinkResets    | Number of link reset primitives received from an attached device.                                                                                                                                                                                                                                                                            |
| RxOfflineSeq    | Number of offline sequences received. An OLS is issued for link initialization, a Receive & Recognize Not_Operational (NOS) state, or to enter the offline state.                                                                                                                                                                            |
| TotalErrors     | Total number of errors detected.                                                                                                                                                                                                                                                                                                             |
| TotalLIPsRecvd  | Number of loop initialization primitive frames received by this port.                                                                                                                                                                                                                                                                        |
| TotalLIPsXmitd  | Number of loop initialization primitive frames transmitted by this port.                                                                                                                                                                                                                                                                     |
| TotalLinkResets | Total number of link reset primitives.                                                                                                                                                                                                                                                                                                       |
| TotalOfflineSeq | Total number of Offline Sequences issued and received by this port.                                                                                                                                                                                                                                                                          |
| TotalRxFrames   | Total number of frames received by this port.                                                                                                                                                                                                                                                                                                |
| TotalRxWords    | Total number of words received by this port.                                                                                                                                                                                                                                                                                                 |
| TotalTxFrames   | Total number of frames issued by this port.                                                                                                                                                                                                                                                                                                  |
| TotalTxWords    | Total number of words issued by this port.                                                                                                                                                                                                                                                                                                   |
| TxLinkResets    | Number of Link Resets issued by this port.                                                                                                                                                                                                                                                                                                   |
| TxOfflineSeq    | Total number of Offline Sequences issued by this port.                                                                                                                                                                                                                                                                                       |

`post log`

Displays the Power On Self Test (POST) log which contains results from the POST.

`setup [option]`

Displays setup attributes for the system, SNMP, and the switch manufacturer. See the “[Show Setup command](#)” on page 166.

`steering [domain_id]`

Displays the routes that data takes to the switch given by [domain\_id]. If you omit [domain\_id], the system displays routes for all switches in the fabric.

**support**

Executes a series of commands that display a complete description of the switch, its configuration, and operation. The display can be captured from the screen and used for diagnosing problems. This keyword is intended for use at the request of your HP Authorized Service Provider. The commands that are executed include the following:

- Alias List
- Config List
- Date
- History
- Ps
- Show (About, Alarm, Backtrace, Chassis, Config Port, Config Switch, Config Threshold, Dev, Dev Settings, Domains, Donor, Fabric, Log, Log Archive, Log Settings, Lsdb, Mem, Ns, Perf, Port, Setup Mfg, Setup Snmp, Setup System, Steering, Switch, Topology, Users)
- Uptime
- User Accounts
- Whoami
- Zoneset (Active, List)
- Zoning (History, Limits, List)

**switch**

Displays switch operational information.

**topology**

Displays all connected devices.

**users**

Displays a list of logged-in users. This is equivalent to the User List command.

**version**

Displays an introductory set of information about operational attributes of the switch. This keyword is equivalent to the About keyword.

**Examples**

The following is an example of the Show Chassis command:

```
2/8q FC Switch #> show chassis
Chassis Information
-----
BoardTemp (1) - Degrees Celsius    23
PowerSupplyStatus (1)              Good
HeartBeatCode                       1
HeartBeatStatus                     Normal
```

The following is an example of the Show Domains command:

```
2/8q FC Switch #> show domains
Principal switch is (remote): 10:00:00:60:69:50:0b:6c
Domain ID List:
Domain 97 (0x61) WWN = 10:00:00:c0:dd:00:71:ed
Domain 98 (0x62) WWN = 10:00:00:60:df:22:2e:0c
Domain 99 (0x63) WWN = 10:00:00:c0:dd:00:72:45
Domain 100 (0x64) WWN = 10:00:00:c0:dd:00:ba:68
Domain 101 (0x65) WWN = 10:00:00:60:df:22:2e:06
Domain 102 (0x66) WWN = 10:00:00:c0:dd:00:90:ef
Domain 103 (0x67) WWN = 10:00:00:60:69:50:0b:6c
Domain 104 (0x68) WWN = 10:00:00:c0:dd:00:b8:b7
```

The following is an example of the Show Fabric command:

```
2/8q FC Switch #> show fabric
```

| Domain    | WWN                     | Enet IP Addr | FC IP Addr | SymbolicName |
|-----------|-------------------------|--------------|------------|--------------|
| 16 (0x10) | 10:00:00:c0:dd:00:77:81 | 10.20.68.11  | 0.0.0.0    | gui sb1 .11  |
| 17 (0x11) | 10:00:00:c0:dd:00:6a:2d | 10.20.68.12  | 0.0.0.0    | sw12         |
| 18 (0x12) | 10:00:00:c0:dd:00:c3:04 | 10.20.68.160 | 0.0.0.0    | sw .160      |
| 19 (0x13) | 10:00:00:c0:dd:00:bc:56 | 10.20.68.108 | 0.0.0.0    | Sb2 .108     |

The following is an example of the Show NS [local domain] command:

```
2/8q FC Switch #> show ns
```

| Seq No | Domain ID | Port ID | Port Type | COS | PortWWN                 | NodeWWN                 |
|--------|-----------|---------|-----------|-----|-------------------------|-------------------------|
| 1      | 19 (0x13) | 1301e1  | NL        | 3   | 21:00:00:20:37:73:13:69 | 20:00:00:20:37:73:13:69 |
| 2      | 19 (0x13) | 1301e2  | NL        | 3   | 21:00:00:20:37:73:12:9b | 20:00:00:20:37:73:12:9b |
| 3      | 19 (0x13) | 1301e4  | NL        | 3   | 21:00:00:20:37:73:05:26 | 20:00:00:20:37:73:05:26 |
| 4      | 19 (0x13) | 130d00  | N         | 3   | 21:01:00:e0:8b:27:a7:bc | 20:01:00:e0:8b:27:a7:bc |

The following is an example of the Show NS [domain\_ID] command:

```
2/8q FC Switch #> show ns 18
```

| Seq No | Domain ID | Port ID | Port Type | COS | PortWWN                 | NodeWWN                 |
|--------|-----------|---------|-----------|-----|-------------------------|-------------------------|
| 1      | 18 (0x12) | 120700  | N         | 3   | 21:00:00:e0:8b:07:a7:bc | 20:00:00:e0:8b:07:a7:bc |

The following is an example of the Show NS [port\_ID] command:

```
2/8q FC Switch #> show ns 1301e1
  Port ID: 1301e1
  -----
  PortType           NL
  PortWWN            21:00:00:20:37:73:13:69
  SymbolicPortName
  NodeWWN            20:00:00:20:37:73:13:69
  SymbolicNodeName
  NodeIPAddress      0.0.0.0
  ClassOfService     3
  PortIPAddress      0.0.0.0
  FabricPortName     20:01:00:c0:dd:00:bc:56
  FC4Type            FCP
  FC4Desc             (NULL)
```

The following is an example of the Show Interface command:

```
2/8q FC Switch #> show interface
eth0      Link encap:Ethernet  HWaddr 00:C0:DD:00:BD:ED
          inet addr:10.20.68.107  Bcast:10.20.68.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:4712 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3000 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:100
          RX bytes:415313 (405.5 Kb)  TX bytes:716751 (699.9 Kb)
          Interrupt:11 Base address:0xfcc0
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:304 errors:0 dropped:0 overruns:0 frame:0
          TX packets:304 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:20116 (19.6 Kb)  TX bytes:20116 (19.6 Kb)
```

The following is an example of the Show Port command:

```
2/8q FC Switch #> show port 1
  Port Number: 1
  -----
AdminState      Online          PortID          150100
AsicNumber      0              PortWWN         20:01:00:c0:dd:00:bc:b8
AsicPort        1              RunningType     Unknown
ConfigType      G              SFPPartNumber   Unknown
DiagStatus      Passed         SFPRevision     0
EpConnState     None           SFPTYPE         NotInstalled
EpIsoReason     NotApplicable SFPVendor       Unknown
LinkSpeed       2Gb/s         SFPVendorID     00000000
LinkState       Inactive       SymbolicName    Port1
LoginStatus     NotLoggedIn   SyncStatus      SyncLost
MaxCredit       16            XmitterEnabled  True
OperationalState Offline

ALInit          0              LIP_F8_AL_PS   0
ALInitError     0              LIP_F8_F7     0
BadFrames       0              LinkFailures   26
Class2FramesIn  0              Login          25
Class2FramesOut 0              Logout         24
Class2WordsIn   0              LoopTimeouts   0
Class2WordsOut  0              LossOfSync     1
Class3FramesIn  0              PrimSeqErrors  0
Class3FramesOut 0              RxLinkResets   23
Class3Toss      0              RxOfflineSeq   45

Class3WordsIn   0              TotalErrors    26
Class3WordsOut  0              TotalLIPsRecvd 0
DecodeErrors    0              TotalLIPsXmitd 0
EpConnects     25            TotalLinkResets 77
FBusy          0              TotalOfflineSeq 59
FlowErrors      0              TotalRxFrames  0
FReject        0              TotalRxWords   0
InvalidCRC      0              TotalTxFrames  0
InvalidDestAddr 0              TotalTxWords   0
LIP_AL_PD_AL_PS 0              TxLinkResets   54
LIP_F7_AL_PS   0              TxOfflineSeq   14
LIP_F7_F7      0
```

The following is an example of the Show Switch command:

```

2/8q FC Switch #> show switch
Switch Information
-----
SymbolicName                2/8q FC Switch
SwitchWWN                   10:00:00:c0:dd:03:cf:cc
SwitchType                   2/8q FC Switch
BootVersion                  V1.1.0.6-0 (Tue Apr 27 13:31:56 2004)
CreditPool                   0
DomainID                     1 (0x1)
FirstPortAddress             110000
FlashSize - MBytes           64
LogFilterLevel               Info
MaxPorts                     8
NumberOfResets               2
ReasonForLastReset           PowerUp
ActiveImageVersion - build date V04.0.3.4-0 (Thu Sep 2 18:41:02 2004)
PendingImageVersion - build date V4.0.3.4-0 (Thu Sep 2 18:41:02 2004)
ActiveConfiguration          default
AdminState                   Online
AdminModeActive              False
BeaconOnStatus               False
OperationalState             Online
PrincipalSwitchRole          True
BoardTemp (1) - Degrees Celsius 29
SwitchDiagnosticsStatus      Passed
SwitchTemperatureStatus      Normal
    
```

The following is an example of the Show Topology command:

```

2/8q FC Switch #> show topology
Unique ID Key
-----
A = ALPA, D = Domain ID, P = Port ID
Port   Local Local                Remote Remote                Unique
Number Type  PortWWN                    Type  NodeWWN                    ID
-----
5      F      20:05:00:c0:dd:00:bd:ec    N     20:00:00:00:c9:22:1e:93    010500 P
10     E      20:0a:00:c0:dd:00:bd:ec    E     10:00:00:c0:dd:00:80:21    4(0x4) D
    
```

The following is an example of the Show Topology command for port 1:

```
2/8q FC Switch #> show topology 1
  Local Link Information
  -----
  PortNumber 1
  PortID      650100
  PortWWN     20:01:00:c0:dd:00:91:11
  PortType    F

  Remote Link Information
  -----
  Device 0
  NodeWWN 50:80:02:00:00:06:d5:38
  PortType NL
  Description (NULL)
  IPAddress 0.0.0.0

  Device 1
  NodeWWN 20:00:00:20:37:2b:08:c9
  PortType NL
  Description (NULL)
  IPAddress 0.0.0.0

  Device 2
  Description (NULL)
  IPAddress 0.0.0.0

  Device 3
  NodeWWN 20:00:00:20:37:2b:05:c9
  PortType NL
  Description (NULL)
  IPAddress 0.0.0.0
```

The following is an example of the Show Version command:

```
2/8q FC Switch #> show version
*****
*
*      Command Line Interface SHell  (CLISH)  *
*
*****

SystemDescription  HP StorageWorks 2/8q FC Switch
Eth0NetworkAddress 10.0.0.1 (use 'set setup system' to update)
MACAddress         00:c0:dd:03:cf:cc
WorldWideName     10:00:00:c0:dd:03:cf:cc
ChassisSerialNumber 0346A00032
SymbolicName      2/8q FC Switch
ActiveSWVersion   V4.0.0.4-0
ActiveTimestamp   Thu Sep 2 18:41:02 2004
DiagnosticsStatus Passed
```

## Show Config **command**

Displays switch, port, alarm threshold, and zoning for the current configuration.

### Authority

None

### Syntax

SHOW CONFIG

### Keywords

PORT [*port\_number*]

Displays configuration parameters for the port number given by [*port\_number*]. Ports are numbered beginning with 0. If [*port\_number*] is omitted, all ports are specified.

SWITCH

Displays configuration parameters for the switch.

THRESHOLD

Displays alarm threshold parameters for the switch.

AONING

Displays zoning configuration parameters for the switch.

### Examples

The following is an example of the Show Config Port command:

```
2/8q FC Switch #> show config port 3
  Port Number: 3
  -----
AdminState      Offline
```



```

LinkSpeed          Auto
PortType           GL
SymbolicName       Port3
ALFairness         False
DeviceScanEnabled  True
ForceOfflineRSCN   False
ARB_FF             False
InteropCredit      0
ExtCredit          0
FANEnabled         True
LCFEnabled         False
MFSEnabled        True
MSEnabled         True
NoClose           False
IOStreamGuard      Disabled
VIEnabled          False
PDISCPingEnable    True

```

The following is an example of the Show Config Switch command:

```

2/8q FC Switch #> show config switch
Configuration Name: default
-----
Switch Configuration Information
-----
AdminState          Online
BroadcastEnabled    False
InbandEnabled       True
DomainID            19 (0x13)
DomainIDLock        True
SymbolicName        sw108
R_A_TOV             10000
E_D_TOV             2000
PrincipalPriority    254
ConfigDescription   2/8q FC Switch
ConfigLastSavedBy   admin@OB-session5
ConfigLastSavedOn   day month date time year
InteropMode         True
Legacy Address Format False1

```

---

1. Appears only if FC-SW-2 Compliant is False.

The following is an example of the Show Config Threshold command:

```
2/8q FC Switch #> show config threshold
Configuration Name: default
-----

Threshold Configuration Information
-----
ThresholdMonitoringEnabled      False
CRCErrorsMonitoringEnabled     True
RisingTrigger                  25
FallingTrigger                 1
SampleWindow                   10

DecodeErrorsMonitoringEnabled  True
RisingTrigger                  25
FallingTrigger                 0
SampleWindow                   10
LoginMonitoringEnabled         True
RisingTrigger                  5
FallingTrigger                 1
SampleWindow                   10
LogoutMonitoringEnabled        True
RisingTrigger                  5
FallingTrigger                 1
SampleWindow                   10
LOSMonitoringEnabled          True
RisingTrigger                  100
FallingTrigger                 5
SampleWindow                   10
```

The following is an example of the Show Config Zoning command:

```
2/8q FC Switch #> show config zoning

Configuration Name: default
-----

Zoning Configuration Information
-----
InteropAutoSave                True
Default Visibility              All
```

## Show Log **command**

Displays the contents of the log or the parameters used to create and display entries in the log. The log contains a maximum of 1200 entries. When the log reaches its entry capacity, subsequent entries overwrite the existing entries, beginning with the oldest.

### Authority

None

### Syntax

SHOW LOG

### Keywords

[number of events]

Specifies the number of the most recent events to display from the event log. [number of events] must be a positive integer.

COMPONENTS

Displays the components currently being monitored for events. The components are as follows:

Mgmtserver—Management server events

Nameserver—Name server events

Port—Port events

SNMP—SNMP events.

Switch—Switch management events.

Zoning—Zoning conflict events.

DISPLAY [filter]

Displays log events on the screen according to the component or severity level filter given by [filter]. [filter] can be one of the following:

Info—Displays all informative events.

Warning—Displays all warning events.

Critical—Displays all critical events.

Eport—Displays all events related to E\_Ports.

Mgmtserver—Displays all events related to the management server.

Nameserver—Displays all events related to the name server.

Port [port\_number]—Displays all events related to the port given by [port\_number].

SNMP—Displays all events related to SNMP.

Switch—Displays all events related to switch management.

Zoning—Displays all events related to zoning.

level

Displays the event severity level logging setting and the display level setting.

options

Displays the options that are available for configuring event logging and automatic display to the screen. See the “[Set Log Command](#)” on page 144 for information about how to configure event logging and display level.

port

Displays the ports being monitored for events. If an event occurs which is of the defined level and on a defined component, but not on a defined port, no entry is made in the log.

settings

Displays the current filter settings for component, severity level, port, and display level. This command is equivalent to executing the following commands separately: Show Log Component, Show Log Level, and Show Log Port.

### Examples

The following is an example of the Show Log Component command:

```
2/8q FC Switch #> show log component
Current settings for log
-----
FilterComponent   NameServer MgmtServer Zoning Switch Blade Port Eport Snmp
```

The following is an example of the Show Log Level command:

```
2/8q FC Switch #> show log level
Current settings for log
-----
FilterLevel       Info
DisplayLevel      Critical
```

The following is an example of the Show Log Options command:

```
2/8q FC Switch #> show log options
Allowed options for log
-----
FilterComponent
All, None, NameServer, MgmtServer, Zoning, Switch, Blade, Port, Eport, Snmp
FilterLevel      Critical, Warn, Info, None
DisplayLevel     Critical, Warn, Info, None
```

The following is an example of the Show Log command:

```
2/8q FC Switch #> show log
[327][day month date time year][I][Eport Port:0/8][Eport State=
E_A0_GET_DOMAIN_ID]
[328][day month date time year][I][Eport Port: 0/8][FSPF PortUp state=0]
[329][day month date time year][I][Eport Port: 0/8][Sending init hello]
[330][day month date time year][I][Eport Port: 0/8][Processing EFP, oxid= 0x8]
[331][day month date time year][I][Eport Port: 0/8][Eport State = E_A2_IDLE]
[332][day month date time year][I][Eport Port: 0/8][EFP,WWN= 0x100000c0dd00b845,
len= 0x30]
```

```
[333][day month date time year][I][Eport Port: 0/8][Sending LSU oxid=0xc:type=1]
[334][day month date time year][I][Eport Port: 0/8][Send Zone Merge Request]
[335][day month date time year][I][Eport Port: 0/8][LSDB Xchg timer set]
[336][day month date time year][I][Eport Port: 0/8][Setting attribute
Oper.UserPort.0.8.EpConnState Connected]
```

## Show Perf **command**

Displays port performance in frames/second and bytes/second. If you omit the keyword, the command displays data transmitted (out), data received (in), and total data transmitted and received in frames/second and bytes per second.

### Authority

None

### Syntax

```
SHOW PERF
```

### Keywords

BYTE

Displays continuous performance data in total bytes/second transmitted and received for all ports. Enter **q** to stop the display.

INBYTE

Displays continuous performance data in bytes/second received for all ports. Type **q** and press **Enter** to stop the display.

OUTBYTE

Displays continuous performance data in bytes/second transmitted for all ports. Enter **q** to stop the display.

FRAME

Displays continuous performance data in total frames/second transmitted and received for all ports. Enter **q** to stop the display.

INFRAME

Displays continuous performance data in frames/second received for all ports. Enter **q** to stop the display.

OUTFRAME

Displays continuous performance data in frames/second transmitted for all ports. Enter **q** to stop the display.

ERRORS

Displays continuous error counts for all ports. Enter **q** to stop the display.

**Examples**

The following is an example of the Show Perf command:

```
2/8q FC Switch #> show perf
Port      Bytes/s      Bytes/s      Bytes/s      Frames/s      Frames/s      Frames/s
  Number  (in)         (out)        (total)      (in)          (out)         (total)
-----
0         7K           136M         136M         245           68K           68K
1         58K          0            58K          1K            0            1K
2         0            0            0            0             0             0
3         0            0            0            0             0             0
4         0            0            0            0             0             0
5         0            0            0            0             0             0
6         0            7K           7K           0             245           245
7        136M        58K          136M         68K           1K            70K
```

The following is an example of the Show Perf Byte command:

```
2/8q FC Switch $> show perf byte
Displaying bytes/sec data... (Press 'q' and the ENTER key to stop display)

0  1  2  3  4  5  6  7
-----
76M 0  0 32M 0  0  0 43M
78M 0  0 34M 0  0  0 43M
78M 0  0 34M 0  0  0 43M
77M 0  0 33M 0  0  0 44M
77M 0  0 33M 0  0  0 44M
84M 0  0 40M 0  0  0 43M
83M 0  0 39M 0  0  0 43M
80M 0  0 35M 0  0  0 45M
77M 0  0 33M 0  0  0 44M
78M 0  0 33M 0  0  0 44M
75M 0  0 29M 0  0  0 45M
74M 0  0 28M 0  0  0 46M

q
```

**Show Setup command**

Displays the current SNMP and system settings.

**Authority**

None

**Syntax**

SHOW SETUP

## Keywords

MFG

Displays manufacturing information about the switch.

SNMP

Displays the current SNMP settings.

SYSTEM

Displays the current system settings.

## Examples

The following is an example of the Show Setup Mfg command:

```
2/8q FC Switch #> show setup mfg
Manufacturing Information
-----
BrandName                HP
BuildDate                Thursday, September 16, 2004 12:09
ChassisPartNumber        A7450-63001 A
ChassisSerialNumber      0346A00032
CPUBoardSerialNumber     0346A00032
MACAddress               00:c0:dd:03:cf:cc
PlanarPartNumber         310077-00 A
SwitchSymbolicName      2/8q FC Switch
SwitchWWN                10:00:00:c0:dd:03:cf:cc
SystemDescription        HP StorageWorks 2/8q FC Switch
SystemObjectID           1.3.6.1.4.1.1663.1.1.1.1.31
```

The following is an example of the Show Setup SNMP command:

```
2/8q FC Switch #> show setup snmp
SNMP Information
-----
SNMPEnabled              True
Contact                  <sysContact undefined>
Location                 N_107 System Test Lab
Description              2/8q FC Switch
Trap1Address             10.0.0.254
Trap1Port                162
Trap1Severity            warning
Trap1Version             2
```

```

Trap1Enabled          False
Trap2Address          0.0.0.0
Trap2Port             162
Trap2Severity         warning
Trap2Version          2
Trap2Enabled          False

Trap3Address          0.0.0.0
Trap3Port             162
Trap3Severity         warning
Trap3Version          2
Trap3Enabled          False
Trap4Address          0.0.0.0
Trap4Port             162
Trap4Severity         warning
Trap4Version          2
Trap4Enabled          False
Trap5Address          0.0.0.0
Trap5Port             162
Trap5Severity         warning
Trap5Version          2
Trap5Enabled          False
ObjectID              1.3.6.1.4.1.1663.1.1.1.1.31
AuthFailureTrap       True
ProxyEnabled          True
    
```

The following is an example of the Show Setup System command:

```

2/8q FC Switch #> show setup system
System Information
-----
Eth0NetworkDiscovery    Static
Eth0NetworkAddress      10.20.11.32
Eth0NetworkMask         255.255.252.0
Eth0GatewayAddress      10.20.8.254
AdminTimeout            30
LocalLogEnabled          True
RemoteLogEnabled         False
RemoteLogHostAddress    10.0.0.254
NTPClientEnabled        False
NTPServerAddress        10.0.0.254
    
```



## Shutdown **command**

Terminates all data transfers on the switch at convenient points and closes the Telnet session. Always power cycle the switch after entering this command.

### Authority

Admin

### Syntax

SHUTDOWN

### Notes

Always use this command to perform an orderly shut down before removing power from the switch.

When the shutdown is complete, the Heartbeat LED is extinguished.

## Test **command**

Tests ports using internal (SerDes level), external (transceiver), and online loopback tests. Internal and external tests require that the port be placed in diagnostic mode. See the “[Set command](#)” on page 135 for information about changing the port administrative state. While the test is running, the remaining ports on the switch remain fully operational.

### Authority

Admin

### Syntax

TEST

### Keywords

PORT [port\_number] [test\_type]

Tests the port given by [port\_number] using the test given by [test\_type]. If you omit [test\_type], Internal is used. [test\_type] can have the following values:

*internal*—Tests the SerDes. This is the default. The port must be in diagnostics mode to perform this test.

*external*—Tests both the SerDes and transceiver. The port must be in diagnostics mode to perform this test, and a loopback plug must be installed in the transceiver.

*online*—Tests communications between the port and its device node or device loop. The port being tested must be online and connected to a remote device. The port passes if the test frame that was sent by the ASIC matches the frame that is received. This test does not disrupt communication on the port.

*CANCEL*—Cancels the online test in progress.

*STATUS*—Displays the status of a test in progress, or if there is no test in progress, the status of the test that was executed last.

### Examples

To run an internal or external port test:

1. To start an admin session, enter the following command:

```
admin start
```

2. Place the port in Diagnostics mode by entering the following command ( $x$  = port number):

```
set port x state diagnostics
```

3. Choose the type of port loopback test to run:

- To run an internal loopback test, enter the following:

```
test port x internal
```

- To run an external loopback test, enter the following command. A loopback plug must be installed for this test to pass.

```
test port x external
```

4. A series of test parameters are displayed on the screen. Press **Enter** to accept each default parameter value, or enter a new value for each parameter. The TestLength parameter is the number of frames sent, the FrameSize (256 byte maximum in some cases) parameter is the number of bytes in each frame, and the DataPattern parameter is the pattern in the payload.
5. After the test type has been chosen and the command executed, a message on the screen will appear detailing the test results.
6. After the test is run, put the port back into online state by entering the following command ( $x$  = port number).

```
set port x state online
```

7. To verify port is back online, enter the following command. The contents of the **AdminState** box should display **Online**.

```
show port x
```

8. The online loopback (node-to-node) test requires that port be online and connected to a remote device. To run the online loopback test:
9. To start an admin session, enter the following command.

```
admin start
```

10. To run the online loopback test, enter the following command.

```
test port x online
```

11. A series of test parameters are displayed on the screen. Press **Enter** to accept each default parameter value, or enter a new value for each parameter. The TestLength parameter is the number of frames sent, the FrameSize (256 byte maximum in some cases) parameter is the number of bytes in each frame, and the DataPattern parameter is the pattern in the payload. Before running the test, make sure that the device attached to the port can handle the test parameters.

```
2/8q FC Switch (admin) #> test port x online
```

```
A list of attributes with formatting and current values will follow. Enter
a new value or simply press the ENTER key to accept the default value. If
you wish to terminate this process before reaching the end of the list
press 'q' or 'Q' and the ENTER key to do so.
```

```
TestLength      (decimal value, 1-4294967295)   [100   ]
FrameSize       (decimal value, 36-2148)         [256   ]
DataPattern     (32-bit hex value or 'Default') [Default]
StopOnError     (True/False)                       [False ]
Do you want to start the test? (y/n) [n]
```

12. After all parameter values are defined, press **Y** to start the test. After the command executes, a message on the screen appears detailing the test results.

## Uptime command

Displays the elapsed up time since the switch was last reset and reset method. A hot reset or non-disruptive firmware activation does not reset the elapsed up time reported by this command.

### Authority

None

### Syntax

UPTIME

### Examples

```
2/8q FC Switch #> uptime
```

```
Elapsed up time : 0 day(s), 2 hour(s), 28 min(s), 44 sec(s)
Reason last reset: NormalReset
```

## User command

Administers and displays user accounts.

### Authority

Admin, except for the List option.

### Syntax

USER

### Keywords

ACCOUNTS

Displays all user accounts that exist on the switch. This keyword is available to all account names without an Admin session.

ADD

Add a user account to the switch. You will be prompted for an account name, a password, authority, and an expiration date.

- A switch can have a maximum of 15 user accounts.
- Account names are limited to 15 characters; passwords must be 4–20 characters.
- Admin authority grants permission to use the Admin command to open an admin session, from which all commands can be entered. Without Admin authority, you are limited to view-only commands.
- The expiration date is expressed in the number of days until the account expires (2000 maximum). The switch will issue an expiration alarm every day for seven days prior to expiration. 0 (zero) specifies that the account has no expiration date.

DELETE [account\_name]

Deletes the account name given by [account\_name] from the switch.

EDIT

Initiates an edit session that prompts you for the account name for which to change the expiration date and authority.

LIST

Displays the list of users currently logged in and their session numbers. Provides the same function as the Show Users command. This keyword is available to all account names without an Admin session.

**Examples**

The following is an example of the User Accounts command:

```
2/8q FC Switch (admin) #> user accounts

      Current list of user accounts
-----
images      (admin authority = False, never expires)
admin       (admin authority = True , never expires)
chuckca     (admin authority = False, expires in < 50 days)
gregj       (admin authority = True , expires in < 100 days)
fred        (admin authority = True , never expires)
```

The following is an example of the User Add command:

```
2/8q FC Switch (admin) #> user add
      Press 'q' and the ENTER key to abort this command.
account name (1-15 chars)      : user1
account password (4-20 chars)  : *****

please confirm account password: *****

set account expiration in days (0-2000, 0=never): [0] 100

should this account have admin authority? (y/n): [n] y

OK to add user account 'user1' with admin authority
and to expire in 100 days?

Please confirm (y/n): [n] y
```

The following is an example of the User Edit command:

```
2/8q FC Switch (admin) #> user edit
```

Press 'q' and the ENTER key to abort this command.

```
account name (1-15 chars)      : user1
set account expiration in days (0-2000, 0=never): [0]
should this account have admin authority? (y/n): [n]
```

OK to modify user account 'user1' with no admin authority  
and to expire in 0 days?

Please confirm (y/n): [n]

The following is an example of the User Delete command:

```
2/8q FC Switch (admin) #> user del user3
```

The user account will be deleted. Please confirm (y/n): [n] y

The following is an example of the User List command:

```
2/8q FC Switch (admin) #> user list
```

| User              | Ethernet Addr-Port | Logged in Since          |
|-------------------|--------------------|--------------------------|
| ----              | -----              | -----                    |
| admin@OB-session1 | 10.20.68.108-1031  | day month date time year |
| admin@OB-session2 | 10.20.68.108-1034  | day month date time year |
| snmp@OB-session3  | Unknown            | day month date time year |
| snmp@IB-session4  | Unknown            | day month date time year |
| admin@OB-session5 | Unknown            | day month date time year |

## Whoami command

Displays the account name, session number, and switch domain ID for the Telnet session.

### Authority

None

### Syntax

WHOAMI

### Examples

```
2/8q FC Switch #> whoami
```

```
User name      : admin@session2
Switch name    : 2/8q FC Switch
Switch domain ID: 21 (0x15)
```

## Zone Command

Manages zones and zone membership on a switch.

### Authority

Admin and a Zoning Edit. See the “[Zoning command](#)” on page 178 for information about starting a Zoning Edit session. The `List`, `Members`, and `Zonesets` keywords are available without an Admin session.

### Syntax

`ZONE`

### Keywords

`ADD [zone] [member_list]`

Specifies one or more ports/devices given by [members] to add to the zone named [zone]. Use a <space> to delimit aliases and ports/devices in [member\_list]. A zone can have a maximum of 2000 members. [member\_list] can have any of the following formats:

- Domain ID and port number pair (Domain ID, Port Number). Domain IDs can be 1-239; port numbers can be 0-255.
- 6-character hexadecimal device Fibre Channel address (hex)
- 16-character hexadecimal worldwide port name (WWPN) with the format `xx:xx:xx:xx:xx:xx:xx:xx`.
- Alias name

The application verifies that the [members] format is correct, but does not validate that such a member exists.

`COPY [zone_source] [zone_destination]`

Creates a new zone named [zone\_destination] and copies the membership into it from the zone given by [zone\_source].

`CREATE [zone]`

Creates a zone with the name given by [zone]. An zone name must begin with a letter and be no longer than 64 characters. Valid characters are 0-9, A-Z, a-z, \_, \$, ^, and -. The zoning database supports a maximum of 1000 zones.

`DELETE [zone]`

Deletes the specified zone given by [zone] from the zoning database. If the zone is a component of the active zone set, the zone will not be removed from the active zone set until the active zone set is deactivated.

`LIST`

Displays a list of all zones and the zone sets of which they are components. This keyword does not require an Admin session.

`MEMBERS [zone]`

Displays all members of the zone given by [zone]. This keyword does not require an Admin session.

```
REMOVE [zone] [member_list]
```

Removes the ports/devices given by [member\_list] from the zone given by [zone]. Use a <space> to delimit aliases and ports/devices in [member\_list]. [member\_list] can have any of the following formats:

- Domain ID and port number pair (Domain ID, Port Number). Domain IDs can be 1-239; port numbers can be 0-255.
- 6-character hexadecimal device Fibre Channel address (hex)
- 16-character hexadecimal worldwide port name (WWPN) with the format xx:xx:xx:xx:xx:xx:xx:xx.
- Alias name

```
RENAME [zone_old] [zone_new]
```

Renames the zone given by [zone\_old] to the zone given by [zone\_new].

```
TYPE [zone] [zone_type]
```

Specifies the zone type given by [zone\_type] to be assigned to the zone name given by [zone]. If you omit the [zone\_type], the system displays the zone type for the zone given by [zone]. [zone\_type] can be one of the following:

- soft—name server zone
- hardACL—Access control list hard zone. This keyword is case sensitive.

```
ZONESETS [zone]
```

Displays all zone sets of which the zone given by [zone] is a component. This keyword does not require an Admin session.

## Examples

The following is an example of the Zone List command:

```
2/8q FC Switch #> zone list
```

```
Zone          ZoneSet
-----
wwn_b0241f
                zone_set_1

wwn_23bd31
                zone_set_1

wwn_221416
                zone_set_1

wwn_2215c3
                zone_set_1

wwn_0160ed
                zone_set_1
```

```

wwn_c001b0
        zone_set_1

wwn_401248
        zone_set_1

wwn_02402f
        zone_set_1

wwn_22412f
        zone_set_1

```

The following is an example of the Zone Members command:

```

2/8q FC Switch #> zone members wwn_b0241f

Current List of Members for Zone: wwn_b0241f
-----
50:06:04:82:bf:d2:18:c2
50:06:04:82:bf:d2:18:d2
21:00:00:e0:8b:02:41:2f

```

The following is an example of the Zone Zonesets command:

```

2/8q FC Switch #> zone zonesets zone1

Current List of ZoneSets for Zone: zone1
-----
zone_set_1

```

## Zoneset **command**

Manages zone sets and component zones across the fabric.

### **Authority**

Admin and Zoning Edit. See the “[Zoning command](#)” on page 178 for information about starting a Zoning Edit session. The `Active`, `List`, and `Zones` keywords are available without an Admin session. You must close the Zoning Edit session before using the `Activate` and `Deactivate` keywords.

### **Syntax**

```
ZONESET
```

### **Keywords**

```
ACTIVATE [zone_set]
```

Activates the zone set given by [zone\_set]. This keyword deactivates the active zone set. Close the Zoning Edit session before using this keyword.



**ACTIVE**

Displays the name of the active zone set. This keyword does not require Admin session.

**ADD**[zone\_set] [zone\_list]

Adds a list of zones and aliases given by [zone\_list] to the zone set given by [zone\_set]. Use a <space> to delimit zone and alias names in [zone\_list].

**COPY** [zone\_set\_source] [zone\_set\_destination]

Creates a new zone set named [zone\_set\_destination] and copies into it the zones from the zone set given by [zone\_set\_source].

**CREATE** [zone\_set]

Creates the zone set with the name given by [zone\_set]. A zone set name must begin with a letter and be no longer than 64 characters. Valid characters are 0-9, A-Z, a-z, \_, \$, ^, and -. The zoning database supports a maximum of 256 zone sets.

**DEACTIVATE**

Deactivates the active zone set. Close the Zoning Edit session before using this keyword.

**DELETE**[zone\_set]

Deletes the zone set given by [zone\_set]. If the specified zone set is active, the command is suspended until the zone set is deactivated.

**LIST**

Displays a list of all zone sets. This keyword does not require an Admin session.

**REMOVE**[zone\_set] [zone\_list]

Removes a list of zones given by [zone\_list] from the zone set given by [zone\_set]. Use a <space> to delimit zone names in [zone\_list]. If [zone\_set] is the active zone set, the zone will not be removed until the zone set has been deactivated.

**RENAME** [zone\_set\_old] [zone\_set\_new]

Renames the zone set given by [zone\_set\_old] to the name given by [zone\_set\_new]. You can rename the active zone set.

**ZONES** [zone\_set]

Displays all zones that are components of the zone set given by [zone\_set]. This keyword does not require an Admin session.

**Notes**

- A zone set must be active for its definitions to be applied to the fabric.
- Only one zone set can be active at one time.
- A zone can be a component of more than one zone set.

**Examples**

The following is an example of the `Zoneset Active` command:

```
2/8q FC Switch #> zoneset active
```

```
ActiveZoneSet      Bets
LastActivatedBy    admin@OB-session6
LastActivatedOn    day month date time year
```

The following is an example of the `Zoneset List` command:

```
2/8q FC Switch #> zoneset list
```

```
Current List of ZoneSets
```

```
-----
```

```
alpha
```

```
beta
```

The following is an example of the `Zoneset Zones` command:

```
2/8q FC Switch #> zoneset zones ssss
```

```
Current List of Zones for ZoneSet: ssss
```

```
-----
```

```
zone1
```

```
zone2
```

```
zone3
```

## Zoning **command**

Opens a Zoning Edit session in which to create and manage zone sets and zones. See the [“Zoning command”](#) on page 178 and the [“Zoneset command”](#) on page 176.

### Authority

Admin, except for the `Active`, `History`, `Limits`, and `List` keywords.

### Syntax

```
ZONING
```

### Keywords

```
ACTIVE
```

Displays information for the active zone set including component zones and zone members. This keyword does not require an Admin session.

```
CANCEL
```

Closes the current Zoning Edit session. Any unsaved changes are lost.

```
CLEAR
```

Clears all inactive zone sets from the volatile edit copy of the zoning database. This keyword does not affect the non-volatile zoning database. However, if you enter the `Zoning Clear` command followed by the `Zoning Save` command, the non-volatile zoning database is cleared from the switch.

---

**Note:** The preferred method for clearing the zoning database from the switch is the `Reset Zoning` command.

---

```
EDIT
```

Opens a Zoning Edit session.

## HISTORY

Displays a history of zoning modifications. This keyword does not require an Admin session. History information includes the following:

- Time of the most recent zone set activation or deactivation and the user who performed it
- Time of the most recent modifications to the zoning database and the user who made them.
- Checksum for the zoning database

## LIMITS

Displays the number of zone sets, zones, aliases, members per zone, members per alias, and total members in the zoning database. This keyword also displays the switch zoning database limits, excluding the active zone set, which are described in [Table 58](#). This keyword does not require an Admin session.

**Table 58: Zoning limits**

| Limit              | Description                                                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MaxZoneSets        | Maximum number of zone sets (256).                                                                                                                                                                                    |
| MaxZones           | Maximum number of zones (256).                                                                                                                                                                                        |
| MaxAliases         | Maximum number of aliases (256).                                                                                                                                                                                      |
| MaxTotalMembers    | Maximum number of zone and alias members (2000) that can be stored in the switch's zoning database.                                                                                                                   |
| MaxZonesInZoneSets | Maximum number of zones that are components of zone sets (1000), excluding the orphan zone set, that can be stored in the switch's zoning database. Each instance of a zone in a zone set counts toward this maximum. |
| MaxMembersPerZone  | Maximum number of members in a zone (2000) that can be stored in the switch's zoning database.                                                                                                                        |
| MaxMembersPerAlias | Maximum number of members in all zones and aliases (2000)                                                                                                                                                             |

## LIST

Lists all fabric zoning definitions. This keyword does not require an Admin session.

## RESTORE

Reverts the changes to the zoning database that have been made during the current Zoning Edit session since the last `Zoning Save` command was entered.

## SAVE

Saves changes made during the current Zoning Edit session. The system will inform you that the zone set must be activated to implement any changes. This does not apply if you entered the `Zoning Clear` command during the Zoning Edit session.

**Examples**

The following is an example of the Zoning Edit command:

```
2/8q FC Switch #> admin start

2/8q FC Switch (admin) #> zoning edit

2/8q FC Switch (admin-zoning) #>
.
.

2/8q FC Switch (admin-zoning) #> zoning cancel

Zoning edit mode will be canceled. Please confirm (y/n): [n] y

2/8q FC Switch (admin) #> admin end
```

The following is an example of the Zoning Limits command:

```
2/8q FC Switch #> zoning limits
```

| Zoning Attribute   | Maximum | Current | [Name]         |
|--------------------|---------|---------|----------------|
| -----              | -----   | -----   | -----          |
| MaxZoneSets        | 256     | 6       |                |
| MaxZones           | 256     | 19      |                |
| MaxAliases         | 256     | 1       |                |
| MaxTotalMembers    | 2000    | 149     |                |
| MaxZonesInZoneSets | 1000    | 15      |                |
| MaxMembersPerZone  | 2000    |         |                |
|                    |         | 10      | D_1_JBOD_1     |
|                    |         | 23      | D_1_Photons    |
|                    |         | 9       | D_2_JBOD1      |
|                    |         | 16      | D_2_NewJBOD_2  |
|                    |         | 5       | E1JBOD1        |
|                    |         | 5       | E2JBOD2        |
|                    |         | 3       | LinkResetZone  |
|                    |         | 3       | LinkResetZone2 |
|                    |         | 8       | NewJBOD1       |
|                    |         | 8       | NewJBOD2       |
|                    |         | 12      | Q_1Photon1     |
|                    |         | 12      | Q_2Photon2     |
|                    |         | 8       | Q_1_NewJBOD1   |
|                    |         | 13      | Q_1_Photon_1   |

```

13          Q_2_Photon_2
MaxMembersPerAlias  2000
2          AliasInAZone

```

The following is an example of the Zoning List command:

```

2/8q FC Switch #> zoning list

Active ZoneSet Information

ZoneSet      Zone      ZoneMember
-----
wwn

          wwn_b0241f
                    50:06:04:82:bf:d2:18:c2
                    50:06:04:82:bf:d2:18:d2
                    21:00:00:e0:8b:02:41:2f

          wwn_23bd31
                    50:06:04:82:bf:d2:18:c2
                    50:06:04:82:bf:d2:18:d2
                    10:00:00:00:c9:23:bd:31

          wwn_221416
                    50:06:04:82:bf:d2:18:c2
                    50:06:04:82:bf:d2:18:d2
                    10:00:00:00:c9:22:14:16

          wwn_2215c3
                    50:06:04:82:bf:d2:18:c2
                    50:06:04:82:bf:d2:18:d2
                    10:00:00:00:c9:22:15:c3

Configured Zoning Information

ZoneSet      Zone      ZoneMember
-----
wwn

          wwn_b0241f
                    50:06:04:82:bf:d2:18:c2
                    50:06:04:82:bf:d2:18:d2
                    21:00:00:e0:8b:02:41:2f

```

wwn\_23bd31

50:06:04:82:bf:d2:18:c2

50:06:04:82:bf:d2:18:d2

10:00:00:00:c9:23:bd:31

wwn\_221416

50:06:04:82:bf:d2:18:c2

50:06:04:82:bf:d2:18:d2

10:00:00:00:c9:22:14:16

wwn\_2215c3

50:06:04:82:bf:d2:18:c2

50:06:04:82:bf:d2:18:d2

10:00:00:00:c9:22:15:

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