



Brocade® Fabric Manager

User's Guide

Version 3.0

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Preface

Brocade Fabric Manager v3.0 is an optionally licensed product, and requires a valid license key to function. It is supported for the SilkWorm® 2000 series of switches, 3800, and 6400 series of switches, using Fabric OS™ v2.2 or later.

Note: This software uses the Java Open JCE Framework, part of the resulting software is shareware made available by the Australian Business Access (ABA).

About This Guide

This guide provides the following information about Brocade Fabric Manager:

Chapter 1

Introducing Brocade Fabric Manager

Provides an overview of Brocade Fabric Manager, with descriptions about its advantages and functions.

Chapter 2

Installing Brocade Fabric Manager

Provides requirements and instructions for installing Brocade Fabric Manager.

Chapter 3

The Fabric View

Provides information about configuring and using the Brocade Fabric Manager *Fabric View*.

Chapter 4

The File Menu

Provides information about configuring and using the Brocade Fabric Manager *File Menu*.

Chapter 5

The View Menu

Provides information about configuring and using Brocade Fabric Manager *View Menu*.

Chapter 6

The Actions Menu

Provides information about configuring and using Brocade Fabric Manager *Actions Menu*.

Chapter 7

The Tools Menu

Provides information about configuring and using Brocade Fabric Manager *Tools Menu*.

Chapter 8 The Help Menu	Provides information about configuring and using Brocade Fabric Manager <i>Help Menu</i> .
Chapter 9 The Tool Bar	Provides information about configuring and using Brocade Fabric Manager <i>Tool Bar</i> .
Chapter 10 The Switch View	Provides information about configuring and using Brocade Fabric Manager <i>Switch View</i> , which, with proper licensing, allows you to use Web Tools capabilities.
Chapter 11 Administrative Task Examples	Provides information about configuring and using Brocade Fabric Manager <i>Administrative Task Examples</i> that can help you implement the capabilities of Fabric Manager.

Related Publications

Related product information can be found in the following Brocade publications:

Fabric OS Procedures Guide

Fabric OS Reference Guide

Brocade MIB Reference

Brocade Web Tools User's Guide

Brocade Zoning User's Guide

QuickLoop User's Guide

Fabric Watch User's Guide

Distributed Fabrics User's Guide

Brocade SES User's Guide

Brocade ISL Trunking User's Guide (3800 switches only)

Advanced Performance Monitoring User's Guide (3800 switches only)

Information about fibre channel standards and fibre channel in general can be found on the Fibre Channel Association web site, located at:

<http://www.fibrechannel.com>

Getting Help

Contact your switch supplier for hardware and software technical support. This includes all product repairs and ordering of spare components.

Be prepared to provide the following information to support personnel:

- Switch serial number
- Switch worldwide name
- Topology configuration
- Output from the `supportShow telnet` command
- Detailed description of the problem
- Troubleshooting steps already performed

Getting Firmware Updates

Contact your switch supplier for software updates and maintenance releases of Fabric OS. New switch firmware can be installed from the following host operating systems:

- UNIX or Solaris
- Windows NT

Utility programs to facilitate loading firmware from the listed operating systems, in addition to MIB files for switch management by SNMP, can be accessed on the Brocade website through the following steps:

1. Launch your web browser and enter:

`http://www.brocade.com`

2. Click to expand **Support** in the left margin.
3. Click **MIBs and RSH Utilities** (under **Support** in the left margin).

Introducing Fabric Manager

Brocade Fabric Manager provides a graphical interface that is run from a workstation computer and, in cooperation with Web Tools, allows the administrator to monitor and manage SilkWorm Fabrics in addition to individual SilkWorm switches.

This chapter provides the following information:

- *Overview* on page 1-1
- *Advantages* on page 1-1
- *Capabilities* on page 1-2
- *Features* on page 1-2
- *FabricOS Integration* on page 1-5

Overview

Fabric Manager provides a graphical interface that allows the administrator to monitor and manage an entire fabric from a standard workstation. Fabric Manager can be used to manage fabrics containing integrated Fabrics, in addition to individual SilkWorm switches.

Fabric Manager provides high-level information about all switches in the fabric, launching the Web Tools application when more detailed information is required. The launching of Web Tools is transparent, providing a seamless user interface. In addition to the ability to view the switches in a as a group, Fabric Manager provides improved performance over Web Tools alone.

Fabric Manager is installed on the workstation, and can be used to manage any SilkWorm switches that have Fabric OS v2.2 or later and Web Tools v2.2 or later installed. All switches in the fabric are represented in the main window of Fabric Manager, but only those with a Web Tools license can be managed through Fabric Manager.

Advantages

Fabric Manager is the complete SAN management power tool for Brocade SANs, and provides the following advantages to administrators:

- Provides a highly scalable Java-based application that manages multiple switches and multiple fabrics (up to 8) in real-time.
- Assists SAN administrators with the configuration, monitoring, dynamic provisioning and daily management of Storage Area Networks.
- Lowers the cost of SAN ownership by intuitively facilitating SAN management tasks.

- Saves time by enabling the global integration and execution of processes across multiple fabrics, through its single-point SAN management platform.
- Allows more effective management by providing rapid access to critical SAN information across both Fabric OS SANs and enhanced Fabric OS SANs.

Capabilities

In cooperation with Web Tools, Fabric Manager provides the following information and capabilities:

- Configure and manage the Brocade fabric on multiple efficient levels.
- Intelligently group multiple SAN objects and SAN management functions to provide ease and time-efficiency in administering tasks.
- Identify, isolate and manage SAN events across multiple switches and fabrics.
- Provide drill-down capability to individual SAN components through tightly coupled Web Tools and FabricWatch integration.
- Discover all SAN components and view the real-time state of all Brocade fabrics.
- Execute multi-fabric administration of Secure Fabric OS SANs through a single encrypted console.
- Implement scalable SAN management tasks through functionality and tools that intelligently span 8 fabrics and 200 switches.
- Monitor Inter Switch Links (ISLs)
- Manage switch licenses
- Perform Fabric Stamping

Features

Core Features

Fabric Manager delivers enhanced levels of efficiency to administrators that are immersed in multiple Brocade SANs. It has the unique ability to provide real-time information and facilitate rapid SAN management.

Improved Scalability

Fabric Manager is highly scalable and can manage up to eight fabrics and 200 switches in real-time.

A Single Console Global SAN Management Platform

Fabric Manager has the intelligence to manage multiple SAN objects spanning up to 8 fabrics. It dynamically collects (in real time) all Brocade SAN fabric elements and portrays them within the single console, allowing intuitive iconic and explorer tree operations.

For more information, see *Fabric View with the Fabric Icon Selected* on page 3-2.

Enhanced SAN Visibility

Fabric Manager can globally capture and present reliable statuses across all SAN objects. These are projected throughout the entire SAN management environment. This context sensitive feature allows the status of all SAN components to be dynamically discovered and controlled by Fabric Manager.

For more information, see *Events* on page 6-2 or *Fabric Manager Log* on page 4-11.

Intuitive and Functional Object Management Platform

Fabric Manager's visual display is tailored to facilitate a high degree of efficiency when working with multiple storage area networks (SANs), medium to large SANs and up to 200 Brocade fabric switches. Fabric Manager provides object status of critical fabric elements such as Fabric Events, capturing this information in real-time across multiple fabrics and fabric security policies.

For more information, see *Events* on page 6-2.

Secure Fabric OS Policy Management

Fabric Manager is Brocade's premiere platform for controlling a Brocade Secure Fabric OS SAN. It assists with the mission critical functions necessary to deploy and administrate high security fabric topologies within an enterprise. Its infrastructure is intelligently integrated into the Secure Fabric OS Trusted Switch Model. It dynamically and intelligently manages both encrypted and non-encrypted fabrics from within its single console.

For more information, see *Telnet* on page 6-4.

Advanced Management Features

Fabric Manager provides unique and intuitive advanced methods for managing storage area networks (SANs).

User Controllable SAN Object Grouping

Fabric Manager enables the SAN manager with the power to group fabric switches in any logical user defined group. These groups are dynamically and intelligently propagated throughout Fabric Manager. User-defined groups can be utilized at any time and ultimately lower the cost of SAN management.

For more information, see *Logical Groups* on page 1-6.

ISL Monitoring

Fabric Manager enables the user to monitor the physical connections (known as Inter Switch Links, or ISLs) between switches and ports. Specific alarm settings may be chosen, and changes in the ISL topology, such as moves and disconnects can be monitored in the Events window.

For more information, refer to *ISL Status Tab* on page 4-8 and *ISL* on page 6-14.

Fully Controllable Sequenced and Timed Reboot

For SAN administrators immersed in the complexities of hardware and firmware management, Fabric Manager provides a totally flexible environment for controlling the availability of fabric switches. The ability to control switch availability is tightly controlled using logical groupings and global password control.

For more information, refer to *Reboot* on page 7-3.

Global Password Control

Fabric Manager provides the advanced ability to manage a user definable set of Brocade fabric switch passwords. Secure and Encrypted objects can be utilized across all secure features within the platform and across logical groups.

For more information, refer to *Telnet* on page 6-4.

Highly Flexible Firmware Download

The Firmware Download feature is dynamically configurable and scalable across logical groups, password controls, multiple fabrics, and multi-personality security SAN infrastructures. When utilized with the Sequenced Reboot functionality, it provides a fully configurable environment to SAN administrators for controlling the Brocade FabricOS firmware download process.

For more information, refer to *Download Firmware* on page 7-2.

Advanced License Key Management

Fabric Manager provides a powerful environment to manage Brocade license keys across all SAN fabrics under its control. Fabric Manager can receive licenses from Brocade support (via e-mail), enabling the user to perform pre and post installation cross-checking of License keys. License management is fully integrated to all advanced features, particularly Security, Groups, and Password Control.

For more information, refer to *Licensing* on page 7-6.

Configuration Control Through Intelligent Baseline Profiling

This function allows SAN managers to capture a detailed, customizable profile of a switch within any fabric. Once the snapshot has been acquired, it can optionally be stored in any user definable location, external Configuration Control Database, or Management Framework. At any point in time, a static profile can be reviewed and analyzed against an active fabric or switch within a SAN.

For more information, refer to *Sequence Reboot Window of the Reboot Menu* on page 7-5.

Enhanced Merge Control

Storage Area Network Administrators can easily control the merging details of SAN management through the Fabric Manager multi-fabric platform. When merging fabrics and zones within fabrics, Fabric manager does most of the work for the administrator. Fabric Manager delivers a detailed transaction report of the proposed zone merge operation that identifies any inconsistencies or underlying issues that may exist within the topology or operation.

For more information, see *Fabric Merge Check Window* on page 7-8.

Tight Integration of Brocade Management Products

Fabric Manager is tightly integrated with Brocade's entire SAN management family of products. It has the native ability to work with:

- Brocade Web Tools for a rapid drill-down to individual SAN elements within a fabric.
- Brocade Fabric Watch for advanced fabric wide status reporting, threshold gathering and information analysis. Provides rapid access to Fabric Watch allows reporting of conditions across multiple fabrics.

The ability to work easily with all Brocade Management tools is unique and highly functional, effectively reducing the time and costs of managing Brocade SANs.

FabricOS Integration

The Fabric OS version running on the switch will determine what functionality is supported by Fabric Manager. A matrix that outlines the features and what version of the Fabric OS they are supported on is shown in Figure 1-1 on page 1-6.

The cell contents indicate the access method being used by Fabric Manager to implement the features:

(Unshaded = not supported)	2.2-2.5	2.6
Firmware Download		
Sequenced Reboot		
Fabric Merge		
License Management		
Configuration Handling		
Multi-Fabric Support		
Logical Groups		
ISL Monitoring		
Security		FA 2.0
Switch Status Detail (starts 2.5)		
Set Time	FA 2.0	FA 2.0

Figure 1-1 Outline of Feature Support in FabricOS Versions

Concepts

Logical Groups

A “logical” group can be created to monitor the status of their component switches and propagate actions over the chosen group of switches. A SAN administrator can also use this feature to quickly determine the status of a large number of switches without looking through each one. A logical group differs from a physical group in that they do not necessarily represent a physically grouped set of switches.

For information on creating a logical group, see *Groups* on page 4-4.

Local Files

Fabric Manager persists groups and other information to “local” files. Fabric Manager stores these files in the user’s home directory. Log files are under user home/Fabric Manager/log.

Import/Export

Logical groups and other configuration information can be saved to local files and shared between hosts through the Import and Export options. Additionally, configuration information can be imported from files.

For more information about Import/Export, see *Groups* on page 4-4 or *Sequence Reboot Window of the Reboot Menu* on page 7-5 or *Config* on page 7-5.

ISL Checking

ISL checking is done by stamping or taking a “snapshot” of a topology. When a user turns on ISL checking for a fabric, a stamp is taken of the topology of the ISLs. Then when a change occurs in these ISLs, the status of the switch will change and the detailed information will be shown on the Events page.

For information about setting up ISL checking, see *ISL* on page 6-14 and *Monitor ISLs* on page 11-5.

Security

Note: This feature is not available without Brocade Secure Fabric OS.

Security is implemented on a policy basis. Secure FabricOS enables sensitive operations to be restricted to a few “trusted” switches. It allows administrators to designate a small number of switches (known as Fabric Configuration Servers) for fabric wide management operations. Individual switches will still be accessed for local configuration. It is possible to configure Secure FabricOS in such a way that Fabric Manager is unable to access most of the switches. In this case Fabric Manager can only be used in a reduced mode without most monitoring features and lacking many of the administration launch points.

For general information regarding security policies for Silkworm switches, see the Security User’s Guide. For security information specific to Fabric Manager, see *Telnet* on page 6-4.

Installing Fabric Manager

This chapter provides the following information:

- *Requirements* on page 2-1
- *Installing Fabric Manager* on page 2-2
- *Installing Fabric Manager on Solaris (Optional)* on page 2-3
- *Launching Fabric Manager through Windows* on page 2-13
- *Uninstalling Fabric Manager* on page 2-15
- *Adding the Browser Pathname to the Properties File* on page 2-14

Requirements

The computer workstation and the switch must both meet specific requirements for the correct installation and operation of Fabric Manager.

Switch Requirements

Fabric Manager can be used to manage SilkWorm switches that meet the following requirements:

- In the SilkWorm 2xxx family (SilkWorm 2010, 2040, 2050, 2100, 2210, 2240, 2250, 2400, 2800), 3800 and 6400.
- Web Tools license installed.
- Fabric OS v2.2 or greater required.
Fabric Manager can be used to manage switches with earlier versions of Fabric OS, but status and event information will not be available.

Workstation Requirements

The following items are required for the correct installation and operation of Fabric Manager on the computer workstation:

- One of the following operating systems:
 - Windows 2000
 - Windows NT 4.0

- Solaris 2.7 or 2.8
 - Adequate RAM:
 - 128 MB for fabrics of 21 switches or less
 - 256 MB for fabrics containing more than 21 switches
 - 30 MB of free disk space
 - One of the following web browsers:
 - Netscape Communicator 4.51 or later.
 - Internet Explorer 4.01 or later.
- Note:** The browser must be specifically configured to work with Fabric Manager. For information about how to do this, see *Configuring the Web Browser* on page 2-8.
- Java™ Plugin version 1.2.2-005 (not required for Solaris).

Installing Fabric Manager

Preparing to use Fabric Manager to manage your fabric requires the following steps:

- Installation of one of the supported web browsers on the workstation, if not already installed.
- Configuration of the web browser for use with Fabric Manager.
- Installation of the required Java Plug-in on the workstation, if not already installed.
- Installation of a Web Tools license on each switch to be managed from Fabric Manager.
- Installation of Fabric Manager on the computer to be used as a workstation.
- Exit and relaunch the browser.

Installing the Java Plugin on the Workstation

A Java Plug-in must be installed on the workstation for the Fabric Manager installer to function, in addition to the correct operation of Fabric Manager and Web Tools. Windows 2000 and NT workstations require Java Plug-in version 1.2.2-005 and higher.

To determine the version of the Java Plug-in installed on Windows 2000 or NT, and install the plug-in if necessary:

1. Launch the Java Plug-in control panel by selecting **Start > Programs > Java Plug-in Control Panel** and turning on the Java Console.
2. Launch the web browser, enter the name or IP address of a switch running Fabric OS v2.2 or later, and press <Enter>.

The switch launches the Java Plug-in console, which displays the Java Plug-in version currently installed.

3. Determine whether the correct Java Plug-in version is installed, and install if necessary:
 - If the correct version is installed, Fabric Manager is ready for use.

- If no Java Plug-in is installed, point the browser towards a switch running Fabric OS v2.2 or later, follow the link to the Sun Microsystems website, and download the correct Java Plug-in, then double-click the downloaded file to install the plug-in.

If an outdated version is currently installed, uninstall it, relaunch the browser, enter the address of a switch running Fabric OS v2.2 or later, follow the link to the Sun website, and download the new Java Plug-in.

Installing Fabric Manager on Solaris (Optional)

Preparing to use Fabric Manager to manage your fabric in a Solaris environment requires the following steps:

1. Installing the appropriate Browser, if not already installed on the workstation.
2. Installing the required Java plug-in on the workstation, if not already installed.
3. Checking that java 1.2 is the default java VM installed on your system.
4. Adding Solaris Patches for the Java plugin for systems running Solaris 7. Solaris 8 does not require patches.

Installing the Browser for Solaris

1. Find out which version of netscape you're running by executing the following from a terminal window:

```
#netscape -version
```

Fabric Manager requires Netscape Communicator 4.51 or later

2. If your version of Netscape is older than 4.51, a new version can be downloaded from the netscape website (refer to *Configuring Netscape Communicator* on page 2-8) or installed from cd.

On systems running Solaris 8 Netscape v4.51 is the default browser, so on Solaris 8 you should not have to make any browser adjustments. However, on previous releases the default browser is hotjava. Fabric Manager does not support hotjava.

- When netscape is installed in the directory you specified (typically the following: */usr/dt/appconfig/netscape* directory on a Solaris 8 system) you must create a symbolic link to it from the */usr/dt/bin* directory.

Execute the following command from a terminal window.

```
#cd /usr/dt/bin
```

```
#ln -s ../appconfig/netscape/netscape netscape
```

Make sure */usr/dt/bin* is in your path, if not edit Users home directory *.profile* or *.cshrc* file to add it, depending upon which shell you use.

```
#vi /.profile
```

```
PATH=$PATH:/usr/dt/bin
```

```
export PATH
```

Installing the Java Plug-In for Solaris

1. Find out if you have the correct java plug-in installed by going to the help menu on your browsers toolbar and selecting the About Plugins feature.

The Java plug-in 1.2.2_02 should display.

2. If your Java Plug-in is older than 1.2.2_02, download it from [<http://www.sun.com/software/solaris/netcape/jpis/>](http://www.sun.com/software/solaris/netcape/jpis/) . It downloads in compressed tar file format into the directory you specified for download.

- Unarchive Java Plug-in by using the following commands:

```
#uncompress plugin-12-sparc.tar.Z
#tar -xf plugin-12-sparc.tar
```

- Install the Java Plug-in by using the following command from a terminal window:

```
#pkgadd -d . SUNWj2pi
```

- It will be installed in /opt/NSCPcom/ by default.

The browser won't load the plugin unless it resides in your netscape base directory. If that is /opt/NSCPcom you don't need to make any changes, otherwise execute the following commands:

```
#cd /opt/NSCPcom/plugins
#mv javaplugin12.so /usr/dt/appconfig/netcape/plugins
#cd ..
#mv j2pi /usr/dt/appconfig/netcape
```

- Now set your environment variable NPX_PLUGIN_PATH to point to the new plugin location by using the following commands:

```
#vi /.profile
NPX_PLUGIN_PATH=/usr/dt/appconfig/netcape/plugins
export NPX_PLUGIN_PATH
```

- Logout of your current session and log back in and this environment variable will be set.

More information about Java Plug-ins is available from:

www.sun.com/solaris/netcape/jpis/userguide-java_plugin.html

Ensuring Java™ VM 1.2._07 is the default for Solaris

1. Find out which Java VM is the default on your system by executing the following command:

```
#java -version
```

The recommended VM for Solaris Fabric Manager is 1.2.2_07.

1. Downloaded the recommended VM from:

www.sun.com/solaris/netcape/jpis/userguide-java_plugin.html

- Download the self-extracting binary file into your /usr directory; then execute the following `chmod +x Solaris_JDK_1.2.2_07_sparc.bin/Solaris_JDK_1.2.2_07_sparc.bin`
- Make the recommended VM your default by putting the directory in your path before /usr/java.

For example vi.profi 6

```
PATH= /usr/Solaris_JDK_1.2.2_07/bin:$PATH
```

```
Export PATH
```

- Patches may be required to be installed for certain releases of Solaris to use this VM. If required, these may be downloaded from the same source.
- Logout of your session, and the Path will be set when you log back in. Java™ 1.2 VM should now be the default.

Installing Solaris Patches

The following patches are recommended by Sun for Solaris for Java™ Plugin 1.2.2_02:

JPI 1.2/JRE 1.2.1_03				
Solaris Version	SPARC Patch ID	Intel Patch ID	Required/Recommended	Description
7	106980-17	106981-04	Required	Libthread Patch
	108376-29	108376-29	Recommended	OpenWindows 3.6.1 Xsun Patch
7	107544-03	107545	Recommended	Ufs/fsck Patch

If you are running either of the above versions of Solaris, Sun has provided these patches to enable you to effectively use this release of java plugin with older releases of Solaris.

- To see if you have any of the patches listed already installed on your machine, execute the following command:

```
#showrev -p | grep 107544-03
```

This will print out a description of the patch if you have it already installed, otherwise it prints out nothing to indicate it's not installed.

- Download the patches (if needed) from <http://sunsolve.sun.com/> via ftp or http. To install patches change into the directory they were downloaded into.
- Patches will be in a zipped file format. Execute the following commands for each of the patches listed.

```
#/bin/unzip 106980-17.zip
```

```
#patchadd 106980-17
```

Configuring Solaris

The Solaris system should be configured to have the "number of open file descriptors" of at least 256.

1. Check the current configuration by using the "**ulimit -a**" command. The following is sample output:

```
time(seconds)          unlimited
file(blocks)           unlimited
data(kbytes)           unlimited
stack(kbytes)          8192
coredump(blocks)       unlimited
nofiles(descriptors)  64
vmemory(kbytes)        unlimited
```

2. Check the item "**nofiles(descriptors)**". It should be at least 256. The default is 256 for Solaris 8 systems.
 - If it is less than 256, login as root and use command "ulimit -n 256" to set it to 256, or refer to the System Administrator's manual to configure this limit.

Installing Web Tools on the Switch

Web Tools can be installed either through Telnet or over the web. Installation of Web Tools involves the installation of a license on each switch that will be managed from Web Tools.

To determine whether a Web Tools license is already installed on a switch, follow the instructions provided under *Launching Fabric Manager through Windows* on page 2-13. If a license is not installed, contact your switch supplier to obtain a license key.

Installing Web Tools Through Telnet

To install Web Tools through Telnet:

1. Log on to the switch by Telnet (refer to the *Fabric OS User's Guide* for more information), using an account that has administrative privileges.
2. To determine whether a Web Tools license is already installed on the switch, type `licenseShow` on the Telnet command line.

A list displays, showing all the licenses currently installed on the switch.

```
admin> licenseShow
1A1AaAaaaAAAA1a:
Release v2.2
Zoning license
SES license
QuickLoop license
```

If the Web Tools license is not included in the list or is incorrect, continue with step [3].

3. Enter the following on the command line:

```
licenseAdd "key"
```

where "key" is the license key provided to you (do not include the double quotes). The license key value is case-sensitive, and must be entered exactly as given.

4. Verify the license was added by entering the following on the command line:

```
licenseShow
```

If the Web Tools license is listed, the feature is available. If the license is not listed, repeat step [3].

Note: The Java Plug-in must also be installed on the workstation to access Web Tools.

Installing Web Tools Through the Web

A Web Tools license can be installed onto the switch through the web. If none of the switches in the fabric have a Web Tools license, a license dialog automatically displays when you access any of the switches over the web. If the fabric already contains at least one licensed switch, you can use Web Tools to view and license other switches from the licensed switch.

To install the first Web Tools license through the web:

1. Launch the web browser, enter the switch name or IP address in the **Location/Address** field (for example: <http://111.222.33.1>), and press <Enter>.

If a license is already installed on the switch, Web Tools launches. If no license is installed, a license dialog displays.

2. If the license dialog displays, follow the instructions provided.

To install additional licenses through the web:

1. Launch the web browser and enter the name or IP address of the licensed switch in the **Location/Address** field, and press <Enter>.

For example: (<http://111.222.33.1>)

Web Tools opens, displaying the Fabric View.

2. Click the icon for the switch you want to license.

A licensing window displays.

3. Follow the instructions provided.

Installing a Web Browser

Install one of the following browsers, if not already installed:

- Netscape Communicator 4.51 or later (available at <http://www.netscape.com>).
- Internet Explorer 4.01 or later (available at <http://www.microsoft.com>).

Configuring the Web Browser

Specific browser settings are required for the correct operation of Fabric Manager with either Netscape Communicator or Internet Explorer.

Configuring Netscape Communicator

The web browser cache must be cleared after the installation of Fabric OS. The browser may use local cache copies of jar files and/or image files to improve performance (depending on options selected in the browser), which can cause incorrect display.

To remove cached files from Netscape Communicator:

1. Select **Edit > Preferences**.
2. Click **Advanced** in the left text box to expand it, then click **Cache**.
3. On the Cache panel, click **Clear Memory Cache**.
4. Click **Clear Disk Cache**.
5. Click **OK**.

Configuring Internet Explorer

Correct operation of Fabric Manager with Internet Explorer requires clearing the web browser cache after installation and specifying the appropriate settings for the browser refresh frequency and process model.

- The browser cache must be cleared after the installation of Fabric OS. The browser may use local cache copies of jar files and/or image files to improve performance (depending on options selected in the browser), which can cause incorrect display.

To remove cached files from Internet Explorer:

1. Select **Internet Options** from the **View** menu if using Internet Explorer 4.x, or from the **Tools** menu if using 5.x.
 2. Select the **General** tab.
 3. Click **Delete Files...** (under “Temporary Internet Files”).
 4. Click **OK**.
 5. Exit and relaunch the browser.
- Browser pages must be refreshed at every visit to ensure the correct operation of the Switch Admin feature.

To set the refresh frequency:

1. Select **Internet Options** from the **View** menu if using Internet Explorer 4.x, or from the **Tools** menu if using 5.x.
 2. Select the **General** tab and click **Settings** (under “Temporary Internet Files”).
 3. Under “Check for newer versions of stored pages”, select “Every visit to the page”.
- The correct Browser Process Model must be selected.

To select the Browser Process Model (only required for Windows NT):

1. Select **View > Internet Options** if using Internet Explorer 4.x, or **Tools > Internet Options** if using Internet Explorer 5.x.
2. Select the **Advanced** tab and click to expand the Browsing category.
3. Under “Browsing”, select “Browse in a new process” if using Internet Explorer 4.x, or “Launch browser windows in a separate process” if using Internet Explorer 5.x.

Installing Fabric Manager on the Windows Workstation

The Fabric Manager 3.0 installation package includes the following items:

- ReadMe.txt file, providing product name, version, and late-breaking news.
- Java Plugin
- FabricManager.Jar file, containing the required Java classes.
- FabricManager.properties file, containing configuration information.

To install Fabric Manager 3.0:

1. Insert the Fabric Manager CD-ROM in the CD drive of the computer workstation.

If Fabric Manager is already installed on the computer, a window displays at this point to indicate this. If this window displays, you must exit the installer and uninstall the existing version.

The installer searches the local system for the correct version of the Java Plug-in. If this version is not installed, a window displays warning that the correct version of the plug-in is missing. If the installer warns that the plug-in is missing, perform step 3 before continuing. Otherwise, continue with step 4.

The Welcome window displays, providing product information and version.

2. Click **Next**.
3. If the installer warns that the Java plug-in is missing:
 - a. Click **Exit** to close the Fabric Manager installer, then click **Exit Install** in the warning dialog that displays.
 - b. View the local drives, right-click on the icon for the Fabric Manager CD-ROM, and select **Explore**.
 - c. Click to open the JRE folder, then click on the file **jre-1_2_2_007-win.exe**.
The plug-in installer launches.
 - d. Read the license agreement, and click **Next** if you accept the agreement.
A window displays to allow selection of the installation location.
 - e. Click **Next** to accept the default installation location, or browse for a custom location and then click **Next**.

The installation completes and the plug-in installer window closes.

- f. Relaunch the Fabric Manager installer by double-clicking the icon for your CD-ROM drive.

The Welcome window displays again.

- g. Click **Next** to dismiss the Welcome window.

Once the Java plug-in has been successfully located, a window listing Fabric Manager's web browser requirements displays.

4. Determine whether a compatible browser is installed. If a compatible browser is not installed, exit the Fabric Manager installation, install the browser, and then relaunch the Fabric Manager installation.

Note: The browser should be installed before Fabric Manager is installed so that the pathname for the browser can be written to the Fabric Manager properties file.

5. Click **Next** to continue.

A window that allows selection of the installation location displays.

6. Click **Install** to accept the default installation location, or browse for a custom location and then click **Install**.

Once **Install** is clicked, a window showing the progress of the installation displays, with the name of the file currently being installed in the lower portion of the window.

The installer searches the registry for the web browser and adds the complete pathname to the FabricManager.properties file. If the installer is unable to locate a web browser, a window displays warning that no browser was found. If this window displays, exit the Fabric Manager installation, install the browser, and then relaunch the Fabric Manager installation.

Note: If the browser is installed or moved after Fabric Manager is installed, see "Adding the Browser Path name to the Properties File".

Once the installation of Fabric Manager is complete, the following window displays:

7. Check the checkbox if you want to view the ReadMe file, then click **Done** to close the installer.

Note: Clicking **Exit** at this point does not undo the installation, but does prevent the ReadMe file from being displayed.

Installing Fabric Manager on the Solaris Workstation

The Fabric Manager installation package includes the following items:

- ReadMe.txt file, providing product name, version, and late-breaking news.
- Java Web Start Plugin
- FabricManager.Jar file, containing the required Java classes.
- FabricManager.properties file, containing configuration information.

To install Fabric Manager 3.0:

1. Insert the Fabric Manager CD-ROM in the cd drive of the Sun workstation.
Your file manager window will appear with Fabric Manager 3.0 files listed in it.
2. Click on the Install.bin icon.
The installer launches and the Welcome window appears.
3. Click Next.
The license agreement appears.
4. Click Next if you accept the license agreement.
A window displays to allow selection of the installation location.
5. Click Next to accept the default location (/usr/local/bin/Fabric_Manager) or browse for a custom location and then click Next.
The installation completes and the installer window closes.

Configuring a Browser for Secure Telnet

Once you have Secure Telnet software installed, you can configure a browser to use Secure Telnet Netscape Navigator 3.0

1. Select *Options* on the top menu bar
2. Select *General Preferences*
3. Select the *Applications* or *Apps* tab.
Look for the space for entering a Telnet application.
4. Use the **Browse** button to select your Telnet application, or enter the full path and file name of the Telnet application on your computer.

Netscape Communicator (Navigator 4.03 and above)

1. Select *Edit* on the top menu bar
2. Select *Preferences*.
3. Select the *Navigator: Applications*.
4. Scroll down the list at the right.
5. Select *URL: Telnet Protocol*, then click on the **Edit** button.

In the "Handled by:" area, make sure *Application* is selected. Use the **Browse** button to select your Telnet application, or enter the full path and file name of the Telnet application on your computer.

After the full path and file name has been added, place the cursor at the end of the path.
Type a space and %1

Example: "C:\Program Files\CRT\Crt.exe" %1

Microsoft Internet Explorer 3.0

Note: When you first install Internet Explorer, it should already be able to open a telnet application (called RUNDLL.32). Follow these instructions if you wish to change the default telnet application, or if a default telnet application is not set.

1. Select *View* on the top menu bar.
2. Select *Options*.
The *Options* dialog box appears
3. Select the *Programs* tab.
4. Click on the **File Types** button the scroll down the list of registered file types.
5. Select *URL: Telnet Protocol*, then click on the **Edit** button.
The *Edit File Type* box appears.
6. Select **open** from the *Actions* box by clicking on it, then choose the **Edit** button.
7. Use the **Browse** button to select your Telnet application, or enter the full path and file name of the Telnet application on your computer.

Microsoft Internet Explorer 4.0 or higher (PC)

Note: When you first install Internet Explorer, it should already be able to open a telnet application (called RUNDLL.32). Follow these instructions if you wish to change the default telnet application, or if a default telnet application is not set.

1. Go to your *Desktop*.
2. Double click on the **My Computer** icon.
3. Choose *Option* from the *View* menu
4. Choose *File Types* tab then scroll down list of registered file types.
5. Select *URL: Telnet Protocol* and then choose the **Edit** button.
6. Choose the **Edit** button from the **Edit File Type** dialog box.
7. Select the **Browse** button to select your Telnet application, or enter the full path and file name of the Telnet application on your computer. Your telnet application will appear in the *Application used to perform action* box.

Launching Fabric Manager through Solaris

You can launch Fabric Manager once Fabric Manager and the Java Plug-in are both installed on the workstation, and a Web Tools license is installed on the switch.

To launch Fabric Manager:

1. Change into the directory you installed Fabric Manager into and execute the following command:

```
#./startFabricManager
```

The Fabric Manager View window displays.

Launching Fabric Manager through Windows

You can launch Fabric Manager once Fabric Manager and the Java Plug-in are both installed on the workstation, and a Web Tools license is installed on the switch.

To launch Fabric Manager:

1. Select **Start >Programs > Fabric Manager > Fabric Manager**.

The Address window displays.

2. Enter the switch name or IP address in the **Switch URL** field.

Note: This switch is assumed to be the local domain. If you want information specific to QuickLoop to be available, the QuickLoop switch must be the local domain.

3. Press Enter to submit the address.

Note: If an incorrect address or format is used, an error message displays, as shown in Figure 2-3 on page 2-14 listing the formats that can be used. If this message displays, determine and enter the correct address.

Once a correct address is entered, Fabric Manager launches, displaying the default view, Fabric View.

Adding the Browser Pathname to the Properties File

This is an optional step, and usually not necessary. However, if your browser isn't working, you may need to edit the properties file to show the correct path for the browser.

Note: Editing any information other than the browser pathname in the properties file is not recommended.

To add the browser pathname to the properties file:

1. Open the directory where Fabric Manager is installed. The default directory is:

`c:\Program Files\Fabric Manager\`, where “c” is the local drive.

2. Double-click on the FabricManager.Properties file, and select a text editor (such as Notepad) as the application for this file.
3. Enter a new line starting with “BrowserPath=”, followed by the correct pathname for the browser, in quotes.

Example: BrowserPath="C:\Program Files\Internet Explorer\iexplore.exe"

This line can be added anywhere in the file, provided it does not interrupt another line.

Uninstalling Fabric Manager

Note: The uninstaller can only access the most recent installation. To uninstall an additional installation, open the corresponding installation folder, open the subdirectory `UninstallerData`, and double-click **Uninstall FabricManager.exe** to launch the uninstaller.

To uninstall Fabric Manager:

1. Select **Start > Settings > Control Panel**.
2. Double-click the **Add/Remove** control panel.
3. On the Install/Uninstall tab of the control panel, select Fabric Manager and click **Add/Remove**.

A window displays warning that you are about to uninstall Fabric Manager.

4. Click **Uninstall** to continue.

A window showing the progress of the uninstallation displays. When the uninstallation is complete, the Uninstall Complete window displays.

5. Click **Exit** to close the Uninstall Complete window.

Fabric Manager View

Overview

Fabric Manager “detail” View is the first view that displays when you launch Fabric Manager, and it provides access to specific information about the fabric and switches through a panel representing each switch. Every switch in the fabric, including any unlicensed switches, is represented by a switch panel in Fabric View. However, only switches with a Web Tools license can be managed from Fabric Manager. To add a license for an unlicensed switch, click the corresponding switch icon in Fabric View, and a license window automatically displays.

Accessing Fabric Manager View

To launch Fabric Manager and access the Fabric Manager View:

1. Launch Fabric Manager. For information about launching Fabric Manager, see *Launching Fabric Manager through Windows* on page 2-13.

Fabric Manager launches, displaying the Fabric View (default), as shown in Figure 3-1.

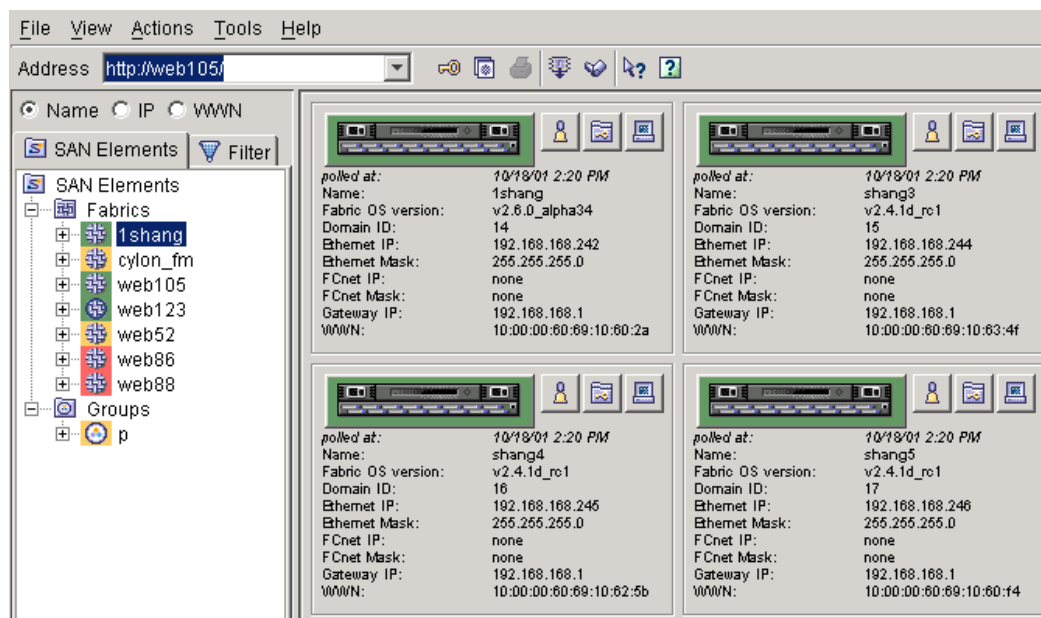


Figure 3-1 Fabric View

The following is the Fabric View with the Fabric Icon selected. Refer to *San Elements Tab Icons* on page 3-7.

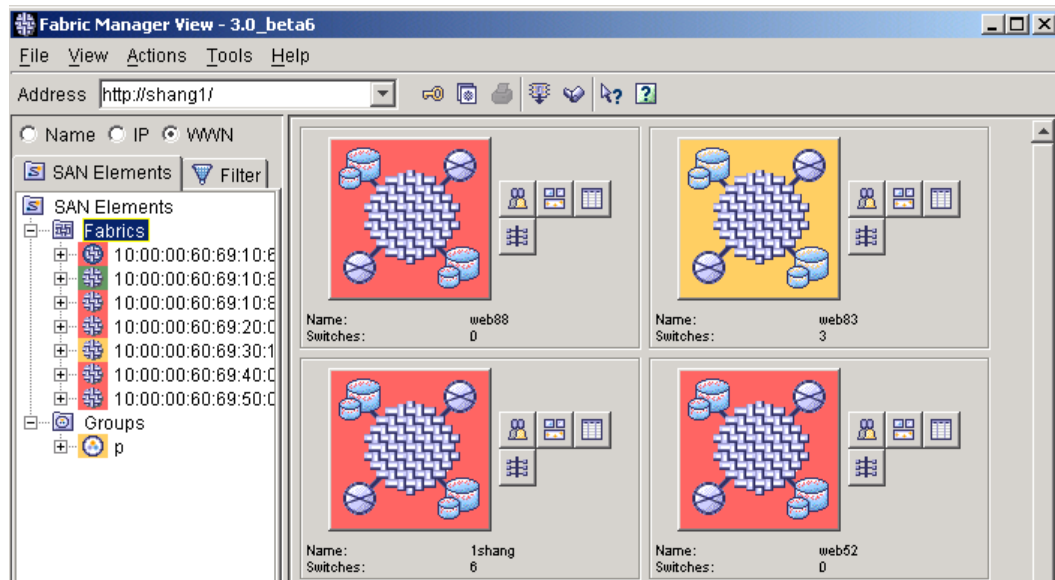


Figure 3-2 Fabric View with the Fabric Icon Selected

Options available in the Fabric Manager View

The following section provides an overview of the options available through the Fabric View area of Fabric Manager.

Menus

The Menus portion of the Fabric View is shown in Figure 3-3.



Figure 3-3 Fabric View Pull-Down Menus

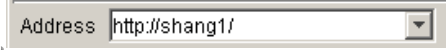







The following is a description of the options available in the Pull-Down menus. For more information about these options, see *File Menu* on page 4-1, *View Menu* on page 5-1, *Actions Menu* on page 6-1, *Tools Menu* on page 7-1, or *Help Menu* on page 8-1

File >	<p>The File pull-down menu provides the following options:</p> <ul style="list-style-type: none">• New• Close• Fabric Manager Login• Groups<ul style="list-style-type: none">- Create- Import- Export• Options...• Log...• Print...• Quit <p>For more information about these options, see <i>File Menu</i> on page 4-1.</p>
View >	<p>The View pull-down menu provides the following options:</p> <ul style="list-style-type: none">• Detail• Summary• Table <p>For more information about these options, see <i>View Menu</i> on page 5-1.</p>
Actions >	<p>The Actions pull-down menu provides the following options:</p> <ul style="list-style-type: none">• Switch View• Events• Admin• Fabric Watch• Telnet• Security• Zone Admin• Name Server• ISL<ul style="list-style-type: none">- ISL Checking- Restamp• Set Time• Fabric Checking <p>For more information about these options, see <i>Actions Menu</i> on page 6-1.</p>

Tools >	<p>The Tools pull-down menu provides the following options:</p> <ul style="list-style-type: none">• Download Firmware• Reboot<ul style="list-style-type: none">- Create Reboot Sequence- Sequence Reboot• Config<ul style="list-style-type: none">- Save Baseline- Compare/Download From File- Compare/Download From Switch• Licensing<ul style="list-style-type: none">- Import From File- Load From Switch• Fabric Merge <p>For more information about these options, see <i>Tools Menu</i> on page 7-1.</p>
Help >	<p>The Help pull-down menu provides the following options:</p> <ul style="list-style-type: none">• Help• Context Help• Status Legend• About <p>For more information about these options, see <i>Help Menu</i> on page 8-1.</p>

Tool Bar

Following is a brief description of the icons available in the Fabric View Tools Bar. For more information about the available in Fabric Manager, see *Tool Bar* on page 9-1.

Address window 	Enter the IP address, name, or WWN of the switch that you want to manage or monitor. Once the switch information has been entered, the address can be chosen automatically from the pull-down menu.
Fabric Login Icon 	Select the switches that you want to login to. For more information about this option, see <i>Fabric Login Icon</i> on page 9-2.
Open FM Log Icon 	Select to open the Fabric Manager Log. For more information about this option, see <i>Fabric Manager Log</i> on page 4-11.
Print Table Icon 	Select to print a table report. For more information, see <i>Print Table Icon</i> on page 9-5 or <i>Print</i> on page 4-11.
Download Firmware Icon 	Select to setup firmware downloads for multiple switches at once. For more information about this option, see <i>Download Firmware</i> on page 7-2.
Sequenced Reboot Icon 	Select to set up switches to reboot in a chosen order. For more information, refer to <i>Sequenced Reboot</i> on page 7-4 or <i>Setup a Sequenced Reboot</i> on page 11-7.
Context Sensitive Help Icon 	Select to view Context Sensitive Help. For more information about this options, refer to <i>Context Sensitive Help Icon</i> on page 9-10.
Help Icon 	Select to view the Help section. For more information, refer to <i>Help Icon</i> on page 9-11 or <i>Help Menu</i> on page 8-1.

SAN Elements Panel

Use the SAN Elements Panel to view, select, and search for the elements of a SAN (Fabrics and/or Groups) by their IP address, Name, or WWN.

SAN Elements Tab

The SAN Elements tab of the SAN Elements Panel is shown in the default view in Figure 3-4.

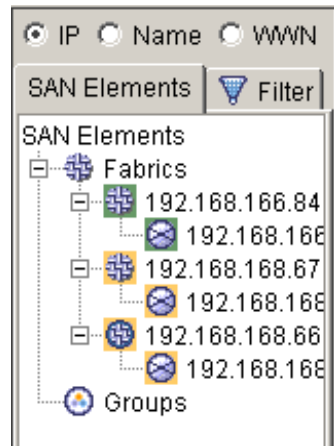








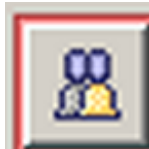


Figure 3-4 SAN Elements Panel

The Navigation Tree control of the SAN Elements Panel displays various nodes, such as Fabrics, Groups, Reboot Groups, Devices, Switches, Ports, etc. Some views in Fabric Manager may show only some nodes, but not others. A filter tab may be displayed on some views so that a user to search for switches by their properties.

San Elements Tab Icons

Fabric Icon 	<p>Select the Fabric Icon from the San Elements column to view a fabric view of the entire fabric, rather than individual switches. See <i>Fabric View with the Fabric Icon Selected</i> on page 3-2.</p>
ISL Checking 	<p>Displays the status of ISL Checking.</p> <p>A - Displays by default when ISL Checking is OFF and Fabric Checking is OFF.</p> <p>B - Displays when ISL Checking is ON, but Fabric Checking is OFF.</p> <p>C - Displays when ISL Checking is OFF, but Fabric Checking is ON.</p> <p>D - Displays when ISL Checking is On, and Fabric Checking is ON.</p> <p>For more information, see <i>ISL</i> on page 6-14 and <i>ISL Status Tab</i> on page 4-8.</p>
<p>Clicking on the word “Fabrics” in the navigation tree will cause the following icons to appear in the right-hand window:</p>	
Fabric Events 	<p>Click to open Fabric Events View. For information about this view, see <i>Events</i> on page 6-2.</p>
Zone Admin 	<p>Click to open the Zone Admin View. For information about this view, see <i>Switch Connection Controls Tab of the Security Menu</i> on page 6-5.</p>

Name Server 	Click to open the Name Server. For information about this view, see <i>Name Server</i> on page 6-14.
Fabric Topology 	Click to open the Fabric Topology view. For information, see the <i>Web Tools User's Guide</i> .

Clicking on the word “Groups” in the navigation tree causes the following icons appear in the right-hand window:	
Group Events 	Click to open Fabric Events View. For information about this view, see <i>Events</i> on page 6-2.
Group Creation 	Click to open the Group Creation window. For information about this option, see <i>Creating Logical Groups</i> on page 4-5.
Group Exportation 	Click to to open the Group Exportation window. For information about this option, see <i>Exporting a Group</i> on page 4-6.

Filter tab

Use the Filter tab of the SAN Elements Panel to search for switches by IP Address, Name, Type, Version (FOS), WWN, or Domain ID. The Filter tab is shown in Figure 3-5.

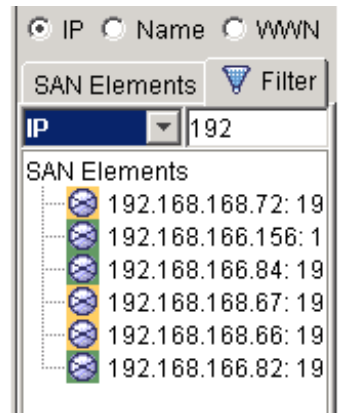


Figure 3-5 Filter Tab of the SAN Elements Panel

Switch View

Use the Switch View portion of the Fabric View to manage individual switches. Launching the Switch View in Fabric Manager actually launches a partner management tool called Web Tools.

For more information about the Switch View, see *Switch View* on page 10-1.

The Switch View is shown in Figure 3-6.

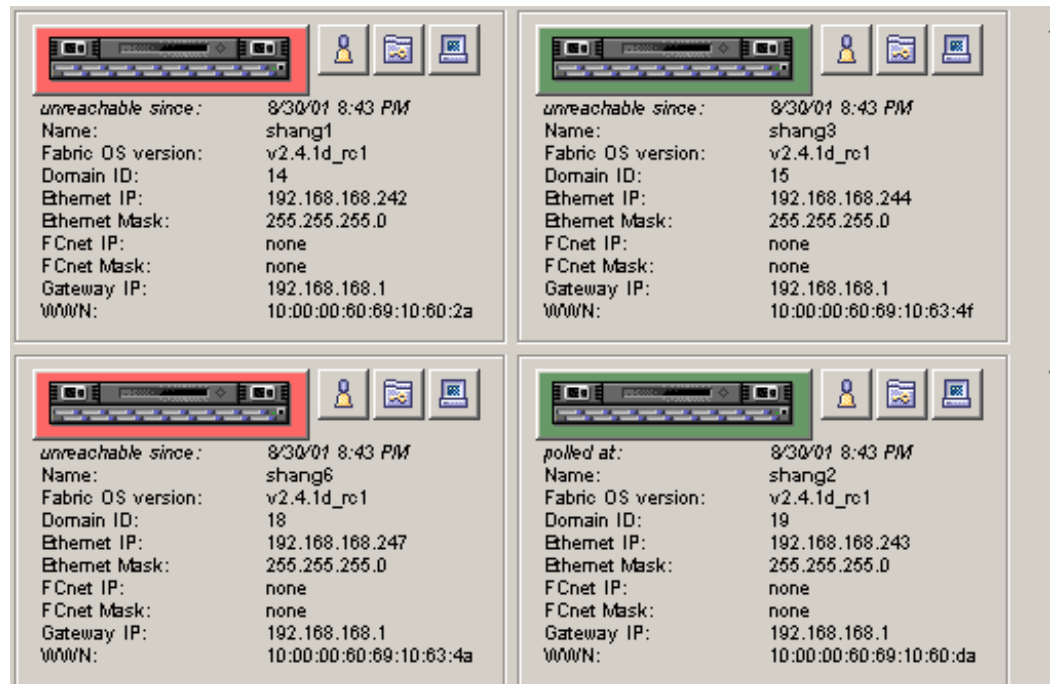

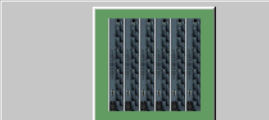

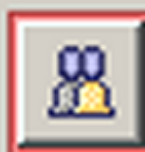





Figure 3-6 Switch View

Switch Icons Available in Fabric View

<p>Individual Switch Panel</p>  <pre> polled at: 8/8/01 4:17 PM Name: web66 Fabric OS version: v3.0 06-13-01 fsilva Domain ID: 1 Ethernet IP: 192.168.168.66 Ethernet Mask: 255.255.255.0 FCnet IP: none FCnet Mask: none Gateway IP: 192.168.168.1 WWNN: 10:00:00:60:69:04:23:03 </pre>	<p>The Switch Panel representing an individual switch in the fabric. A Switch Panel displays for each individual switch in the fabric.</p>
<p>SilkWorm Integrated Fabric Panel</p>  <pre> polled at: 1/23/01 9:39 PM Name: Buddy Type: S64 6 1 </pre>	<p>The Switch Panel representing a SilkWorm Integrated Fabric.</p> <p>The components of the control panel are described in the following rows.</p>
<p>Individual Switch Icon</p> 	<p>Click to open Switch View for the switch. Each switch type is represented by a different icon. The background color around the icon indicates the status of the switch (for information about this view, see <i>Fabric Manager View</i> on page 3-1.</p>
<p>Fabric Events Button</p> 	<p>Click to open Fabric Events View. For information about this view, see <i>Events</i> on page 6-2.</p>
<p>Events</p> 	<p>Click to open Switch Events View to display the Switch Events log.</p>
<p>Admin</p> 	<p>Click to open Switch Administration View.</p>
<p>Telnet</p> 	<p>Click to launch the Telnet Interface for the switch.</p>

Switch View field descriptions:	
<i>polled at:</i> <i>(or unreachable since:)</i>	Displays the time of the last status check. If the switch is unavailable, this shows the time of the last successful status check.
Name:	Displays the name of the switch.
Type:	Displays the type of switch configuration.
Fabric OS version:	Displays the version of Fabric OS installed on the switch.
Domain ID:	Displays a number that uniquely identifies the switch within the fabric.
Ethernet IP:	Displays the Ethernet IP address.
Ethernet Mask:	Displays the Ethernet subnetmask.
FCnet IP:	Displays the Fibre channel IP address.
FCnet Mask:	Displays the Fibre channel subnetmask.
Gateway IP:	Displays the Gateway IP address.
WWN:	Displays the unique numeric identifier for the switch; assigned by manufacturer.

File Menu

This chapter provides information on the options available through the pull-down menus of Fabric Manager.

The File option of the pull-down menu provides the following options:

- New
- Close
- Fabric Manager Login
- Groups
- Options
- Log
- Print
- Exit

The File menu is shown in Figure 4-1.

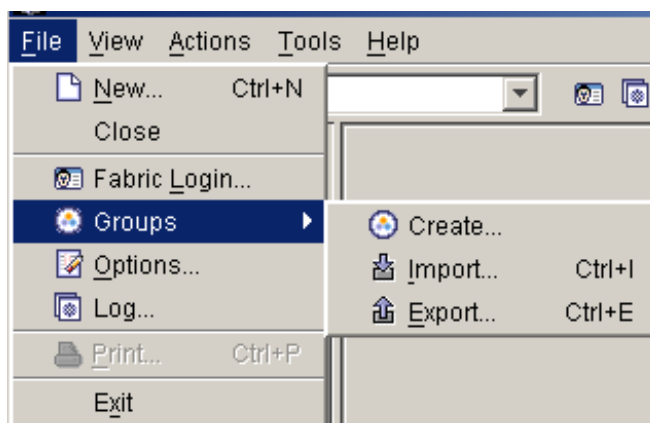


Figure 4-1 The File Menu

New

Use the New option in the File menu to open a new window to view fabric information. Any windows that are currently active will remain open.

Close

Use the Close option in the File menu to close the window you are currently viewing. Any other windows that are currently active will remain open.

Fabric Manager Login

Use the Fabric Manager Login option in the File menu to select and setup a switch, or group of switches, to login to.

The Fabric Manager Login window is shown in Figure 4-2.

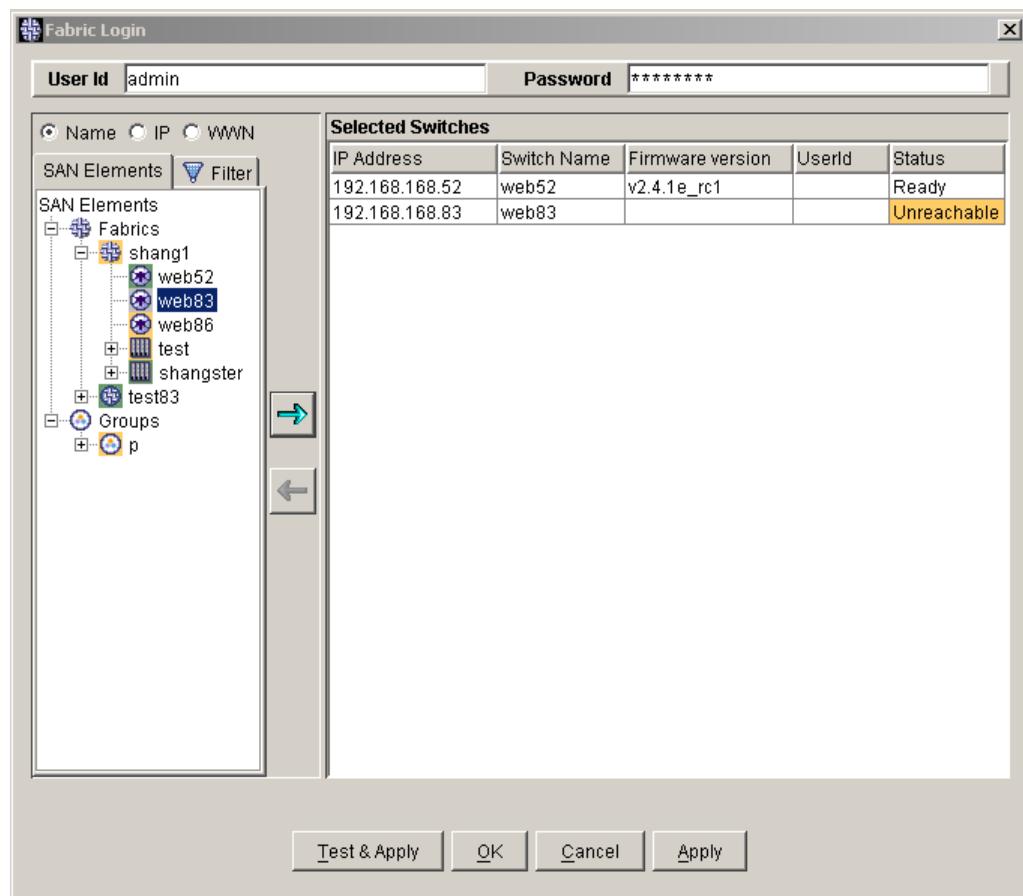


Figure 4-2 Fabric Login Window

The following is a description of the fields available in the Fabric Login Window

User Id	Enter the User Id for a selected switch.
Password	Enter the Password for a selected switch.
IP, Name, WWN	Click the appropriate radio button to display a selected group of switches by IP address, name, or World Wide Name.
SAN Elements	Displays the fabrics or groups that belong to the Storage Area Network that the Admin is logged into.
Filter	Allows you to search for switches by IP address, Name, Type, FOS Version, WWN, or Domain ID.
Selected Switches:	
IP Address	Displays the IP address of the selected switch.
Switch Name	Displays the name of the selected switch.
Firmware Version	Displays the version of Fabric OS that is installed on the switch.
Userid	Displays the UserID of the individual who is logged into the switch.
Status	<p>Displays the status of the switch login. Possible status reports are: Ready, Success, or Authorization Failed.</p> <p>When Success is displayed, the background will be green and Userid and Password will be saved for performing admin operations until the session is terminated.</p> <p>When Authorization Failed is displayed, the background will be red and the UserID and Password will not be saved in memory.</p>
Test & Apply	Select to check Userid and Password login on the listed switches.
OK	Select to save configuration and exit window.
Cancel	Click to cancel all changes made since changes were last applied, and to exit Fabric Manager Login. Changes cannot be cancelled once they are applied.
Apply	Select to save configuration but leave window open.

Setting up a Login for Multiple Switches

1. Select **File > Fabric Manager Login**

The Login Setup window appears.

2. Select the SAN Elements tab to list the available elements by IP, Name, or WWN.
3. Select a switch to setup and click on it to highlight.
4. Hold down the Control key and select any additional switches by clicking on them.

5. Click the right-arrow button.
The switch will be displayed in the Selected Switch area.
6. Type User ID and Password at the top of the window.
7. Select Test & Apply to determine if login is accepted:
or
Select OK to save configuration and exit window.
or
Select Cancel to exit the window without saving changes.
or
Select Apply to save configuration and keep window open.

Groups

Use the Groups option in the File menu to Create, Import, and Export groups of SAN elements.
The **File > Groups > Create** window is displayed in Figure 4-3

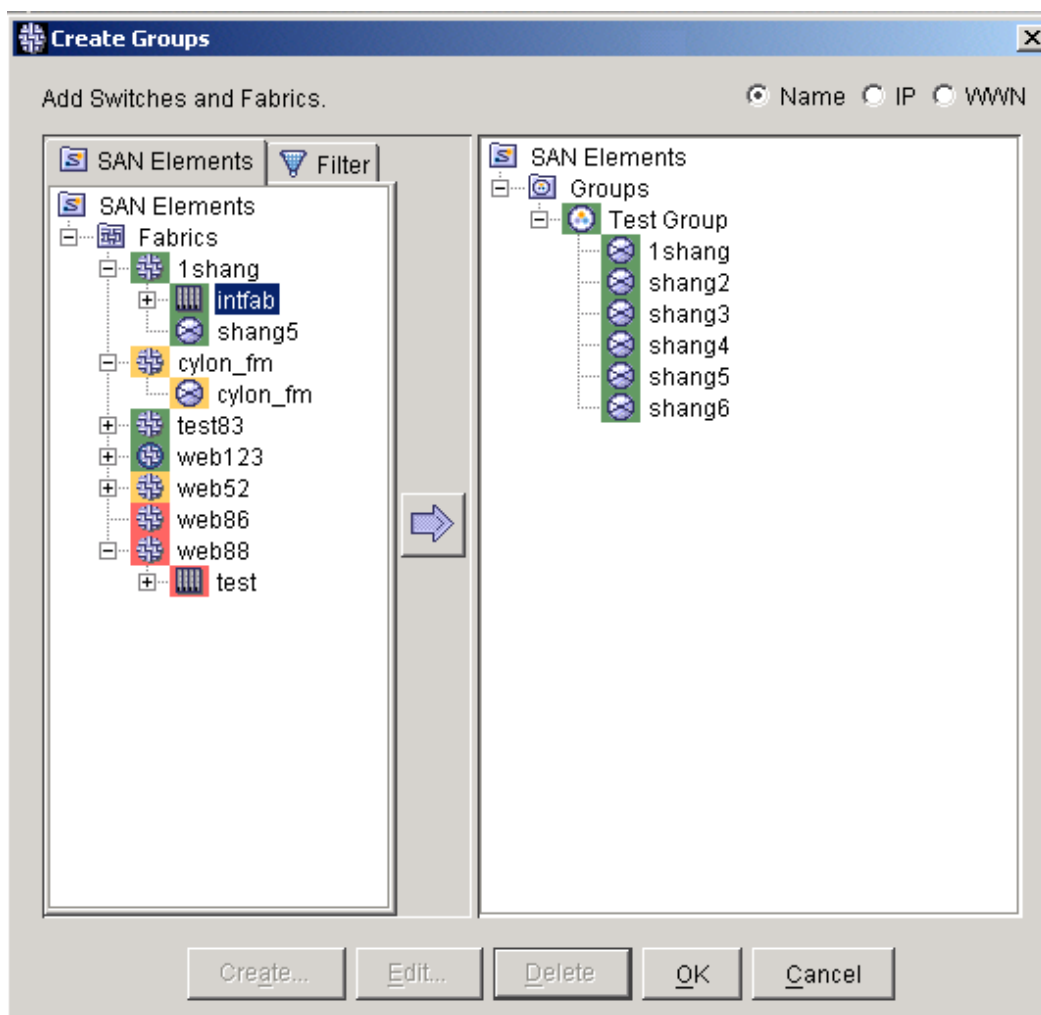


Figure 4-3 The Create Group Window

Creating Logical Groups

To create a group of controllable SAN objects

1. Select **File > Group > Create**
The Create Group window appears.
2. Highlight the word Groups (that you want to create a new group in) from the navigation-tree.
3. Select the Create button from the bottom of the navigation-tree window.
The Create Groups dialog box appears.
4. Type in a name for the group and press OK.
The name of your group appears in the navigation-tree.
5. Highlight the name of your group from the navigation-tree by clicking on it.
6. Select switches from the left navigation tree to be added to the Group.

To select multiple switches, use Shift/Click.

7. Add selected switches to your group by clicking on the right-arrow button, or by dragging and dropping selections from the navigation-tree to the SAN Elements window.

Importing a Group

To import a group of controllable SAN objects:

1. Select **File > Group**
2. Select **Import**

A browser window appears.

3. Browse to the XML file that was previously exported and select it.

The imported groups will appear in the navigation tree under Groups.

Exporting a Group

To export a group of controllable SAN objects:

1. Select **File > Group**
2. Select **Export**

The Export window appears.

3. Use the Browse button at the top of the screen to locate and select the file to export.

The name of the file should appear in the File field.

4. Select the groups that you want to export from the navigation-tree. Use Shift/Click to select multiple groups.
5. Move the selected groups to the Export table by using the left-arrow or by dragging and dropping.
6. Select OK

The file is created.

Options

Use the Options function under the File menu to do

- File Transfers
- Check Logging Parameters
- Check ISL Status
- Fabric Change

File Transfer Tab

The File Transfer Tab of the Options window is shown in Figure 4-4 on page 4-7.

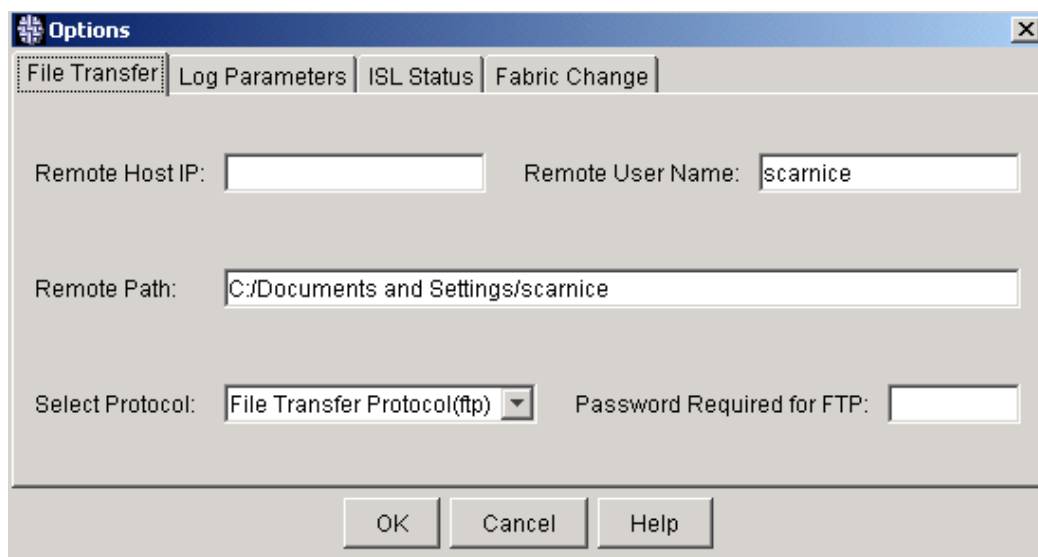


Figure 4-4 The File Transfer Tab of the Options Menu

Transferring Files

To transfer files from a host IP to a remote IP by either Remote Shell or FTP

1. Select **File > Options** menu.
The Options window appears.
2. Select the File Transfer tab.
3. Enter the name of the Host Name or Host IP that ftp/rsh daemon are running on.
4. Enter the User name of the rsh or ftp program.
5. Enter the path that the rsh or ftp program used for the file.
6. Select either Remote Shell or FTP protocol from Select Protocol drop-down menu.
 - If FTP is the desired protocol, enter a password in the Password Required field.
7. Select OK.

Log Parameters Tab

Use the Log Parameters tab of the **File > Options** window to set the path and priority levels for events in the fabric.

The Log Parameter tab is shown in Figure 4-5 on page 4-8.

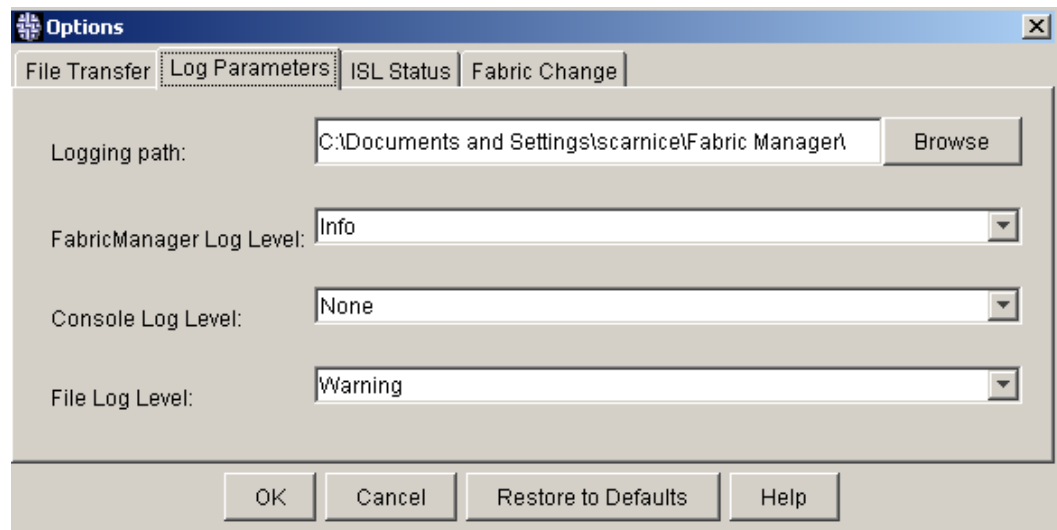


Figure 4-5 Log Parameters Tab of the Options Window

Setting Log Parameters

To set log parameters

1. Select **File > Options** menu.
The Options window appears.
2. Select the Log Parameters tab.
3. Browse to locate and select the path that will be used to create a log sub-directory.
4. Choose a priority for the FabricManager Log Level from the drop-down menu.
5. Choose a priority for the Console Log Level from the drop-down menu.
6. Choose a priority for the File Log Level from the drop-down menu.
7. Select OK to apply the settings.
or
Select Cancel to close the window without saving changes.
or
Select Restore to Defaults to remove changes and restore the settings to the default state.
or
Select Help for further details about this window.

ISL Status Tab

Use the ISL Status tab in the **File > Options** menu to set various ISL status parameters.

The ISL Status tab is shown in Figure 4-6 on page 4-9.

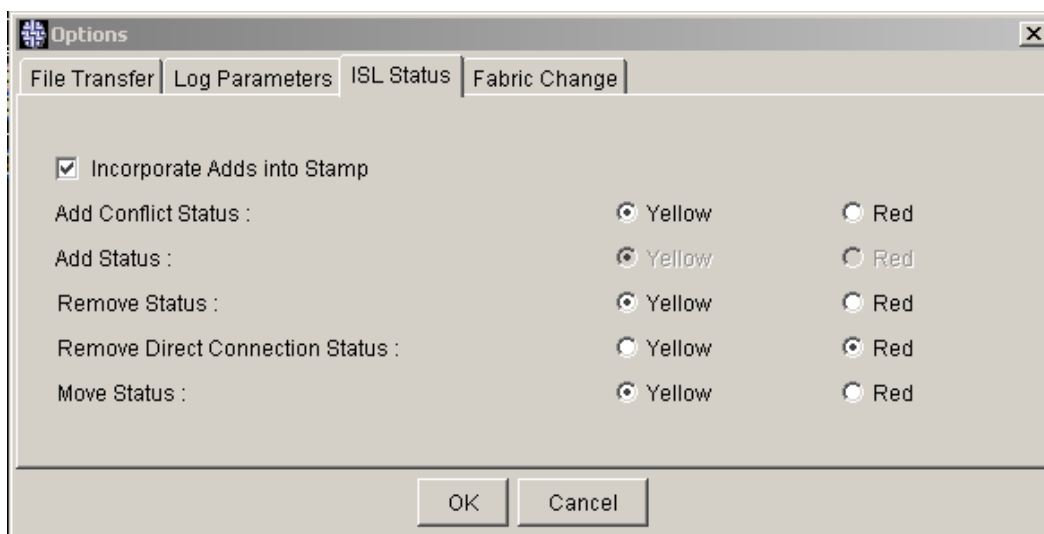


Figure 4-6 ISL Status Tab in the Options Window.

The following is a description of the fields available in the ISL Status tab

Incorporate Adds into Stamp	<p>Check box <i>if</i>:</p> <p>You want the ISL Stamp to change when additions are made to the fabric.</p> <p>Uncheck box <i>if</i>:</p> <p>You do <i>not</i> want the ISL Stamp to change when additions are made to the fabric</p>
Add Conflict Status	Select Yellow or Red, depending on which color you want to appear when Fabric Manager detects that one or more ISLs cannot be monitored due to conflicting ISL Add events.
Add Status	Select Yellow or Red, depending on which color you want to appear when an ISL connection has been added.
Remove Status	<p>Select Yellow or Red, depending on which color you want to appear when an ISL connection is removed.</p> <p>Note: Because Remove Direct Connection Status is considered a high priority, the Remove Status priority cannot be set higher than the Remove Direct Connection Status.</p>
Remove Direct Connection Status	Select Yellow or Red, depending on which color you want to appear when a Fabric Manager detects that a direct physical connection has been removed.
Move Status	<p>Select Yellow or Red, depending on which color you want to appear when a Move event occurs.</p> <p>A Move event occurs when one end of an ISL is moved from one port to another, but is still connecting the same switches.</p>
OK	Select to save ISL status parameters.

Cancel	Select to exit without saving changes.
---------------	----------------------------------------

Setting ISL Status Parameters

To set ISL status levels to be reported in ISL checking

1. Select **File > Options**
The Options window appears.
2. Select the ISL Status tab.
3. Click the Yellow or Red radio buttons to select the desired color to appear when Add, Remove, or Move events occur (Fabric and switch events will appear in the Fabric Events window).
4. Select OK to apply the settings.

or

Select Cancel to close the window without saving changes.

Fabric Change Tab

Use the Fabric Change tab in the **File > Options** menu to enable or disable automatic Fabric checking.

The Fabric Checking tab is shown in Figure 4-7.

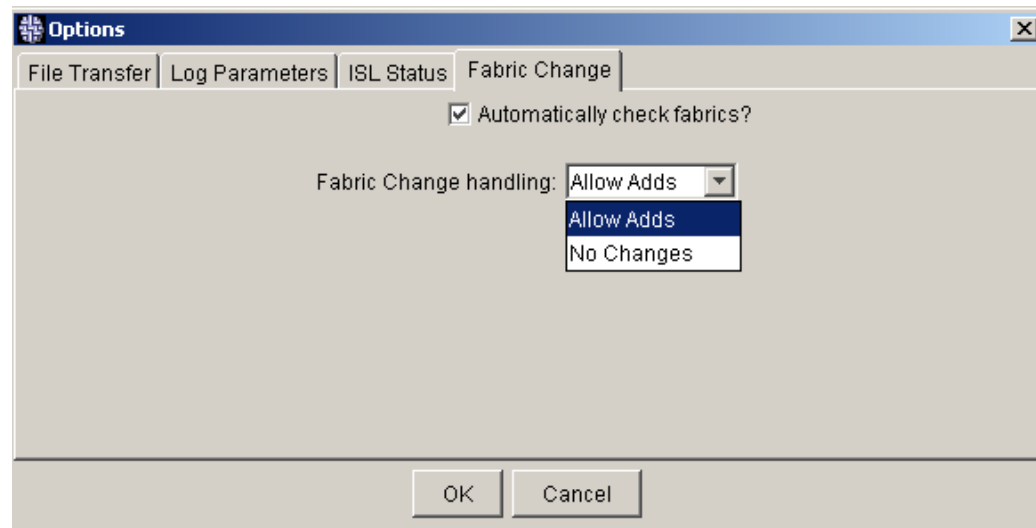


Figure 4-7 Fabric Change Tab in the Options Window

The following is a description of the fields available in the Fabric Change tab

Automatically check fabrics	Check box to automatically check for new fabrics that are discovered.
Fabric Change Handling	

Allow Adds	Select if you want switches to be added to the Fabric View when the fabric is checked.
No Changes	Select if you do <i>not</i> want the fabric to change (due to additions) after the fabric is checked.
OK	Select to save changes to Fabric Change Handling.
Cancel	Select to exit window without saving changes.

Enabling Automatic Fabric Checking

To enable automatic Fabric Checking and to set Fabric Change handling

1. Select **File > Options**

The Options window appears.

2. Select the Fabric Change tab.
3. Check the Automatically Check Fabrics box to automatically check new fabrics that are discovered.
4. Select Allow Adds *if* you want additions in the fabric to cause a change in the Fabric View.
5. Select No Change *if* you do not want additions in the fabric to cause a change in the Fabric View.
6. Select OK to save and apply changes.

or

Select Cancel to exit window without saving changes.

Print

Use the Print option in the File menu to print table reports for review.

Printing Reports

1. Select **View > Table**

The Fabric View will change from an icon view to a table format.

Note: You can only print reports from the Table View

2. Select **File > Print**

Fabric Manager Log

Use the Fabric Manager Log in the File menu to view events occurring within the fabric.

The Fabric Manager Log is shown in Figure 4-8.

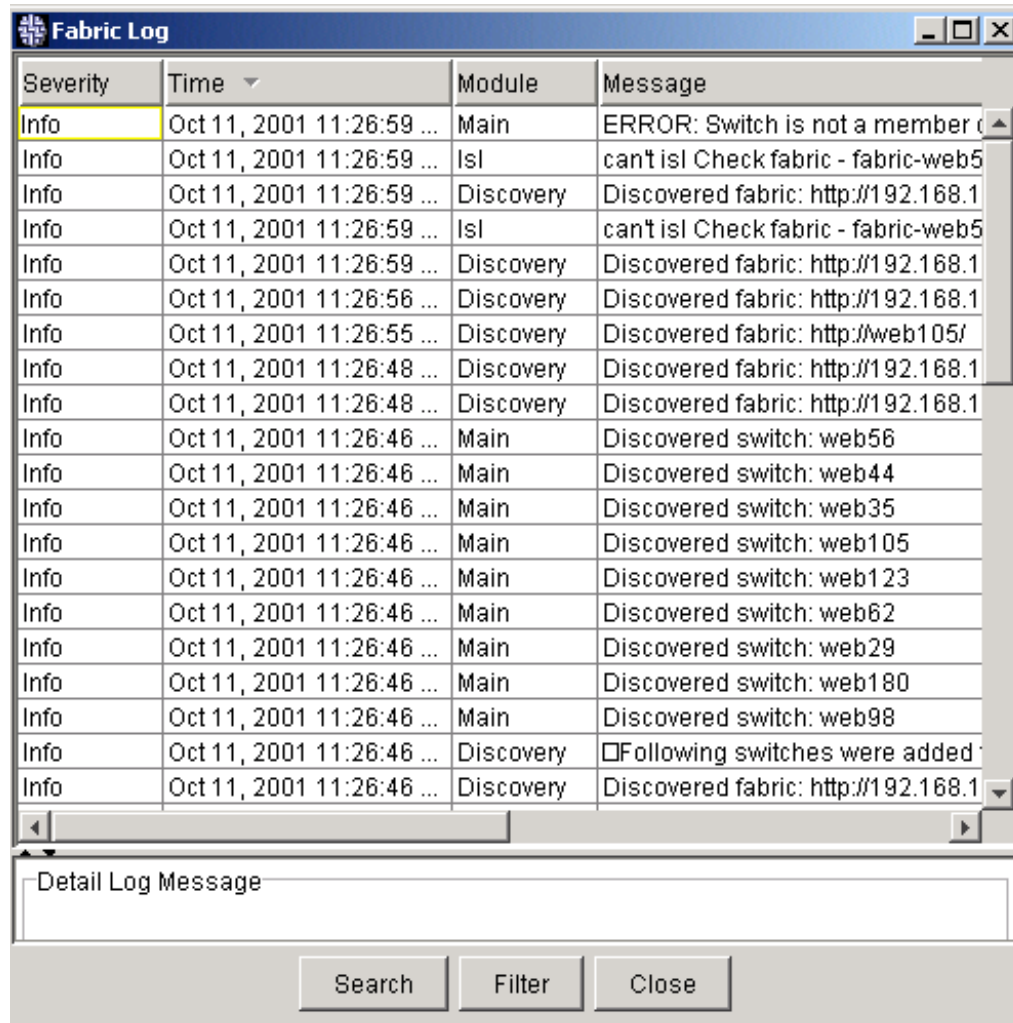


Figure 4-8 Fabric Manager Log Window

The following is a description of the fields available in Fabric Manager Log

Severity	Displays the log levels, such as Debug, Info (information), Warning, or Error.
Time	Displays the time an event occurred.
Module	Displays which sub-module (or service), such as Discovery, or License generated the log entry.

Message	Displays messages regarding events occurring within the fabric, such as switch removal and discovery.
Search	Select to launch the Search Dialog box and search for particular data, such as specific messages, severities, modules, and time ranges. The Search Dialog box is shown in Figure 4-9 on page 4-13.
Filter	Select to choose which aspects you want to have shown in the FM Log. This keeps the log from getting crowded with unwanted information. The Filter Dialog box is shown in Figure 4-10 on page 4-14.
Close	Select to close the window.

Search Dialog Box

Use the Search Dialog box to locate specific events. The Search Dialog box is shown in Figure 4-9.

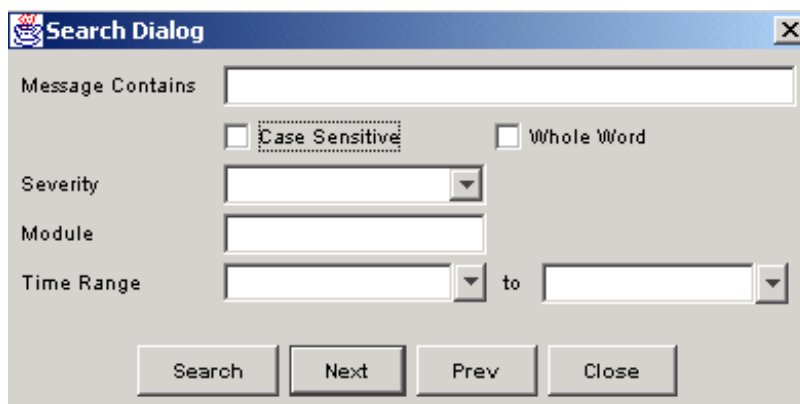


Figure 4-9 Search Dialog Box

Searching for Fabric Data

To locate specific events, messages, or time ranges within the fabric

1. Select **File > Fabric Manager Log**.
The Fabric Manager Log window appears.
2. Select the Search button at the bottom of the window.
The Search Dialog box appears.
3. Enter a message to search the fabric for (specifying Case or Whole Word, if desired).
and/or
Select a severity from the Severity drop-down menu.
and/or

Enter a Module to search the fabric for.

and/or

Select a time range from both Time Range drop-down menus.

4. Select Search to begin a search using the assigned parameters.

or

Select Next to select the next switch in the Fabric Manager Log list.

or

Select Prev to select the previous switch in the Fabric Manager Log list.

or

Select Close to exit the window without saving changes.

Filter Dialog Box

Use the Filter Dialog box to determine which events you want to appear in Fabric Events. This prevents the Fabric Events window from becoming cluttered with unnecessary information.

The Filter Dialog box is shown in Figure 4-10.

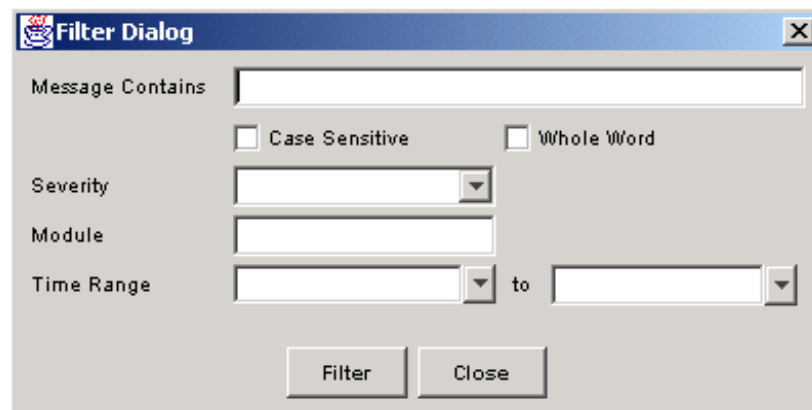


Figure 4-10 Filter Dialog Box

Filtering Fabric Events

To filter specific events such as messages, and time ranges within the fabric:

1. Select **File > Fabric Manager Log**

The Fabric Manager Log window appears.

2. Select the Filter button at the bottom of the window.

The Filter Dialog box appears.

3. Enter a message to filter the fabric for (specifying Case or Whole Word, if desired).

and/or

Select a severity from the Severity drop-down menu.

and/or

Enter a Module to filter within the fabric for.

and/or

Select a time range from both Time Range drop-down menus.

4. Select Filter to begin filtering the assigned parameters.

or

Select Close to exit the window without saving changes.

Exit

Use the Exit option in the File menu to close the Fabric Manager program.

View Menu

This chapter provides information on the options available through the View pull-down menu of Fabric Manager.

The View option of the pull-down menu provides the following options:

- Detail
- Summary
- Table

The View Menu is shown in Figure 5-1.

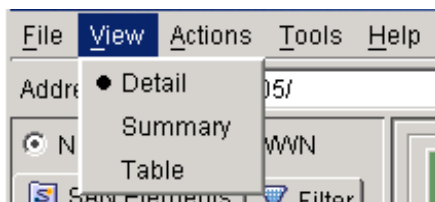


Figure 5-1 View Menu

Detail

Use the Detail option in the View Menu to see a Fabric View of the switches that includes information such as the Domain ID and the IP Address.

The Detailed option of the View menu is shown in Figure 5-2.

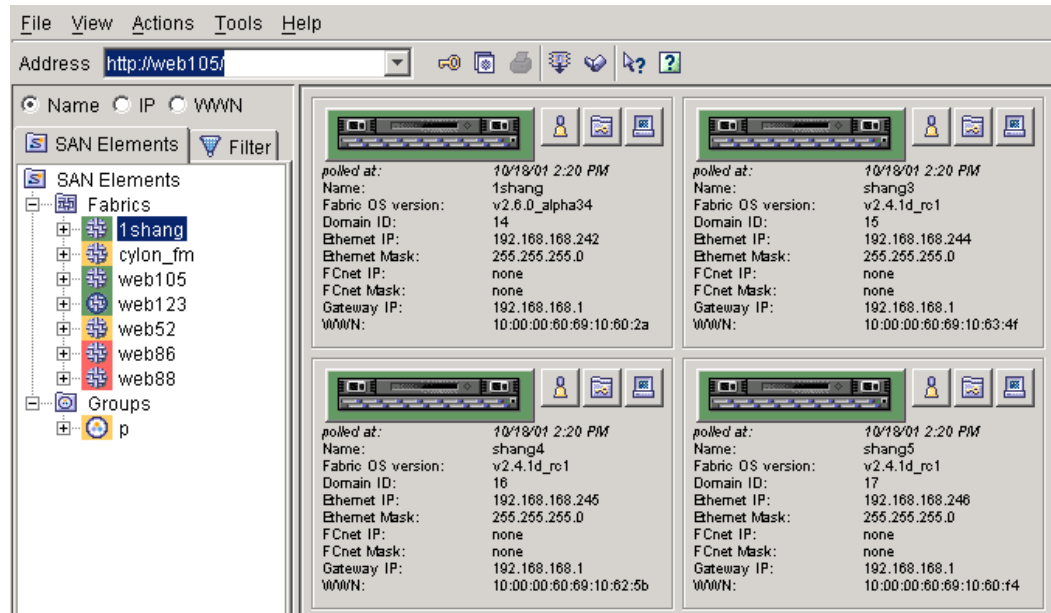


Figure 5-2 Detailed Option of the View Menu

Summary

Use the Summary option in the View Menu to see a Fabric View that provides a brief overview of the fabric information, rather than more detailed information.

The Summary window is shown in Figure 5-3.

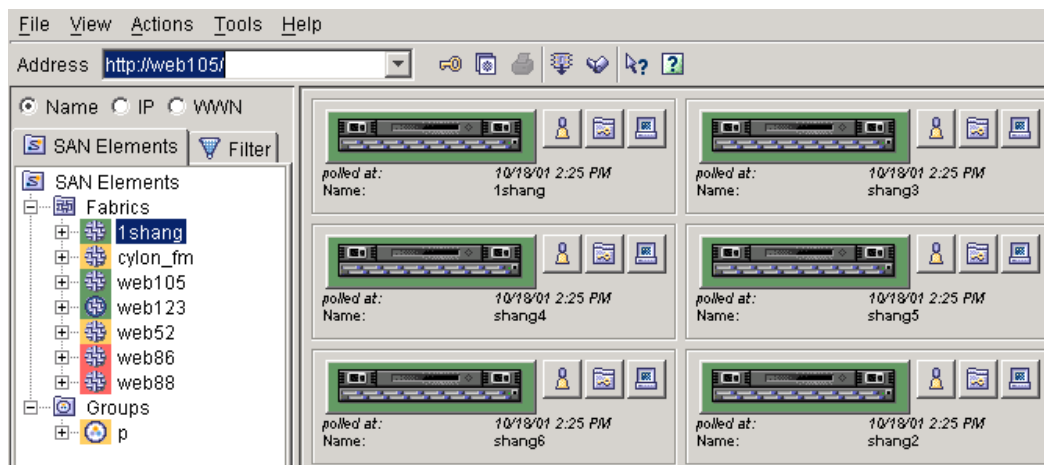


Figure 5-3 Summary Option of the View Menu

Table

Use the Table option in the View menu to view and sort switch information in a table-form, rather than in a graphic-form.

The Table option of the View menu is shown in Figure 5-4.

IP Addr...	Switch Name	Firmware v...	Status	Fabric	World Wide Name
192.16...	shang4	v2.4.1d_rc1	OK	fabric-1s...	10:00:00:60:69:10:62:5b
192.16...	shang3	v2.4.1d_rc1	OK	fabric-1s...	10:00:00:60:69:10:63:4f
192.16...	shang5	v2.4.1d_rc1	OK	fabric-1s...	10:00:00:60:69:10:60:f4
192.16...	shang6	v2.4.1d_rc1	OK	fabric-1s...	10:00:00:60:69:10:63:4a
192.16...	shang2	v2.4.1d_rc1	OK	fabric-1s...	10:00:00:60:69:10:60:da
192.16...	1shang	v2.6.0_alph...	OK	fabric-1s...	10:00:00:60:69:10:60:2a

Figure 5-4 Table Window of the View Menu

Printing Table Reports

The Table View is the only view that allows you to use the print option. For more information, refer to *Printing Table Reports* on page 5-4.

Actions Menu

This chapter provides information on the options available through the Actions pull-down menu of Fabric Manager.

The Actions pull-down menu provides the following options:

- *Switch View* on page 6-2
- *Events* on page 6-2
- *Admin* on page 6-3
- *Fabric Watch (Optional)* on page 6-4
- *Telnet* on page 6-4
- *Security* on page 6-4
- *Zone Admin* on page 6-14
- *Name Server* on page 6-14
- *ISL* on page 6-14
- *Set Time* on page 6-15
- *Fabric Checking* on page 6-15

Note: The options that are available in the Actions menu will vary depending on what has been selected on the tree control. For more information about tree control, see the *SAN Elements Panel* on page 3-6.

The Action Menu is seen in Figure 6-1.

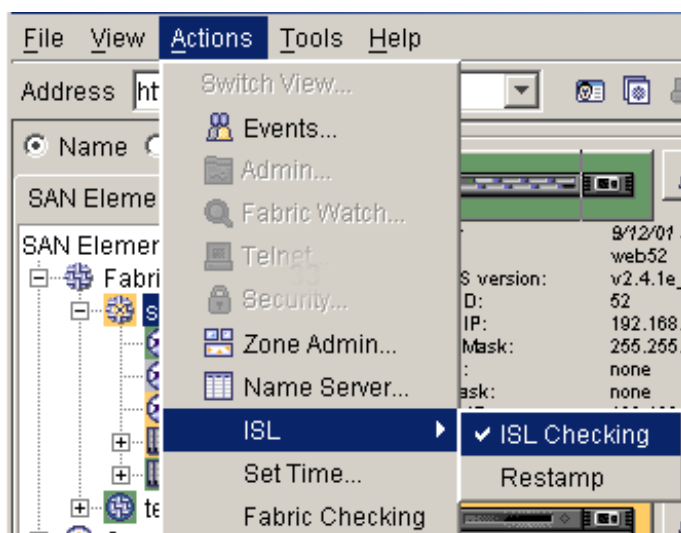


Figure 6-1 Actions Menu

Switch View

Use the Switch View option of the Actions Menu to open a Web Tools window. For more informations, refer to *Switch View* on page 10-1 or the *Web Tools User's Guide*.

Events

Use the Events option of the Actions Menu to view a log of events for all switches in the fabric.

The Events window is shown in Figure 6-2.

Status	Switch	Status Reason
	web86	Switch:web86 is not responding.
	web88	* 0 bad power supply and 1 missing power supply triggered the Marginal * 2 bad fans triggered the DOWN/FAILED status * 0 ISL are bad, and 1 ISL are misconfigured triggered the Marginal/Warn

Status	Switch	Number	Time	Count	Level	Message
	web52	1	Aug 27 18:20:13	1	Information	SYS-BOOT Restart reason: Power-on
	web88	20	Aug 31 15:24:11	1	Warning	FW-BELOW eportState002 (E Port State
	web88	19	Aug 31 15:24:05	1	Warning	FW-BELOW eportLink002 (E Port Link F
	web88	18	Aug 31 15:23:07	1	Warning	FW-ABOVE eportState002 (E Port State
	web88	17	Aug 31 15:23:00	1	Warning	FW-ABOVE eportLink002 (E Port Link F
	web88	16	Aug 28 12:23:55	1	Critical	MQ-QWRITE mqWrite, queue = , queue
	web88	15	Aug 28 12:23:55	1	Debug	MQ-QTHR mqWrite: msg threshold excr
	web88	14	Aug 27 18:11:54	1	Warning	FW-BELOW eportCRCs009 (E Port Inva
	web88	13	Aug 27 18:11:54	1	Warning	FW-BELOW eportWords009 (E Port Inva
	web88	12	Aug 27 18:10:51	1	Warning	FW-ABOVE eportCRCs009 (E Port Inva
	web88	11	Aug 27 18:10:51	1	Warning	FW-ABOVE eportWords009 (E Port Inva
	web88	10	Aug 24 17:21:03	1	Warning	FW-BELOW eportState000 (E Port State
	web88	9	Aug 24 17:21:03	1	Warning	FW-BELOW eportLink000 (E Port Link F
	web88	8	Aug 24 17:20:32	1	Warning	FW-STATUS_SWITCH Switch status ch
	web88	7	Aug 24 17:20:32	1	Warning	FW-TOPOERR ISL topo error, port: 0 rp
	web88	6	Aug 24 17:20:00	1	Warning	FW-ABOVE eportState000 (E Port State
	web88	5	Aug 24 17:20:00	1	Warning	FW-ABOVE eportLink000 (E Port Link F

Figure 6-2 Events Window

Note: To sort the events by a particular column, click the column header. To resize a column, drag the column divider.

The following is a description of the fields available in the Events option

Status Reason Section:	The upper area of the Events window describes events that have changed the status of a switch. Entries in this area will no longer appear once the issue has been resolved. Some of the events are generated by Fabric Manager, and not by the switch.
Print	Select to print the Fabric Events window.
Status	Displays the current status of a switch that has had a change in status.
Switch	Displays the name of the switch that has had a change in status.
Status Reason	Displays the reason that the switch has had a change in status.
Event Log Section:	The lower area of the Events window is a log of all the events that have been detected by the switch.
Status	Displays the status this event caused.
Switch	Displays the name of switch.
Status Reason	Displays the reason for a noted event.
Num... (number)	Displays the event number for affected switch.
Time	Displays the time of the event.
Count	Displays the number of consecutive occurrences of the same event.
Level	Displays the severity level of the event: <ul style="list-style-type: none"> 0 panic (switch reboots) 1 critical 2 error 3 warning 4 information 5 debug
Message	Displays a description of the event.

Admin

When using the **Actions > Admin** option, you are actually accessing Web Tools, which is an optionally licensed software.

For more detailed information regarding Web Tools, refer to the appropriate version of the *Web Tools User's Guide*.

Fabric Watch (Optional)

When using the **Actions > Fabric Watch** option, you are actually accessing Fabric Watch through Web Tools, which is an optionally licensed software.

For more detailed information regarding Web Tools, refer to the appropriate version of the *Web Tools User's Guide* or the *Fabric Watch User's Guide*.

Telnet

When using the **Actions > Telnet** option, you are actually accessing telnet through Web Tools, which is an optionally licensed software.

For more detailed information regarding Web Tools, refer to the appropriate version of the *Web Tools User's Guide* or the *Fabric OS Reference Guide*.

Security

Use the Security option of the Actions Menu to configure and manage fabric security policies from chosen access points. For more information regarding security policies, refer to the *Secure Fabric OS User's Guide*, or *Security* on page 1-7.

The Security option of the Actions menu consists of the following tabs:

- Switch Connection Controls
- Device Connection Controls
- Management Access Controls
- Fabric Configuration Servers
- Options

Switch Connection Controls

The Switch Connection Controls tab of the **Actions > Security** menu is shown in Figure 6-3.

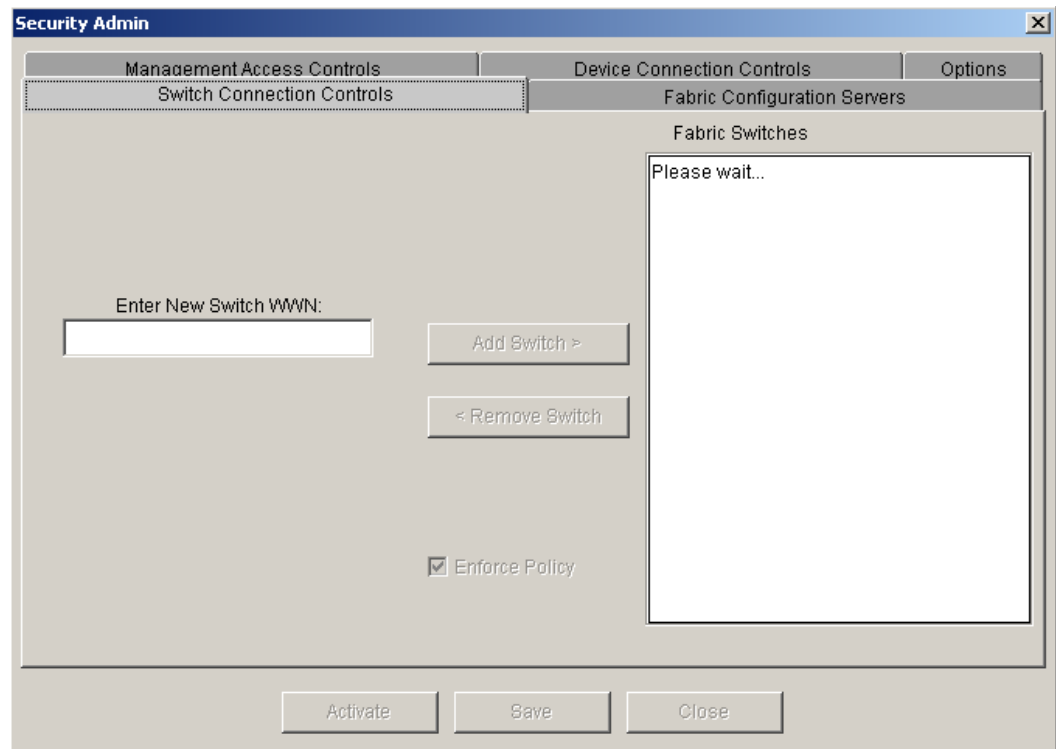


Figure 6-3 Switch Connection Controls Tab of the Security Menu

Adding a Switch to a Secure Fabric

To add a switch to a secure fabric

1. Highlight a secure switch in the SAN Elements Tab.
2. Select **Actions > Security**
3. Log into the secure switch.

For more information, refer to *Fabric Manager Login* on page 4-2.

4. Select the Switch Connection Controls tab
5. Enter the new switch WWN in the empty field.

When switches already exist in the fabric, you can specify a "*" (do not include quotes) in place of a switch WWN. When saved, the "*" will expand to include all switches in the fabric.

6. Select Add Switch or use drag and drop to move the switch to the Fabric Switches window.
The Enforce Policy box will be checked automatically.
7. Select Activate to add the new switch to secure fabric, implement the security policy and exit the window.

or

Select Save to save changes without implementing policies. You can come back later to make changes.

For information regarding changing security policies, refer to the *Fabric OS Reference* or the *Fabric OS Procedures Guide*.

Device Connection Controls

The Device Connection Controls tab of the **Actions** > **Security** menu is shown in Figure 6-4.

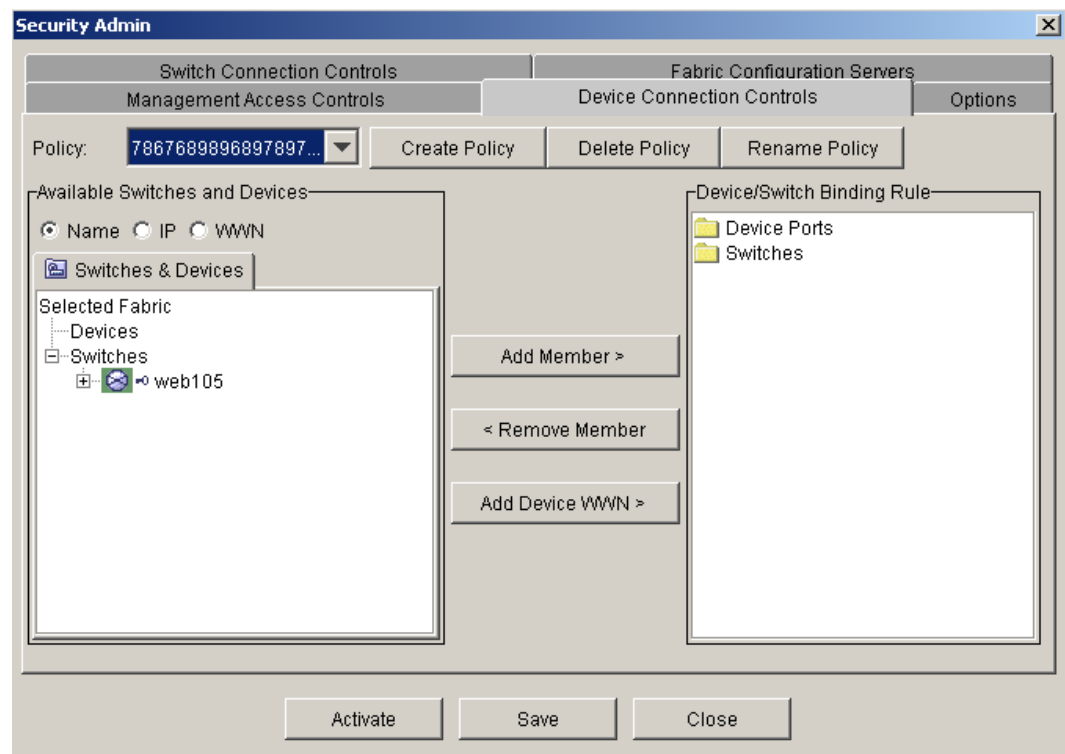


Figure 6-4 Device Connection Controls Tab of the Security Menu

Creating a Security Policy

1. Highlight a secure switch in the SAN Elements Tab.
2. Select **Actions** > **Security**
3. Log into a secure switch.
For more information, refer to *Fabric Manager Login* on page 4-2.
4. Select the Device Connection Controls tab.
5. Select an existing policy from the drop-down window and select the Rename button.
or
Select the Create Policy button.
A dialog box appears.
6. Type new policy name.

7. Highlight switches from the Switches/Devices column and use the Add Member button (or drag and drop) to include them in the Device/Switch Binding Rule column. Use shift/click to select multiple switches.

and/or

Select the Add Device WWN button to add a device WWN not already in fabric.

Note: When you add switch ports with devices already connected, those devices will be automatically added to the rhs device ports folder, when the switch is added.

8. Select Activate to save, implement the policy to the selected switches and exit the security dialog box.

or

Select Save to save changes without implementing policies. You can come back later to make changes.

Management Access Controls

The Management Access Controls tab of the **Actions > Security** menu is shown in Figure 6-5.

Note: To use FM 30 security policy management, the host must be allowed access to both HTTP and API interfaces. If the FM3.0 host ip is excluded from either MAC policies security policy management will not work correctly.

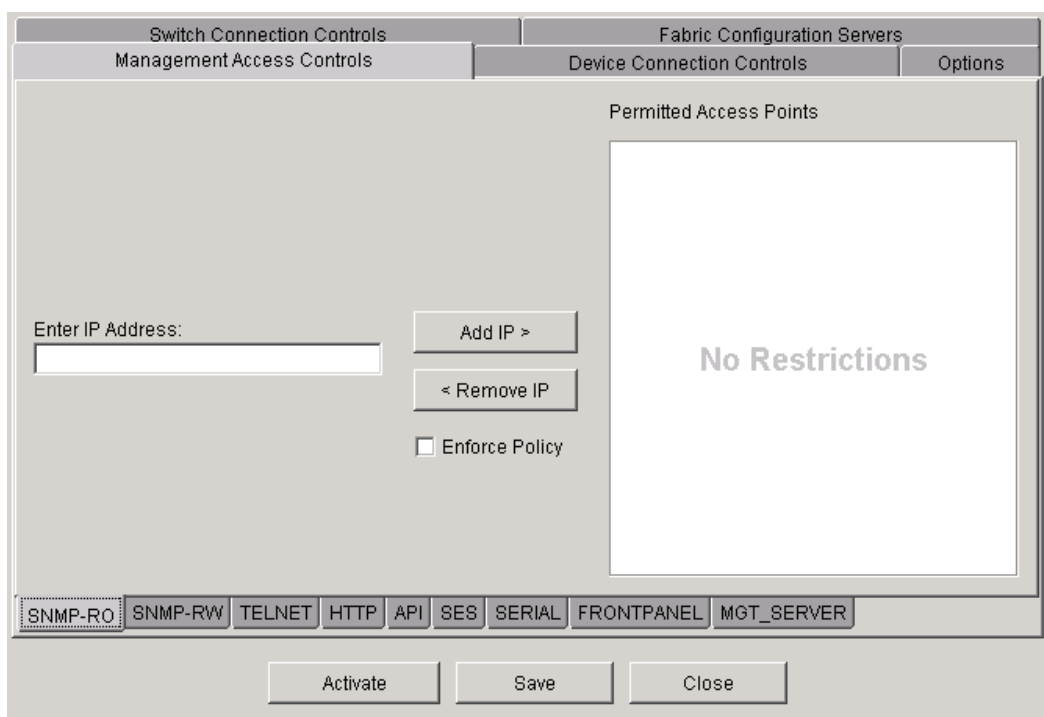


Figure 6-5 Management Access Controls Tab of the Security Menu

The following are samples of the SES tab and FRONTPANEL tab of Management Control Access window:

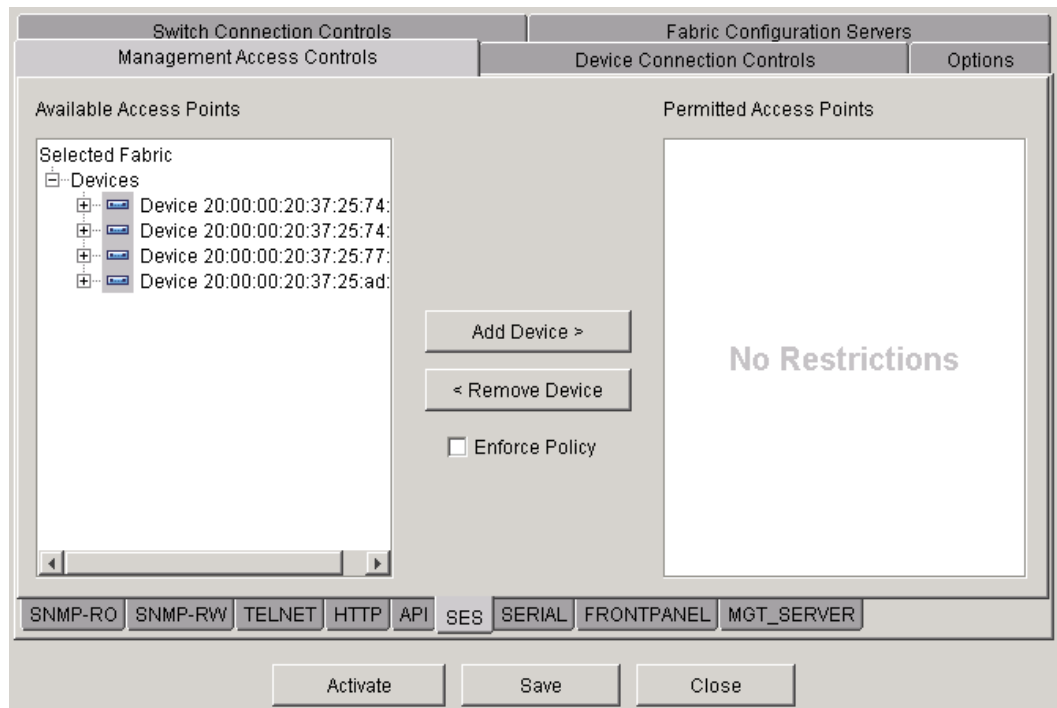


Figure 6-6 SES Sub-Tab of the Management Access Control Tab

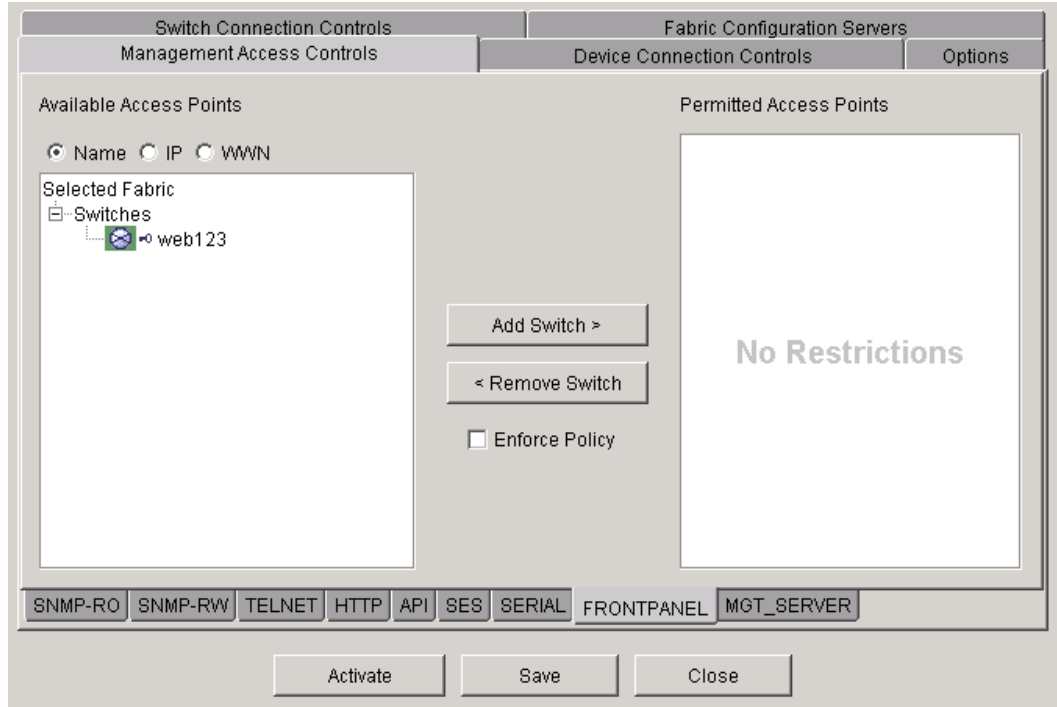


Figure 6-7 FRONTPANEL Sub-Tab of the Management Access Controls Tab

The following table describes the states of the Enforce Policy check box (epcb):

Enforce Policy Description Table	
Condition	Policy Result
Epcb is checked but no members exist	Interface is prohibited to all.
Epcb is not checked	The policy does not exist and implies unrestricted access.
Epcb is not checked, and members exist	Policy will be deleted once configuration is saved, implying unrestricted access to listed members.

Adding Individual Switch Permissions

Follow the steps below to allow additional individual switch access to specific secure areas for:

- SNMP-RO
- SNMP-RW
- TELNET
- HTTP
- API

These policies require IPAddresses of management workstations. Only those workstations whose IPs are in the member list are allowed access to the interface.

Note: When the SERIAL, TELNET, HTTP and API are all enforced with empty membersets, there is no remaining way of managing security.

1. Highlight a secure switch in the SAN Elements Tab.
2. Select **Actions > Security**.
3. Log into a secure switch.

For more information, refer to *Fabric Manager Login* on page 4-2.

4. Select the Management Access Controls tab.
5. Select the tab of interest from the bottom of the window.

For instance, select the SNMP-RO tab to allow the chosen switch to access SNMP Read-Only policies.

6. Type the IP address of the management workstation in the Enter IP Address field.

You may use “0” (without quotes) as a wildcard character in an IP address so that 0.0.0.0 includes all IP addresses, implying no restrictions.

You may use 255.5.0.0, implying that any IP with the first two bytes 255.5 are allowed.

7. Select the Add IP button (or drag and drop address).

The Enforce Policy box will be checked automatically. Uncheck box to remove policies.

8. Select **Activate** to save, implement the policy to the selected switches and exit the security dialog box.

or

Select **Save** to save changes without implementing policies. You can come back later to make changes.

Adding Individual Switch Permissions

Follow the steps below to allow additional individual switch access to:

- SES
- MGT_SERVER

These policies have deviceport WWNs as members. Nodes with device ports that are members are allowed access to this interface.

1. Highlight a secure switch in the SAN Elements Tab
2. Select **Actions > Security**
3. Log into a secure switch

For more information, refer to *Fabric Manager Login* on page 4-2.

4. Select the Management Access Controls tab
5. Select the tab of interest from the bottom of the window.

For instance, select the SES tab to allow the chosen switch to access SES policies.

6. Select a device. Use Shift/Click to select multiple devices.
7. Select the Add Device button (or drag and drop the device).

The Enforce Policy box will be checked automatically when you have added a device. Uncheck to remove policies.

8. Select **Activate** to save, implement the policy to the selected switches and exit the security dialog box.

or

Select **Save** to save changes without implementing policies. You can come back later to make changes.

Adding Individual Switch Permissions

Follow the steps below to allow additional individual switch access to the specific secure areas:

- SERIAL
- FRONTPANEL

Note: When the SERIAL, TELNET, HTTP and API are all enforced with empty member sets, there is no remaining way of managing security.

These policies have switches as members. Member switches allows access to their SERIAL port and FRONTPANEL.

1. Highlight a secure switch in the SAN Elements Tab
2. Select **Actions > Security**
3. Log into a secure switch
For more information, refer to *Fabric Manager Login* on page 4-2.
4. Select the Management Access Controls tab
5. Select the tab of interest from the bottom of the window.
For instance, select the SERIAL tab to allow the chosen switch to access SERIAL policies.
6. Select a switch from the Available Access Points column.
7. Select the Add Switch button or drag and drop the switch.
The Enforce Policy box will be checked automatically when you have chosen a switch.
Uncheck to remove policies.
8. Select Activate to save, implement the policy to the selected switches, and exit the security dialog box.

or
Select Save to save changes without implementing policies. You can come back later to make changes.

Fabric Configuration Servers

The Fabric Configuration Servers tab of the **Actions > Security** menu is shown in Figure 6-8.

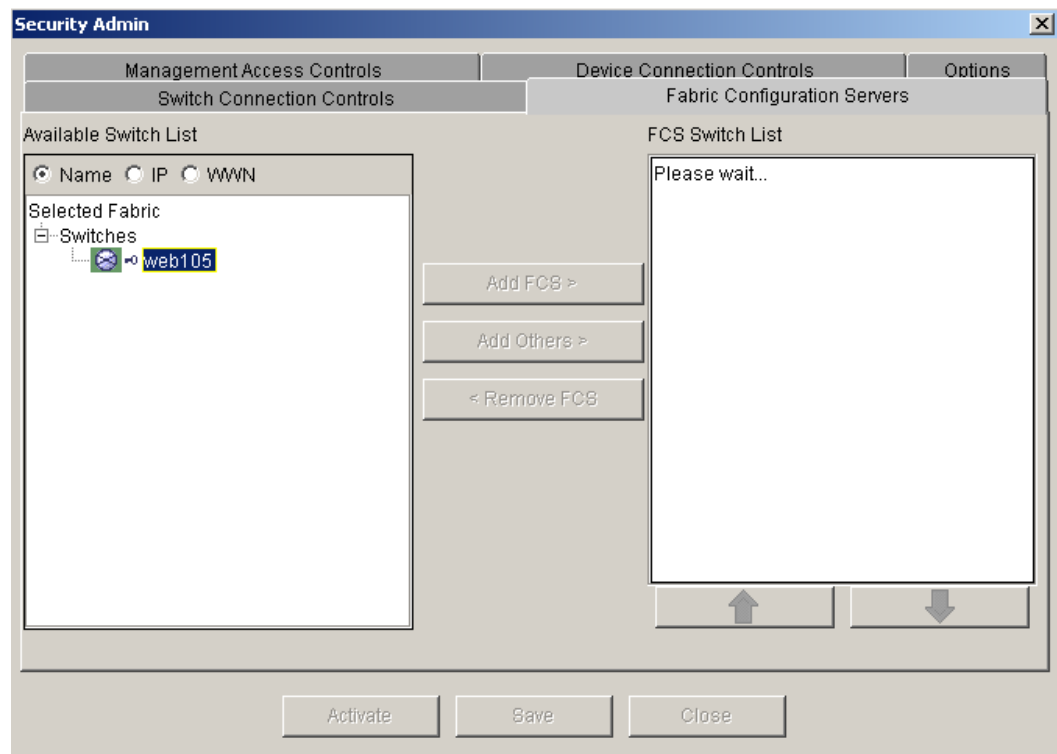


Figure 6-8 Fabric Configuration Servers Tab of the Security Menu

Adding a FCS Switch

To select a switch to be a secure access point for the fabric:

1. Select **Actions > Security**.
2. Select the Fabric Configuration Servers tab.
3. Highlight the switch in the Available Switch List column
4. Use the Add FCS button to add the switch to the FCS Switch List (or drag and drop).

and/or

Use the Add Other button to add a switch WWN not already in fabric.

5. Use the Up/Down arrows to reorder the list of switches. The list is ordered so that the first member is the primary, the second is the first backup, the third, the second backup and so on.

Note: Changing the primary FCS causes updates in the fabric that may take time to complete, depending upon fabric size.

6. Select Activate to save the FCS switch configuration, implement the policy, and exit the security dialog box.

or

Select Save to save changes without implementing policies. You can come back later to make changes.

Options

The Options tab of the **Actions > Security** Menu is shown in Figure 6-9.

Figure 6-9 The Options Tab of the Security Menu

Changing the Security Password

To change the password that is used to implement security:

1. Highlight a secure switch in the SAN Elements Tab.
2. Select **Actions > Security**.
3. Log into a secure switch.
For more information, refer to *Fabric Manager Login* on page 4-2.
4. Select the Options tab.
5. Enter the old Administrative Password .
6. Enter the new Administrative Password.
7. Verify by entering the new password again.
8. Select the FCS Switches or non-FCS Switches radio button..

Note: Select the FCS switches radio button to make a password change to the secure access switch(es).

9. Select Change Password.

10. Check the No Node WWN Zoning box *if* you want Node WWNs to be excluded from WWN based Zoning.
11. Select Activate to save and apply changes.

Zone Admin

When using the **Actions > Zone Admin** option, you are actually accessing Web Tools, which is an optionally licensed software.

For more detailed information regarding Web Tools, refer to the appropriate version of the *Web Tools User's Guide* or the *Zoning User's Guide*.

A Brocade Zoning license and administrative privileges are required to access this view.

Name Server

When using the **Actions > Name Server** option, you are actually accessing Web Tools, which is an optionally licensed software.

For more detailed information regarding Web Tools, refer to the appropriate version of the *Web Tools User's Guide*.

ISL

Use the ISL option of the Actions menu to record and monitor the ISL configuration for a fabric. There are two separate actions that can be taken when using the ISL option:

- ISL Checking
- Restamp (available only when ISL Checking is enabled)

Note: ISL Checking requires FOS 2.6 or later. The ISL feature will be grayed out if the launch switch is running a version of FOS prior to 2.6 (even if switches under the launch switch are running newer versions of FOS).

Enabling ISL Checking

When ISL Checking is enabled, a snapshot (or stamp) is taken of the topology. When a change occurs in the ISLs, the detailed information will be shown on the Status Reason section of the Events page. For more information about Events, refer to *Events* on page 6-2.

To enable ISL checking:

1. Select **Actions**.
2. Select **ISL**.
3. Select **ISL Checking**.

A check mark should appear, showing that ISL checking is enabled and the node icon will change. In addition, the Status Legend color will change to represent the appropriate Event. For more information, refer to the *San Elements Tab Icons* on page 3-7 and the *ISL Status Tab* on page 4-8.

Note: To disable ISL checking, repeat steps 1 - 3 to remove the check mark.

Using Restamp

To restamp the fabric topology, and have the most current topology information noted in Fabric Events, use the Restamp option. This option is only available when ISL Checking has already been enabled.

1. See *Enabling ISL Checking* and the following instructions.
2. Select **Actions > ISL**.
3. Select Restamp.

A snapshot is taken of the fabric

4. Select **Actions > Fabric Events**.

View the latest changes within the fabric in the top of the Fabric Events window.

Set Time

Use the Set Time option set and change the time on a fabric or an individual switch.

The Set Time window is shown in Figure 6-10.

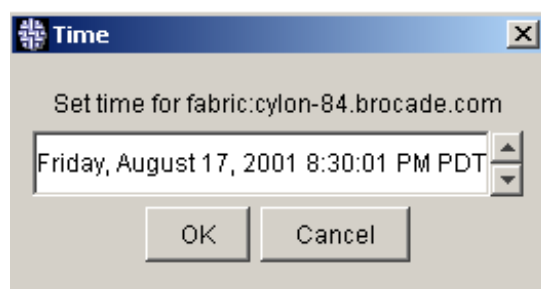


Figure 6-10 Set Time Window

Fabric Checking

Use the Fabric Checking option of the Actions menu to determine what changes or updates appear in the Fabric View.

Enable Fabric Checking

1. Select **Actions** > **Fabric Checking**.

A check mark appears.

Repeat step one to disable Fabric Checking.

Tools Menu

This chapter provides information on the options available through the Tools pull-down menu of Fabric Manager.

The Tools pull-down menu provides the following options:

- Download Firmware
- Reboot
 - Create Reboot Sequence
 - Sequence Reboot
- Config
 - Save Baseline
 - Compare/Download From File
 - Compare/Download From Switch
- Licensing
 - Import From File
 - Import From Switch
- Fabric Merge

The Tools Menu is shown in Figure 7-1, Figure 7-2, and Figure 7-3.

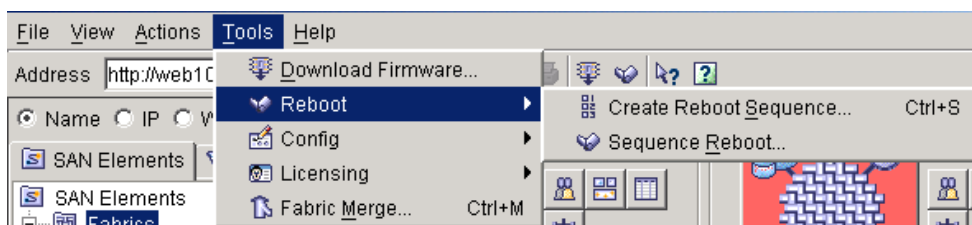


Figure 7-1 Tools Menu with Reboot Options

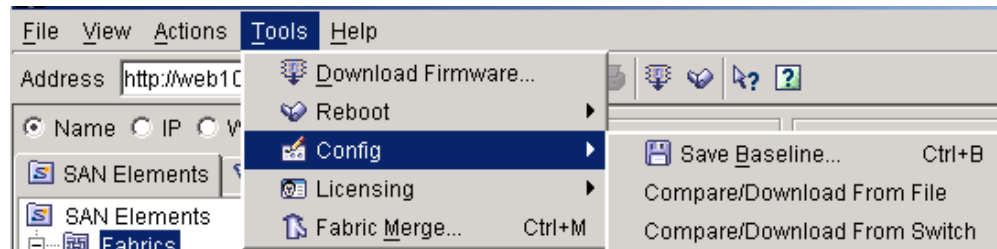


Figure 7-2 Tools Menu With Config Options

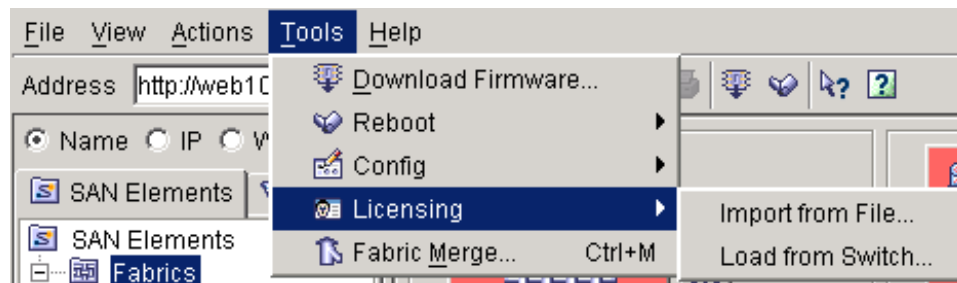


Figure 7-3 Tools Menu With Licensing Options

Download Firmware

Use the Download Firmware option of the Tools menu to download new firmware to the fabric.

The Download Firmware window is shown in Figure 7-4. The Download Firmware window can also be displayed by selecting the Download Firmware icon located in the Tool Bar. For more information, see *Open FM Log* on page 9-4.

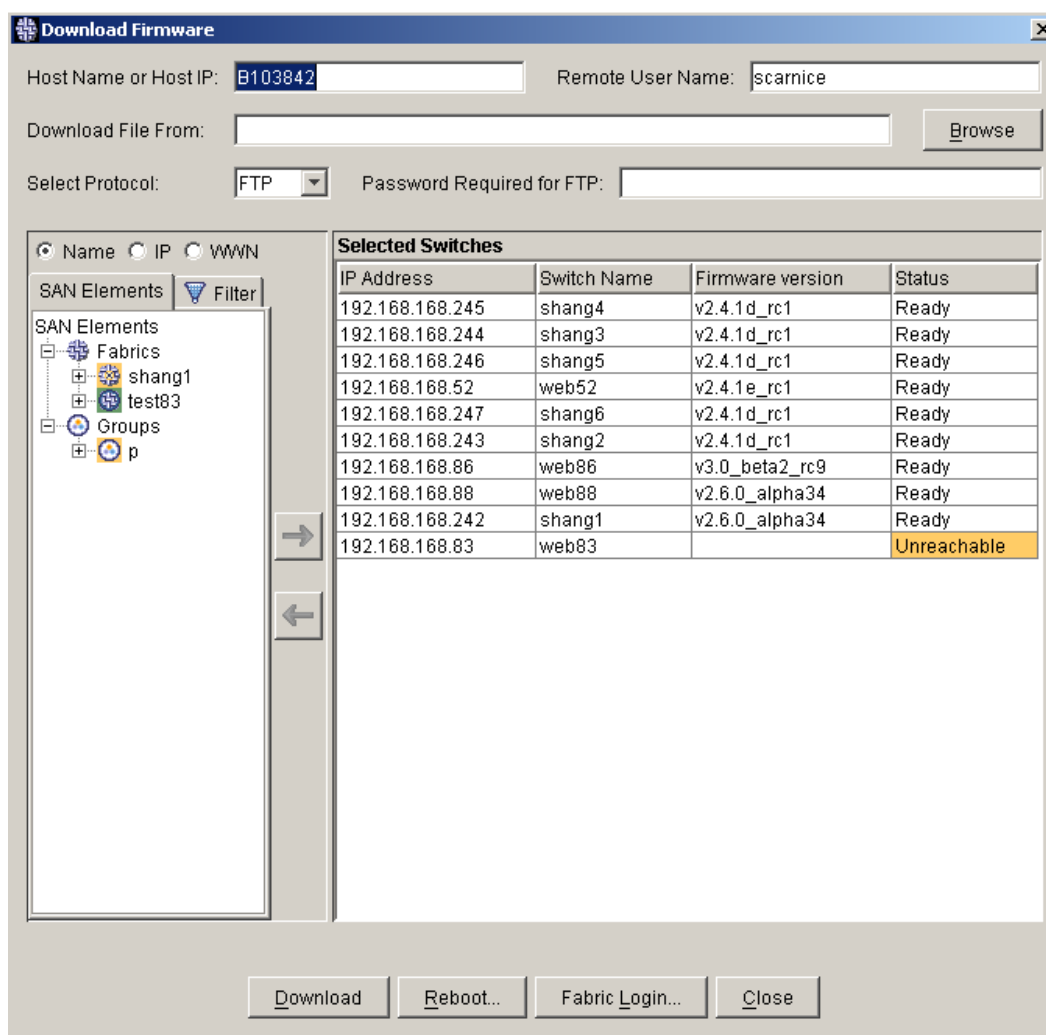


Figure 7-4 Download Firmware Window

Downloading Firmware to Multiple Switches

For instructions on downloading firmware, see *Downloading Firmware to Multiple Switches* on page 9-7.

Reboot

Use the Reboot option of the Tools menu to manage switch reboots and minimize interruption of switch access. The Reboot option provides the following detailed options:

- Create Reboot Sequence
- Sequence Reboot

Create Reboot Sequence

Use the **Tools > Reboot > Create Reboot Sequence** option to create a reboot group and sequence. The Create Reboot Sequence window is shown in Figure 7-5.

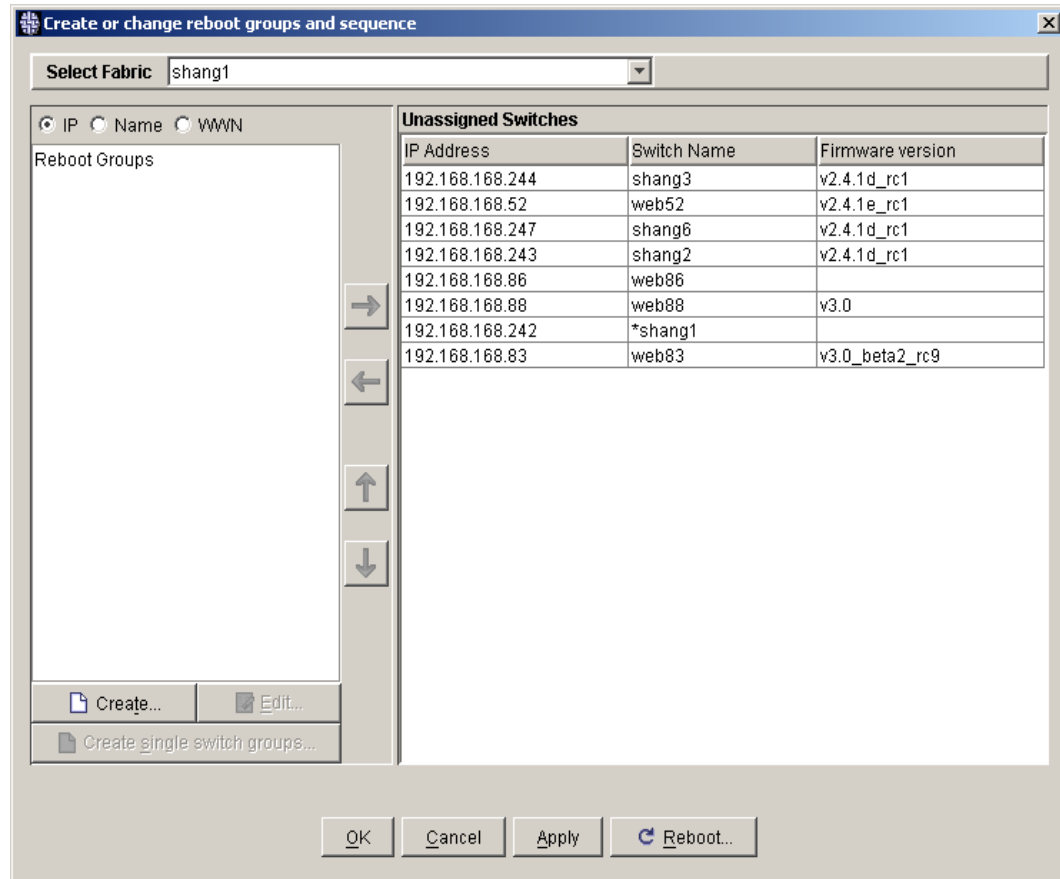


Figure 7-5 Create Reboot Sequence Window of Reboot Menu

Sequenced Reboot

Use the **Tools > Reboot > Sequence Reboot** option to set up a group of switches to be rebooted in a chosen sequence.

The Sequence Reboot window is shown in Figure 7-6.

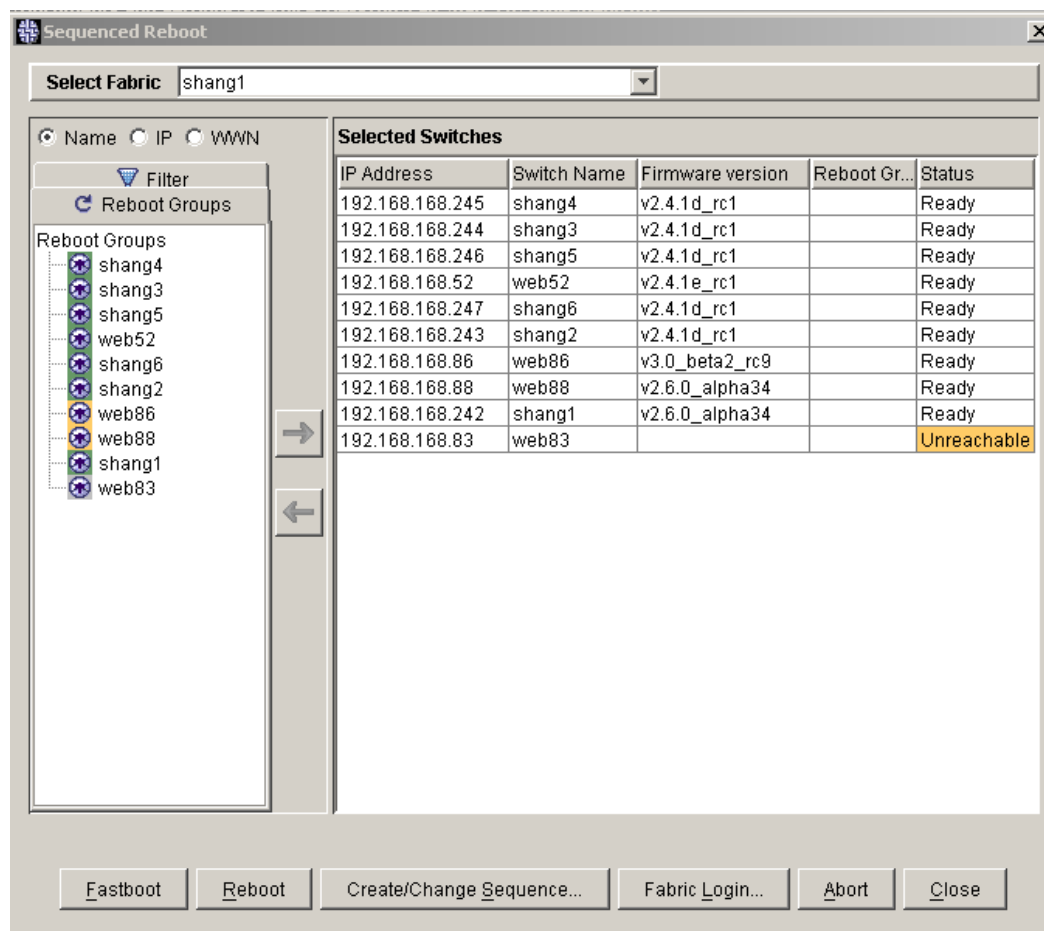


Figure 7-6 Sequence Reboot Window of the Reboot Menu

Config

Use the Config option of the Tools menu to create and apply “Baseline” configurations across multiple switches. The Config option provides the following sub-menus:

- Save Baseline
- Compare/Download from File
- Compare/Download from Switch

Creating a Baseline Switch Configuration

For information on creating a Baseline Switch Configuration, see *Save a Baseline Configuration* on page 11-2.

Comparing or Downloading a Switch Configuration From a File

For information, see *Download and Apply a Baseline Configuration from a File* on page 11-3.

Comparing or Downloading a Switch Configuration From a Switch

For information, see *Download and Apply Baseline Configuration from a Switch* on page 11-4.

Licensing

Use the Licensing option of the Tools menu to administer and manage licensing information. The Licensing option provides the following sub-menus:

- Import From File
- Load From Switch

Importing a License From a File

To import a license from a local file:

1. Select **Tools**.
2. Select **Licensing > Import From File**.
A browser window appears.
3. Browse to select the file that contains the license to be imported.

Loading a License From a Switch

To view and change licensing information on a switch or fabric, use the License Admin window.:

1. Select **Tools**.
2. Select **Licensing > Load From Switch**
The License Admin - Switch Selection window appears.
3. Select the switch from which you want to load a license
4. Select the Login button and log in to switch (if you have not already done so).
5. Select OK.
The License Admin window appears, as shown in Figure 7-7.
6. Select the Switch tab.
7. Select the Load From Switch button.

SwitchName	WWN	Feature	Key	Action	Location	Message
test162	10:00:00:60:69:00:00:0e	Web; Zoning; SES; QuickLoop; Fabric;	zycbbeSSz0zdcc8	current	switch	
test162	10:00:00:60:69:00:00:0e	Release v2.2;	bzSdQSSzR9c0TqSv	current	switch	
test162	10:00:00:60:69:00:00:0e	Extended Fabric;	SdzzcQRyRTe00dd	current	switch	
test162	10:00:00:60:69:00:00:0e	Fabric Watch; Release v2.3;	bzSdQSSzR9e0TsSz	current	switch	
shang2	10:00:00:60:69:10:60:da	Release v2.2;	RccdbddeR9SddgdY	current	switch	
shang2	10:00:00:60:69:10:60:da	QuickLoop; Fabric;	RRSyZ9zycSSTz0z	current	switch	
shang2	10:00:00:60:69:10:60:da	Web; Zoning; SES; Fabric Watch;	bRQ9RQy9R9eSR...	current	switch	
shang6	10:00:00:60:69:10:63:4a	Release v2.2;	RSdyR9zcdySTeBTT	current	switch	
shang6	10:00:00:60:69:10:63:4a	QuickLoop; Fabric;	9b9ycReQSAcAzy	current	switch	
shang6	10:00:00:60:69:10:63:4a	Web; Zoning; SES; Fabric Watch;	S9SQ9dQydyVATRAx	current	switch	
shang3	10:00:00:60:69:10:63:4f	Release v2.2;	Rc9ceeRc9SdAp...	current	switch	
shang3	10:00:00:60:69:10:63:4f	QuickLoop; Fabric;	RRy9QcebySSzTq	current	switch	
shang3	10:00:00:60:69:10:63:4f	Web; Zoning; SES; Fabric Watch;	bRdzRby9SeSe0dE	current	switch	
web118	10:00:00:60:69:10:8f:01	Fabric;	Seeyz9R9QeTffz0G	current	switch	
web118	10:00:00:60:69:10:8f:01	Release v2.2;	Rc9dRedRy9SdAgTS	current	switch	
web118	10:00:00:60:69:10:8f:01	Web; Zoning; SES; QuickLoop; Fabric; Remot...	RdSRbR99d9xeTS...	current	switch	
web93	10:00:00:60:69:10:91:2e	Release v2.2;	RRsRRSdQeSSff...	current	switch	
web93	10:00:00:60:69:10:91:2e	Web; Zoning; SES; QuickLoop; Fabric; Remot...	RRzSe9SzzS00TC	current	switch	
web93	10:00:00:60:69:10:91:2e	Fabric;	Sbcbz9SbdTccdz	current	switch	
shang1	10:00:00:60:69:10:60:2a	Fabric;	SSScRdycezTITdSj	current	switch	
shang1	10:00:00:60:69:10:60:2a	Release v2.2;	R0dRcbQyb9SRee...	current	switch	
shang1	10:00:00:60:69:10:60:2a	Web; Zoning; SES;	SyRdRzbQb9TzSeSf	current	switch	
shang1	10:00:00:60:69:10:60:2a	QuickLoop; Fabric;	ybb9ybzzccCAzo	current	switch	
shang1	10:00:00:60:69:10:60:2a	Web; Zoning; SES; Fabric Watch;	SyRdRzbQb9VzSeSh	current	switch	

Figure 7-7 License Admin Window of the License Menu

Fabric Merge

Use the Fabric Merge option of the Tools menu to facilitate the process of merging two fabrics.

Performing a Fabric Merge

To select two fabrics as merge candidates:

1. Select Tools.
2. Select Fabric Merge.

The Fabric Merge Check window appears, as shown in Figure 7-8.

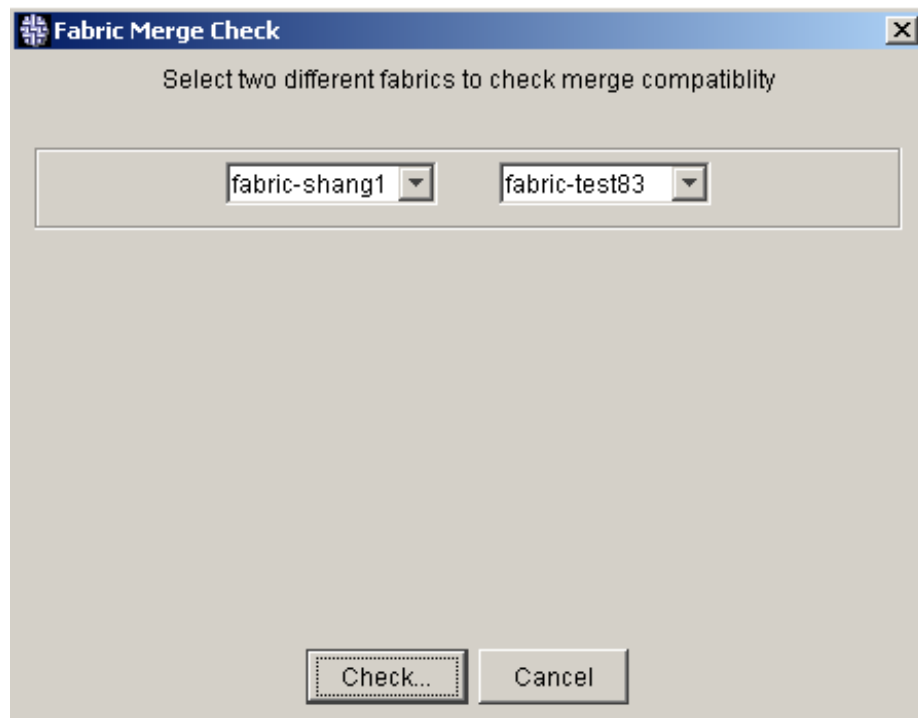


Figure 7-8 Fabric Merge Check Window

3. Select two fabrics to merge from the drop-down menus.
4. Select the Check button.

Testing is initiated to compare configurations that are currently active. Results are displayed in the Merge Check Results window, as shown in Figure 7-8.

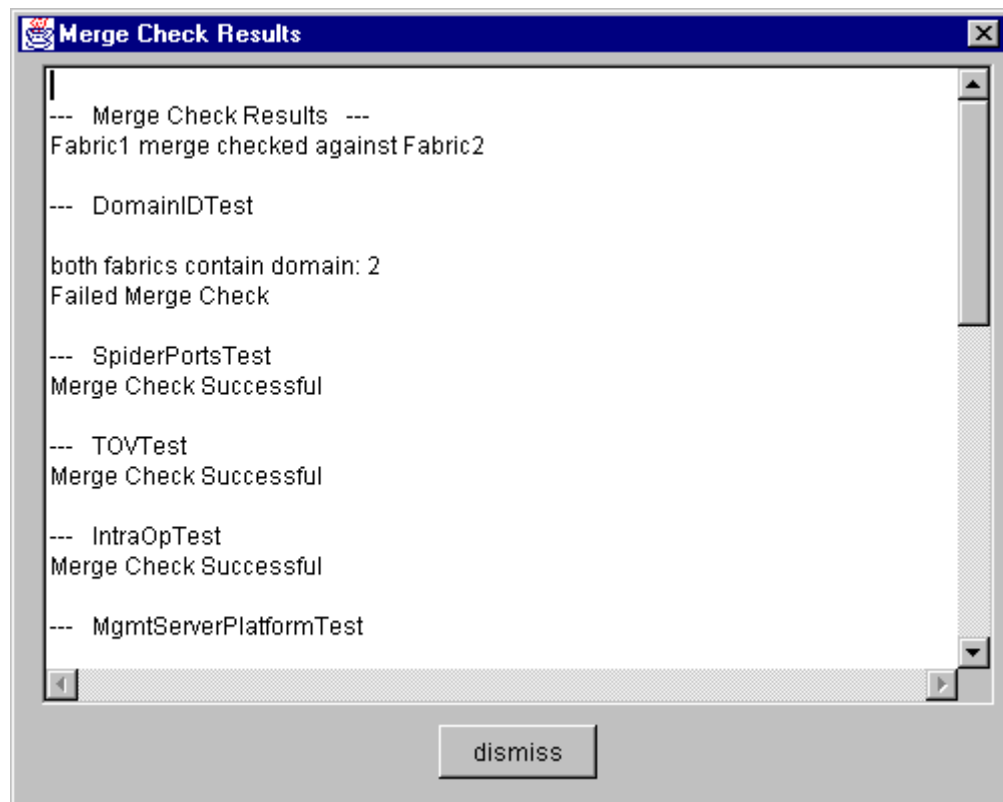


Figure 7-9 Merge Check Results Window

If incompatibilities are found between fabrics, the Zone Merge window appears, as shown in Figure 7-10.

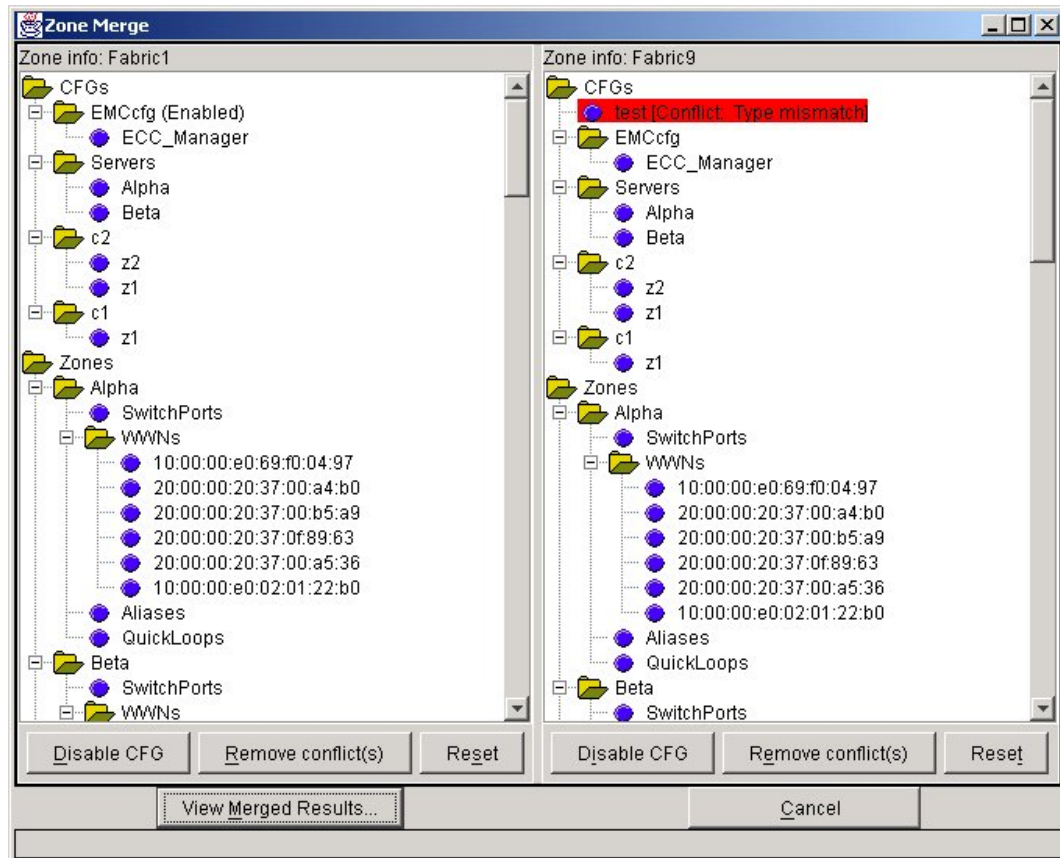


Figure 7-10 Fabric Merge Window

5. Select options to remove conflicts

For more information about merging fabrics, see *Validate Merge-ability of Two Fabrics* on page 11-5.

Help Menu

This chapter provides the following information:

- Help
- Context Help
- Status Legend
- About

The Help menu is shown in Figure 8-1.

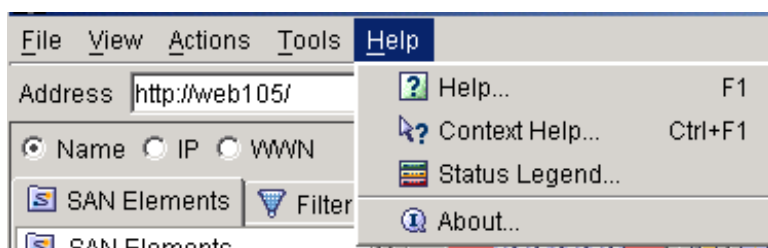


Figure 8-1 Help Drop- Down Menu

Help

Use the Help option to view selected information about Fabric Manager features.

Sample Help Window

A sample of the Help window is shown in Figure 8-2.

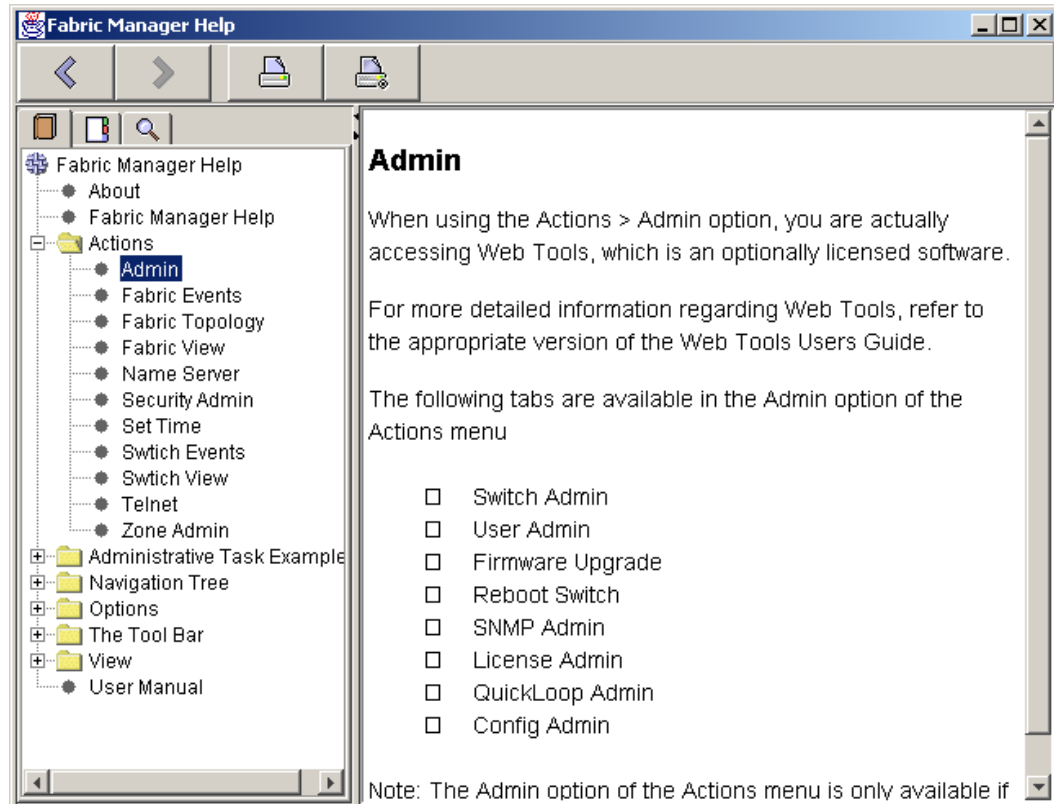


Figure 8-2 Sample Help Window of the Help Drop-down Menu

Using Help

To use Help:

1. Select **Help > Help**
The Help window appears.
2. Select a folder from the navigation-tree in the left column.
Information appears in the right-hand window.
3. Open a folder and select a file to view sub-topics.

Context Help

Context Sensitive Help Sample Window

A sample of what you will see when using context sensitive help is shown in Figure 8-3.

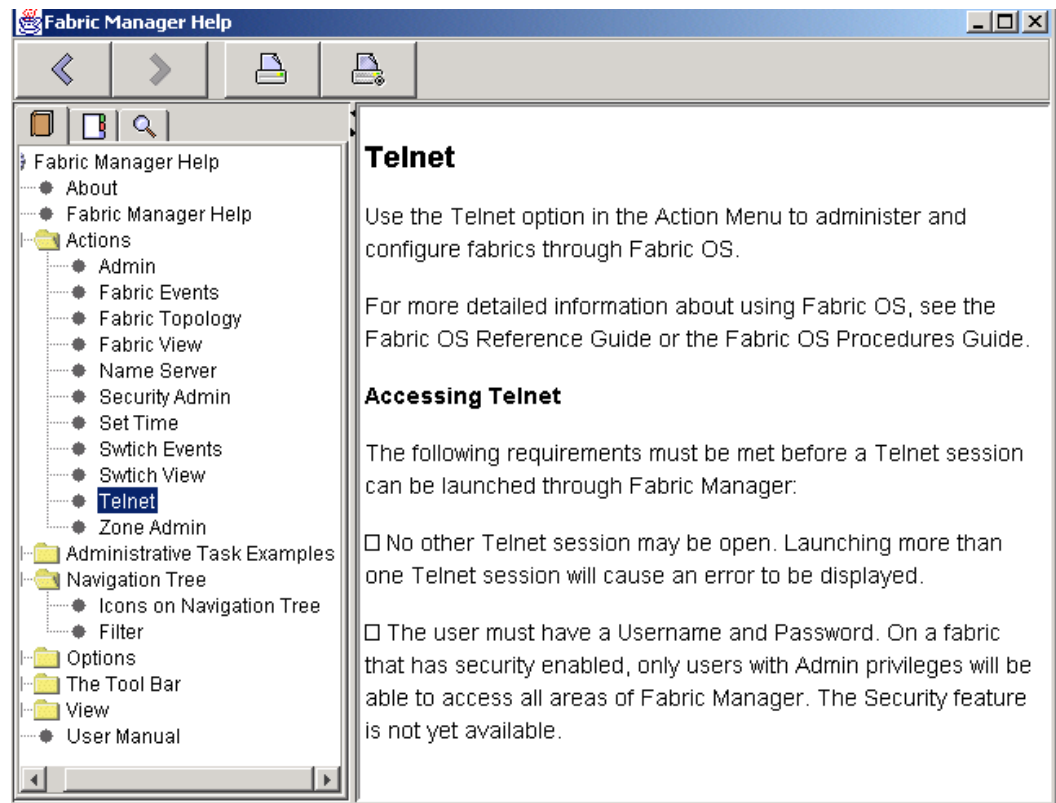


Figure 8-3 Sample Context Sensitive Help Window

Using Context Sensitive Help

To use Context Sensitive Help:

1. Select the Context Sensitive Help icon.
A question mark appears on screen.
2. Use your mouse to click on an object of interest on screen.
A window appears with information about that object.

Status Legend

The Status Legend defines the meaning of colors visible in the background of the switch icons. Each color indicates a different operational state:

Blue	Unknown
Green	Healthy
Yellow	Marginal (mix of good and faulty readings)
Red	Down (more than two faulty readings)

Gray Unknown or unmonitored

If no data is available from a switch, the most recent background color remains displayed.

Note: For all statuses that are based on errors per time interval, any errors will cause the status to show faulty until the entire sample interval has passed.

The Status Legend is shown in Figure 8-4.

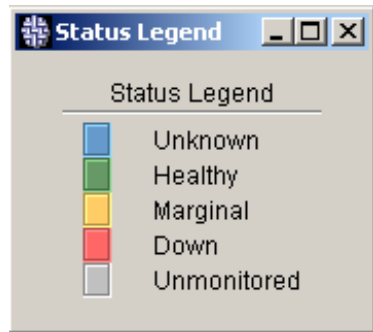


Figure 8-4 Status Legend

Using the Status Legend

An individual switch icon is shown in Figure 8-5.



Figure 8-5 Individual Switch

The background color of the switch indicates that the status of the switch is down.

About

Note: This option is not currently available.

Tool Bar

This chapter provides information regarding options that are available through the Tool Bar of the Fabric View.

The following icons and windows are available through the Fabric Manager Tool Bar:

- *Address Window* on page 9-1
- *Fabric Login Icon* on page 9-2
- *Open FM Log* on page 9-4
- *Print Table Icon* on page 9-5
- *Download Firmware Icon* on page 9-6
- *Sequenced Reboot Icon* on page 9-8
- *Context Sensitive Help Icon* on page 9-10
- *Help* on page 9-11

The Tool Bar is shown in Figure 9-1.



Figure 9-1 Tool Bar in Fabric View

Address Window

Use the Address Window to enter the IP address, name, or WWN of the switch that you want to manage or monitor. Once the switch information has been entered, the address can be chosen automatically from the pull-down menu. The Address window is available through the Fabric View. For more information, see *Fabric View with the Fabric Icon Selected* on page 3-2.

The Address Window is shown in Figure 9-2.

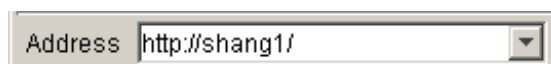


Figure 9-2 Address Window in Fabric View

Fabric Login Icon

Use the Fabric Login icon to access the Fabric Login window, which allows you to select a group of switches to login to. The Fabric Login icon is available through the Fabric View. For more information, see *Fabric View with the Fabric Icon Selected* on page 3-2.

The Login Setup window is shown in Figure 9-3.



Figure 9-3 Fabric Login Icon

When the Fabric Login Setup Icon is selected, the Login Setup window appears.

Login Setup Window

Use the Login Setup Window to select a group of switches to login to simultaneously.

The Login Setup window is shown in Figure 9-4.

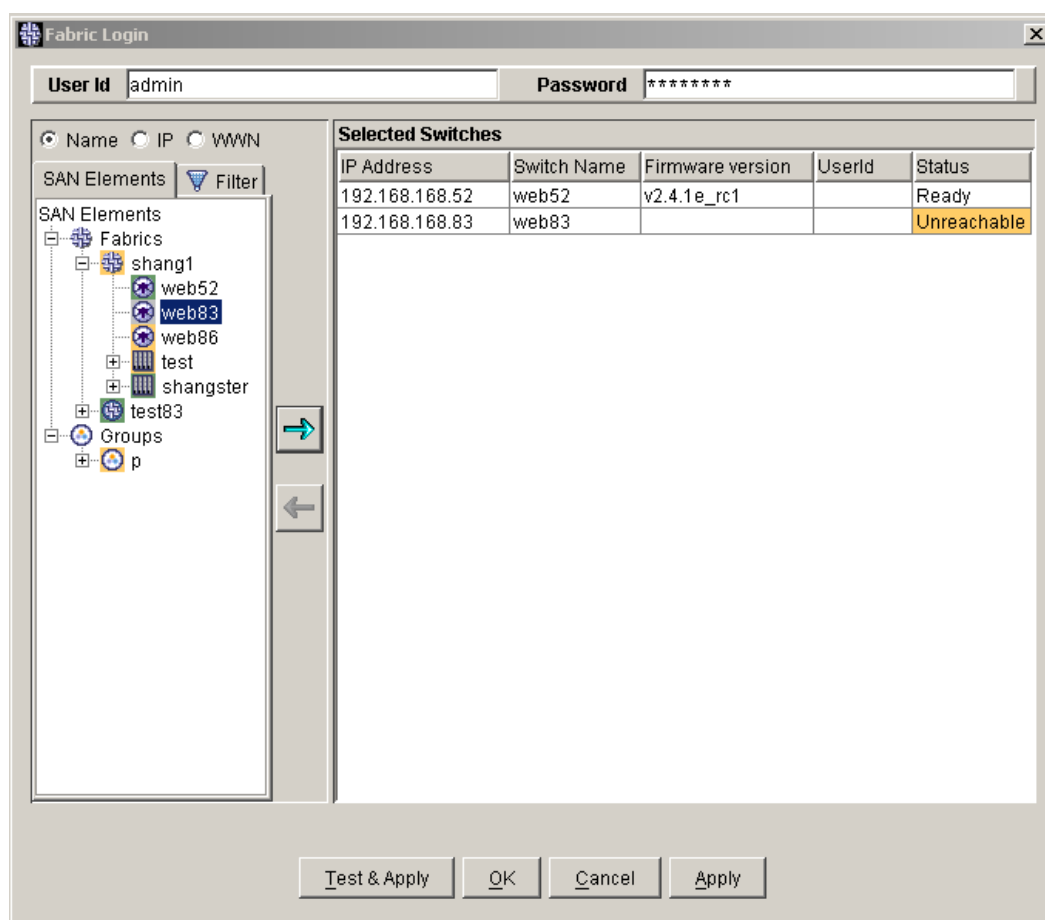


Figure 9-4 Login Setup Window

Logging into Multiple Switches

To login to multiple switches simultaneously:

1. Launch the Login Setup window through one of the following options:
 - Select the Multiple Switches Login Setup Icon, as shown in Figure 9-3.
 - Select the Login Setup button from the Firmware Download dialog box, as shown in Figure 9-9 on page 9-7.
 - Select the Login Setup button from the Sequenced Reboot dialog box, as shown in Figure 9-11 on page 9-9.
2. Highlight switches or groups of switches to be selected.
 - Use mouse clicks in combination with Shift/Control to highlight multiple switches.
3. Use the Add/Delete arrows in the middle column to select the switches.
The selected switches will be applied in a table with all their details.
4. Enter the User Name and Password that apply to the switches you selected.
5. Choose the Test and Apply button to check your login and apply the login.

or

Choose the Apply button to login to the selected switches.

or

Choose the Cancel button to close the Login Setup window without saving changes.

Open FM Log

Use the FM Log icon to view events occurring within the fabric.

The FM Log icon is shown in *Open FM Log* on page 9-4

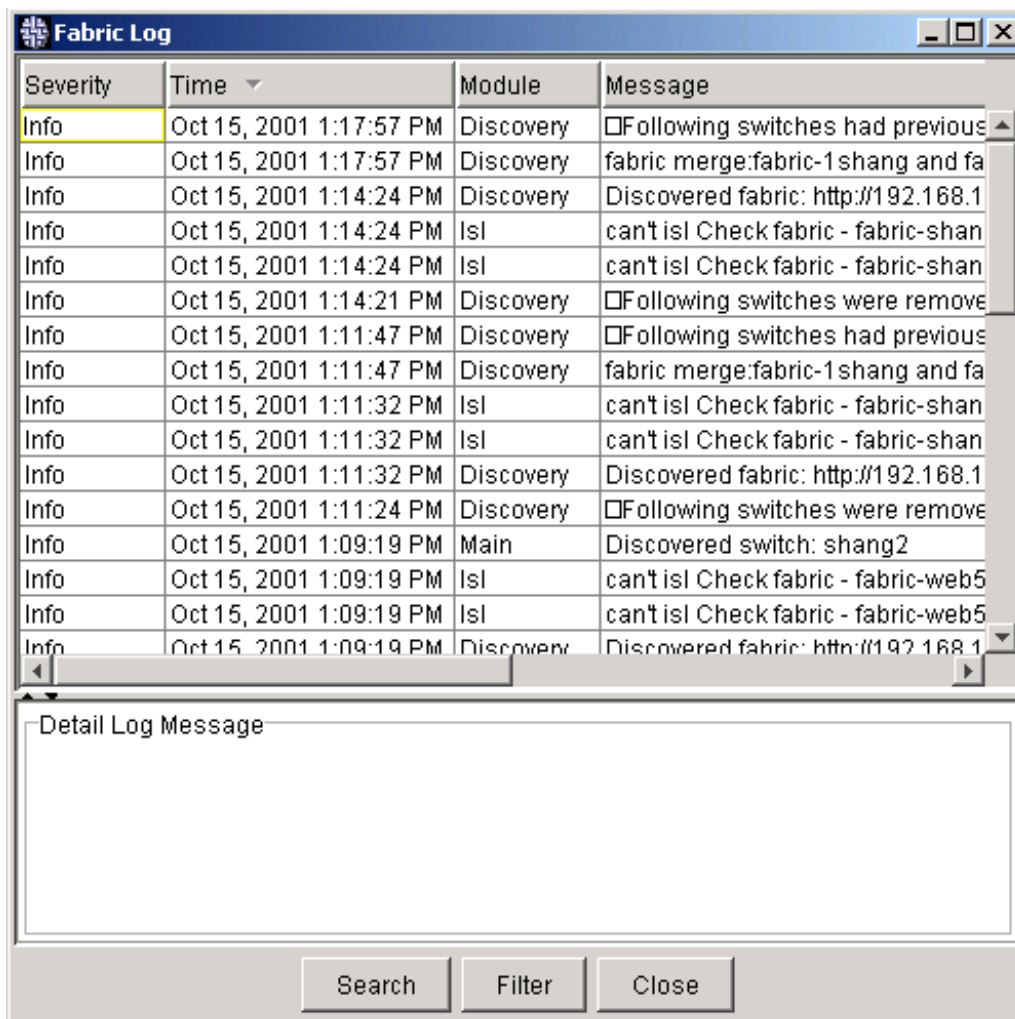


Figure 9-5 Open FM Log Icon

For more information, refer to *Fabric Manager Log* on page 4-11.

Fabric Manager Log Window

The Fabric Manager Log window is shown in Figure 9-6.



Severity	Time	Module	Message
Info	Oct 15, 2001 1:17:57 PM	Discovery	Following switches had previous
Info	Oct 15, 2001 1:17:57 PM	Discovery	fabric merge: fabric-1 shang and fa
Info	Oct 15, 2001 1:14:24 PM	Discovery	Discovered fabric: http://192.168.1
Info	Oct 15, 2001 1:14:24 PM	Isl	can't isl Check fabric - fabric-shan
Info	Oct 15, 2001 1:14:24 PM	Isl	can't isl Check fabric - fabric-shan
Info	Oct 15, 2001 1:14:21 PM	Discovery	Following switches were remove
Info	Oct 15, 2001 1:11:47 PM	Discovery	Following switches had previous
Info	Oct 15, 2001 1:11:47 PM	Discovery	fabric merge: fabric-1 shang and fa
Info	Oct 15, 2001 1:11:32 PM	Isl	can't isl Check fabric - fabric-shan
Info	Oct 15, 2001 1:11:32 PM	Isl	can't isl Check fabric - fabric-shan
Info	Oct 15, 2001 1:11:32 PM	Discovery	Discovered fabric: http://192.168.1
Info	Oct 15, 2001 1:11:24 PM	Discovery	Following switches were remove
Info	Oct 15, 2001 1:09:19 PM	Main	Discovered switch: shang2
Info	Oct 15, 2001 1:09:19 PM	Isl	can't isl Check fabric - fabric-web5
Info	Oct 15, 2001 1:09:19 PM	Isl	can't isl Check fabric - fabric-web5
Info	Oct 15, 2001 1:09:19 PM	Discovery	Discovered fabric: http://192.168.1

Detail Log Message

Search Filter Close

Figure 9-6 FM Log Window

Print Table Icon

Use the Print Table Icon to print table reports for review.

The Print Table Icon is available through the Fabric View. For more information about the Fabric View, refer to the *Tool Bar* on page 3-5.

The Print Table icon is shown in Figure 9-8.



Figure 9-7 Print Table Icon

For more information about the Print Table option, refer to *Print* on page 4-11.

Download Firmware Icon

Use the Download Firmware icon to access the Download Firmware window, and select multiple switches to be upgraded simultaneously. The Download Firmware Icon is available through the Fabric View. For more information about the Fabric View, see *Fabric View with the Fabric Icon Selected* on page 3-2.

The Download Firmware Icon is shown in Figure 9-8.



Figure 9-8 Download Firmware Icon

When the Download Firmware icon is selected, the Download Firmware window appears, as shown in Figure 9-9.

Download Firmware Window

Use the Download Firmware window to upgrade the firmware of multiple switches simultaneously. The Download Firmware window is shown in Figure 9-9.

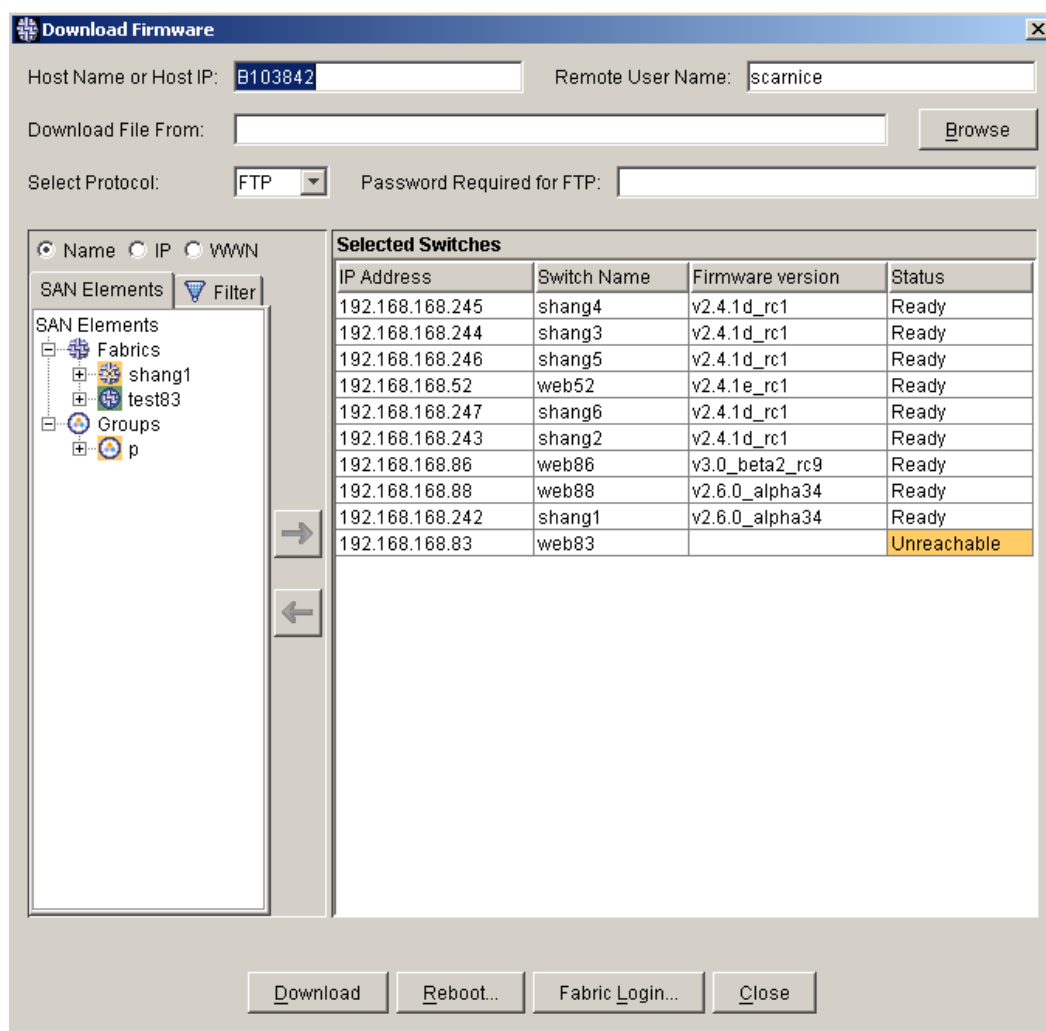


Figure 9-9 Download Firmware Window

Downloading Firmware to Multiple Switches

To use the Download Firmware window to upgrade the firmware to multiple switches:

1. Select the Download Firmware icon, as discussed in *Open FM Log* on page 9-4.
2. Highlight switches or groups of switches to be selected for firmware upgrade.
Use mouse clicks in combination with Shift/Control to highlight multiple switches.
3. Use the Add/Delete arrows in the middle column to select the switches or drag and drop from the navigation window to the table.
4. The selected switches will be applied in a table with all their details.
5. Enter the Host Name or Host IP address.
6. Enter the Remote User Name.
7. Use the Browse button to select a firmware file from the local host.

8. Select download protocol (RSHD or FTP).
If FTP is the chosen protocol, enter FTP password.
9. Choose the Download button to begin firmware download.
or
Choose the Close button to close the window without saving changes.

Sequenced Reboot Icon

The Sequenced Reboot icon is shown in Figure 9-10.



Figure 9-10 Sequenced Reboot Icon

Sequenced Reboot Window

Use the Sequenced Reboot window to configure switches to reboot in a specified order. This prevents unexpected lapses in fabric availability.

The Sequenced Reboot window is shown in Figure 9-11.

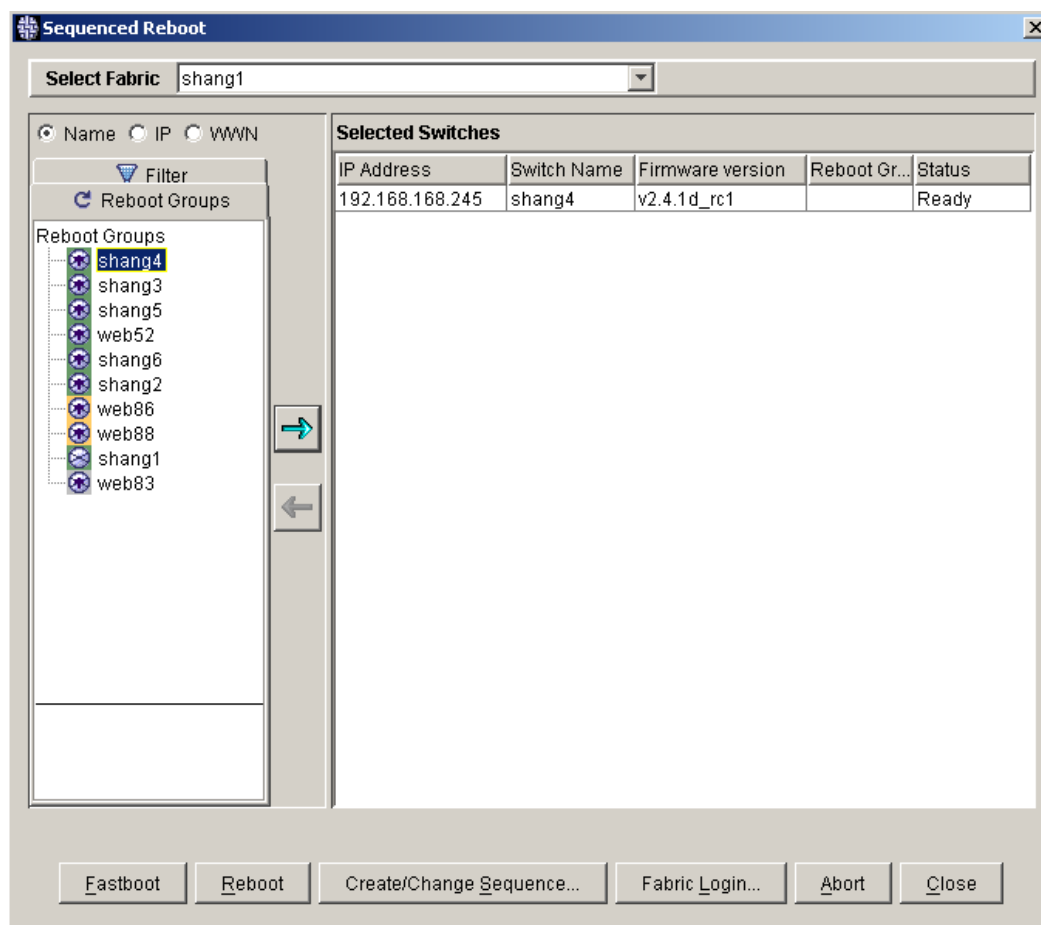


Figure 9-11 Sequenced Reboot Window

Rebooting Switches

To reboot switches without creating a Reboot Group, perform the following steps:

1. Select **Tools > Reboot**.
2. Select **Sequence Reboot**.
The Sequence Reboot window appears.
3. Select the switches to be rebooted from the navigation-tree. Move switches to the right-hand table by using the right-arrow, or by dragging and dropping.
Use Shift/Click to select multiple switches.
4. Select **Fastboot** to reboot selected switches without performing a POST test.
or
Select **Reboot** to reboot selected switches with POST test.

Context Sensitive Help Icon

Use the Context Sensitive Help icon to access help on the Fabric Manager screen. The Context Sensitive Help icon is shown in Figure 9-12.



Figure 9-12 Context Sensitive Help Icon

Context Sensitive Help Sample Window

A sample of what you will see when using context sensitive help is shown in Figure 9-13.

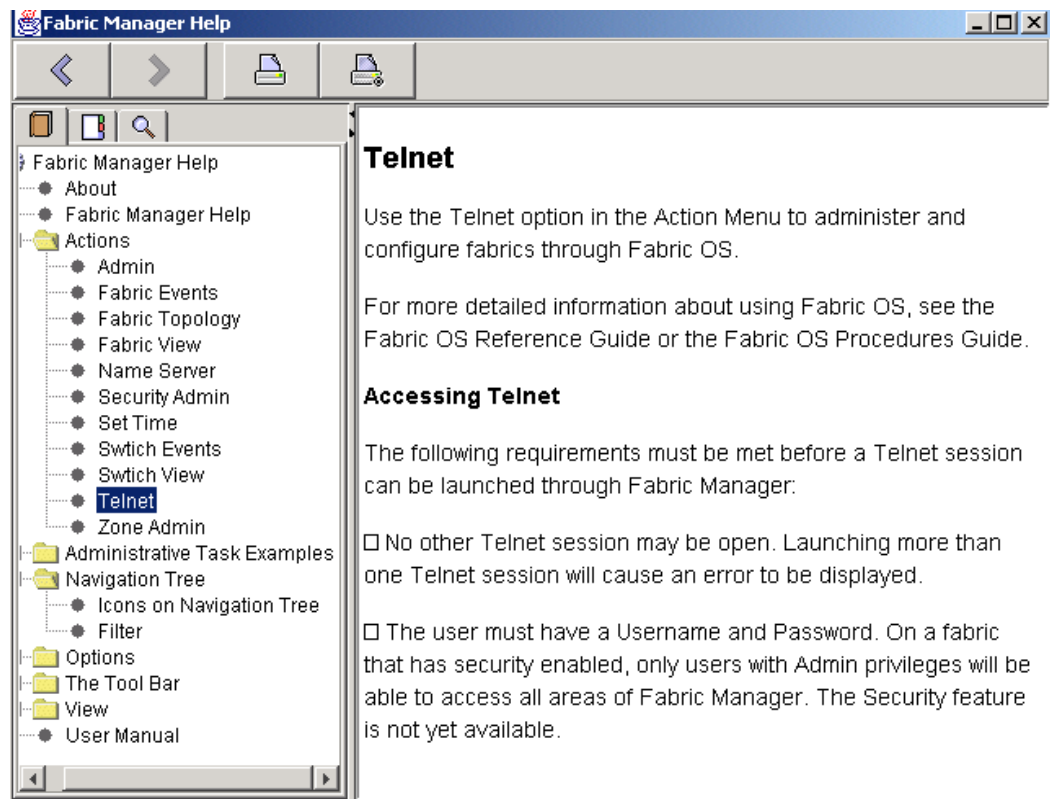


Figure 9-13 Sample Context Sensitive Help Window

Using Context Sensitive Help

To use Context Sensitive Help:

1. Select the Context Sensitive Help icon.

A question mark appears on screen.

2. Use your mouse to click on an object of interest on screen.
A window appears with information about that object.

Help

Use the Help icon to view the following areas:

- Help
- Context Help
- Status Legend
- About

For more information regarding the Help menu, refer to *Help Menu* on page 8-1.

The Help icon is shown in Figure .



Help Icon

Switch View

This chapter briefly describes the views and interfaces available through the Switch View, which consist of the following:

- *The Switch View on page 10-2*
- *Events on page 10-3*
- *Fabric Watch (optional software) on page 10-3*
- *Performance Monitor on page 10-4*
- *Admin on page 10-4*
- *Telnet on page 10-3*

Note: The options available in the Switch View will vary depending on the version of Web Tools that is installed on the individual switch.

Web Tools

When using the Switch View, you are actually accessing Web Tools, which is an optionally licensed software.

For more information on Web Tools, refer to the appropriate version of the *Web Tools User's Guide*.

Access

To access Web Tools:

1. Enter Fabric Manager.

The Switch window (or view) appears as part of the main Fabric View. See Figure 3-1 on page 3-1.

2. Select an individual switch icon.

Web Tools launches, as shown in Figure 10-1.

Capabilities

The Switch View, or Web Tools, provides a graphical interface that allows the administrator to monitor individual switches and ports from a standard workstation. It is an optionally licensed product that runs on Fabric OS. All switches in the fabric are displayed in the main window of Web Tools, including switches that do not have a Web Tools license. However, only switches that have a Web Tools license installed can be managed through Web Tools (other switches must be managed through Telnet or SES).

The Switch View displays as shown in Figure 10-1.

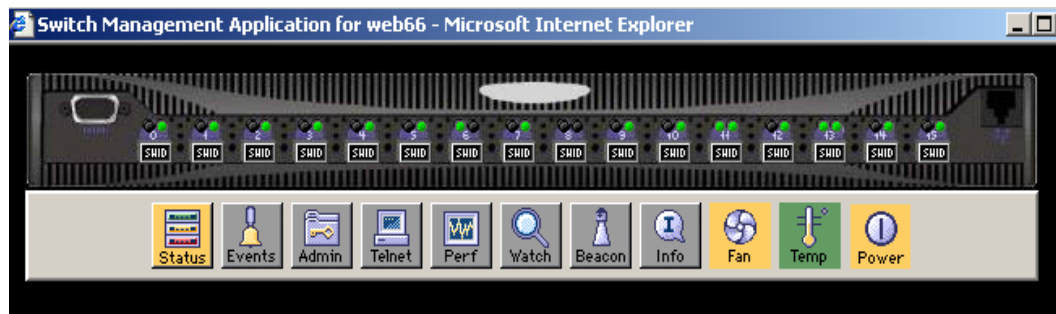











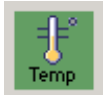



Figure 10-1 The Switch View

The items and information available in Switch View

<p>Port icons</p> 	<p>The letters in the Port icon indicate the GBIC (Gigabit Interface Converter) type, as follows:</p> <ul style="list-style-type: none"> blank No GBIC present SW Short wave GBIC LW Long wave GBIC CU Copper GBIC SWID Short wave serial ID GBIC LWID Long wave serial ID GBIC CUID Copper serial ID GBIC <p>A yellow outline around a port icon indicates port failure. For detailed port information, click the Port icon to see the Port Information View.</p>
<p>Port numbers (on the top of each port)</p>	<p>The number of the port.</p>

LED Status Indicators (round light next to each port)	The color indicates the status of the port: <table> <tr> <td>No light</td><td>No device attached.</td></tr> <tr> <td>Steady yellow</td><td>Receiving light, but not online; check cable connections.</td></tr> <tr> <td>Slowly flashing yellow</td><td>Disabled (diagnostics or portDisable command).</td></tr> <tr> <td>Rapidly flashing yellow</td><td>Error, fault with port.</td></tr> <tr> <td>Steady green</td><td>Online (connected with device by cable).</td></tr> <tr> <td>Slowly flashing green</td><td>Online but segmented (loopback cable or incompatible switch).</td></tr> <tr> <td>Rapidly flashing green</td><td>Internal loopback (diagnostic)</td></tr> <tr> <td>Flickering green</td><td>Online and transmitting/receiving frames.</td></tr> </table>	No light	No device attached.	Steady yellow	Receiving light, but not online; check cable connections.	Slowly flashing yellow	Disabled (diagnostics or portDisable command).	Rapidly flashing yellow	Error, fault with port.	Steady green	Online (connected with device by cable).	Slowly flashing green	Online but segmented (loopback cable or incompatible switch).	Rapidly flashing green	Internal loopback (diagnostic)	Flickering green	Online and transmitting/receiving frames.
No light	No device attached.																
Steady yellow	Receiving light, but not online; check cable connections.																
Slowly flashing yellow	Disabled (diagnostics or portDisable command).																
Rapidly flashing yellow	Error, fault with port.																
Steady green	Online (connected with device by cable).																
Slowly flashing green	Online but segmented (loopback cable or incompatible switch).																
Rapidly flashing green	Internal loopback (diagnostic)																
Flickering green	Online and transmitting/receiving frames.																
Power supply 	Removable power assemblies are updated to show presence/absence and status of each: <table> <tr> <td>Green</td><td>Power supply present and operational.</td></tr> <tr> <td>Red X</td><td>Power supply present but not operational.</td></tr> <tr> <td>Cover plate</td><td>Power supply absent or not fully plugged in.</td></tr> </table>	Green	Power supply present and operational.	Red X	Power supply present but not operational.	Cover plate	Power supply absent or not fully plugged in.										
Green	Power supply present and operational.																
Red X	Power supply present but not operational.																
Cover plate	Power supply absent or not fully plugged in.																
Status 	Click to view the switch's health status.																
Events 	Click to access Switch Events View.																
Telnet 	Click to launch a telnet session.																
Fabric Watch (optional software) 	Click to access Fabric Watch, if a license is installed.																

Fan 	<p>The background color of the button indicates the overall status of the fans:</p> <p>Green Healthy</p> <p>Yellow Marginal (mix of good and faulty readings)</p> <p>Red Down (more than two faulty readings)</p> <p>Gray Unknown or unmonitored</p>
Admin 	<p>Click to display the Administrative Interface where you can perform switch management functions.</p>
Performance Monitor 	<p>Click to display the Performance Monitor where you can monitor switch performance.</p>
Beacon  	<p>Click to turn on the beaconing function. If on, this icon shows beams of light. The beaconing function helps to physically locate a switch by sending a signal to the specified switch, resulting in an LED light pattern flashing from side to side on the switch.</p>
Temp 	<p>Click to display temperature readings from all switch thermal sensors. The background color of the button indicates the overall temperature status:</p> <p>Green Healthy</p> <p>Yellow Marginal (mix of good and faulty readings)</p> <p>Red Down (more than two faulty readings)</p> <p>Gray Unknown or unmonitored</p>
Info 	<p>Click to display the switch information.</p>

Note: For more information on Web Tools, refer to the appropriate version of the *Web Tools User's Guide*.

Administrative Task Examples

This chapter provides examples of the following administrative tasks that can be performed:

- *Create a Logical Group* on page 11-1
- *Share a Group(s) with Another Host* on page 11-2
- *Filter a Fabric* on page 11-2
- *Save a Baseline Configuration* on page 11-2
- *Save a Baseline Configuration* on page 11-2
- *Download and Apply a Baseline Configuration* on page 11-3
- *Validate Merge-ability of Two Fabrics* on page 11-5
- *Monitor ISLs* on page 11-5
- *Download Firmware* on page 7-2
- *Create a Reboot Group* on page 11-6
- *Setup a Sequenced Reboot* on page 11-7
- *Implementing Security* on page 11-7

Create a Logical Group

For information regarding logical groupings, see *Logical Groups* on page 1-6.

To create a logical grouping, perform the following steps:

1. Select **File**.
2. Select **Group > Create Group**.
The Create Groups window appears.
3. Highlight the word Groups from the navigation-tree by clicking on it.
4. Select the Create button from the bottom of the window
The Create Groups dialog box appears.
5. Enter a name for the group and press OK.
The name of your group appears in the navigation-tree.
6. Highlight the name of your group from the navigation-tree by clicking on it.
7. Select switches from the navigation-tree to be added to the Group.
To select multiple switches, use Shift/Click.
8. Add selected switches to your group by clicking on the right-arrow button, or by dragging and dropping selections from the navigation-tree to the table.

Share a Group(s) with Another Host

To share a logical group with another host, perform the following steps:

1. Select **File > Groups**.
2. Select **Export**.
3. Use the Browse button to select a file to Export a Group to.
4. Type a name for your “group” file.
5. Highlight the name of the group(s) to be exported from the navigation-tree.
6. Add the group to be exported by clicking on the arrow button, or by dragging and dropping selections from the navigation-tree to the table.
7. Select OK.
8. Go to a host on a separate machine.
9. Select **File > Groups**.
10. Select **Import**.
11. Browse to select the file you previously exported to.

Filter a Fabric

To filter a fabric, using specific parameters, perform the following steps:

1. Select the Filter tab from the SAN Elements Panel.
For more information, see the *Filter tab* on page 3-8.
2. Select the filter parameters from the drop-down menu.
3. Type in the IP address, Name, or other search parameter in the window beside the drop-down menu.
4. Press the Enter key

Any switches that match the criteria will be displayed in the panel below the text box.

Save a Baseline Configuration

For more information regarding configurations, see *Config* on page 7-5.

To create a baseline configuration, perform the following steps:

1. Select **Tools > Config**.
2. Select **Save Baseline**.
3. Select a template as a base for your configuration or browse to select an XML template file.
4. Select the Next button.

The Pick a Baseline Target Switch window appears.

5. Highlight a switch to use as a baseline configuration from the navigation-tree.

Note: You must highlight one switch only, not a fabric.

6. Select the highlighted switch by clicking on the left-arrow button, or by dragging and dropping selections from the navigation tree to the table.
7. Select the Login button and log in to the switch (if you have not previously done so).

For information, see *Fabric Manager Login* on page 4-2.

8. Set up File Transfer properties if you have not previously done so.

Note: You can setup File Transfer properties anytime by selecting **File > Options** and selecting the File Transfer tab. For detailed information about setting up File Transfer properties, see *File Transfer Tab* on page 4-6.

The Base Configuration Dialog box appears.

9. Check the configuration properties that you would like to save to your template from the Base Configuration Dialog box.
10. Select Save.

The Save Base Dialog box appears.

11. Enter a file name for your configuration template.

It is recommended that you name your file so that you can easily recognize selected configuration parameters. Example:

SNMP_Baseline.txt

12. Select Save.

Download and Apply a Baseline Configuration

Download and Apply a Baseline Configuration from a File

1. Create a Reboot Group if you intend to apply a Baseline Configuration to an entire fabric. This is an optional step, however, it is recommended to maintain the stability of a fabric.

For more information, refer to *Create a Reboot Group* on page 11-6.

2. Select **Tools > Config**.
3. Select **Compare/Download from File**.
4. Browse to select a baseline configuration file and select Open

The Target Switches window appears.

5. Highlight switches that you want to compare to the baseline configuration from the navigation-tree.

6. Select the highlighted switch by clicking on the left-arrow button, or by dragging and dropping selections from the navigation-tree to the table.
7. Select the Login button and log in to the switch (if you have not previously done so).
8. Set up File Transfer properties, if you are prompted to do so.

Note: You can setup File Transfer properties anytime by selecting **File > Options** and selecting the File Transfer tab. For detailed information about setting up File Transfer properties, see *File Transfer Tab* on page 4-6.

9. Select OK.

The Configure Compare/Download window appears.

10. Select Apply to apply baseline configuration to switches.

or

Select Print a Report to print a report of switch configuration comparisons.

or

Select Cancel to exit window without saving changes.

Download and Apply Baseline Configuration from a Switch

Perform the following steps to download and apply a baseline configuration from a switch:

1. Create a Reboot Group if you intend to apply a Baseline Configuration to an entire fabric.

This is an optional step, however, it is recommended to maintain the stability of a fabric as switches are rebooted.

For more information, refer to *Create a Reboot Group* on page 11-6.

2. Select **Tools > Config**.
3. Select **Compare/Download from Switch**.
4. Highlight a switch from the navigation-tree to use as a baseline configuration.

Note: You must select one switch only, not a whole fabric.

5. Highlight switches that you want to compare to the baseline configuration from the navigation-tree.
6. Select the highlighted switch by clicking on the left-arrow button, or by dragging and dropping selections from the navigation-tree to the table.
7. Select the Login button and log in to the switch (if you have not previously done so).
8. Set up File Transfer properties, if you are prompted to do so.

Note: You can setup File Transfer properties anytime by selecting **File > Options** and selecting the File Transfer tab. For detailed information about setting up File Transfer properties, see *File Transfer Tab* on page 4-6.

9. Select OK.

The Configure Compare/Download window appears.

10. Select Apply to apply baseline configuration to switches.
or
Select Print a Report to print a report of switch configuration comparisons.
or
Select Cancel to exit window without saving changes.

Validate Merge-ability of Two Fabrics

Perform the following steps to validate the merge-ability of two fabrics:

1. Setup File Transfer properties by selecting **File > Options**
2. Select the File Transfer tab.
For detailed information about setting up File Transfer properties, see *File Transfer Tab* on page 4-6.
3. Select **Tools > Fabric Merge**.
4. Select two fabrics to be merge-tested by using the drop-down menus.
5. Select the Check button at the bottom of the window.
6. The Login Setup window appears, if you have not already logged into the switch.
Enter the User Name and Password at the top of the window.
7. Highlight switches from the right-hand table to be tested.
To select multiple switches, use Shift/Click.
8. Add selected switches to be tested by clicking on the right-arrow button, or by dragging and dropping selections from the table to the navigation-tree.
9. Select the Test button.
10. Check the status of your test in the Status column of the table.

Monitor ISLs

For more information regarding ISLs, see *ISL* on page 6-14.

To monitor ISLs and Fabric Configurations, perform the following steps:

1. Select **File > Options**.
The Options window appears with three tab choices.
2. Select the ISL Status tab.
3. Select the status parameters to be propagated in the Fabric Events
Note: For more information about the ISL Status tab, see *ISL Status Tab* on page 4-8.
For more information about Incorporate Add into Stamp, see *ISL Checking* on page 1-7.

4. Select **OK**.
5. Select **Actions > ISL > ISL Checking** to turn on ISL checking.
A checkmark will appear, showing that ISL checking is active.
6. Select **Actions > Restamp** any time you want to restamp the fabric topology.
Note: There is a ten second time spacing in stamping. When ISL checking is turned on, the stamp will be set to the results of the last poll, which is at most ten seconds behind.
7. Select **Actions > Events** to view changes to fabric topology.
Note: For more information, see *Events* on page 6-2.

Download Firmware

For information on Downloading Firmware, see *Downloading Firmware to Multiple Switches* on page 7-3.

Create a Reboot Group

Perform the following steps to create a reboot group:

1. Select **Tools > Reboot**.
2. Select **Create Reboot Sequence**.
The Create or Change Reboot Groups window appears.
3. Select a fabric from the drop-down menu at the top of the window.
4. Highlight the words Reboot Groups from the navigation-tree by clicking on it.
5. Select the Create button from the bottom of the <navigation-tree?> window
The Create Reboot Group dialog box will appear.
6. Type in a name for the reboot group
7. Enter Fabric Stabilization timeout information and select the action to take if timeout occurs
8. Enter delay time after stabilization
9. Enter Fabric Stabilization information and press **OK**.
The name of your group will appear in the navigation-tree.
10. Select **OK**
11. Select switches from the table to be added to the reboot group. Use shift/click to select multiple switches.
12. Click the left arrow, or use drag and drop to move switches from the table to the reboot group.
Note: Delete switches or reboot groups by pressing the delete button; this will move the related switches to the table of unassigned switches.
Two reboot groups can be merged by dragging one group and dropping it on another group.

The switch reboot sequence can be changed by selecting one or more groups and pressing the up/down arrow button to move the selected groups up/down in the order of reboot.

13. Select Apply or OK to save reboot group.

The Sequenced Reboot window will appear. For instructions on proceeding with reboot, see *Setup a Sequenced Reboot* on page 11-7.

For more information regarding reboot groups, see *Reboot* on page 7-3.

Setup a Sequenced Reboot

To setup a sequenced reboot, perform the following steps:

1. Select **Tools > Reboot > Sequence Reboot**.

or

Select the Sequence Reboot Icon in Fabric View. For more information, see *Sequenced Reboot* on page 7-4.

The Sequenced Reboot window appears.

2. Select a fabric from the drop-down menu at the top of the window.
3. Highlight the name of your group from the navigation-tree by clicking on it.
4. Select switches from the right-hand table to be added to the reboot group.
5. Select the Login Setup button (if you have not previously logged into the switches).
6. Highlight the name of your group from the navigation-tree by clicking on it.

If you have not created a reboot group, select the Create/Change sequence.

See *Create a Reboot Group* on page 11-6.

7. Select OK to proceed when the confirmation window appears.
8. Select Reboot to administer sequenced reboot.
9. Login to switch if you are prompted.
10. Press Abort to abort the sequenced reboot at any time.

If you have set up a delay on the reboot group, a delay timer displays. Press the Play-Pause-Skip button on the delay timer at runtime.

11. View message at the end of sequenced reboot.

A message displays the success or failure of the operation.

Implementing Security

To set up a secure fabric, perform the following steps:

1. Highlight a switch from the SAN Elements tab.
2. Select **Actions > Security**.

3. Log into a switch. This switch becomes a secure access point.
The Security Admin window appears.
4. Select the Fabric Configuration Servers tab.
5. Select a switch from the Available Switch List column and use the Add FCS button to add it to the FCS Switch List.
6. Select Save.
7. Select the Device Connection Controls tab.
8. Select the Create Policy button.
A dialog box appears.
9. Enter a name for a new policy and select OK.
10. Select Save.
11. Select the Switch Connection Controls tab.
12. Enter the WWN for a switch that you want to include in the secure fabric.
13. Select Add Switch.
14. Repeat steps 12 - 13 until all desired switches have been added.
15. Check the Enforce Policy box.
16. Select Save.
17. Select the Management Access Controls tab.
18. Select the sub-tab of interest.
For example, select the HTTP tab to provide HTTP access to a particular switch.
19. Enter the IP address of the switch to which you want to provide permissions.
20. Select Add IP.
21. Check the Enforce Policy box.
22. Select Activate to save and apply the security configurations.

Glossary

8b/10b encoding	Encoding scheme that converts each 8-bit data byte into a 10-bit transmission character. Used to balance ones and zeros in high speed transports.
Address identifier	Value used to identify source or destination of a frame.
AL_PA	Arbitrated Loop Physical Address. Unique 8-bit value assigned during loop initialization to each port in an arbitrated loop.
Alias server	Fabric software facility that supports multicast group management.
ANSI	American National Standards Institute. Governing body for fibre channel standards in the U.S.A.
API	Application Programming Interface. Defined protocol that allows applications to interface with a set of services.
Arbitrated loop	A fibre channel transport structured as a loop. Allows communication between ports without using a switch. Requires successful arbitration by a port before a circuit is established. Supports up to 126 devices and one fabric attachment.
ASIC	Application-Specific Integrated Circuit.
ATM	Asynchronous Transfer Mode. Transport for transmitting data over LANs or WANs that transmit fixed-length units of data. Provides any-to-any connectivity and allows nodes to transmit simultaneously.
Bandwidth	The total transmission capacity of a link, cable, or system.
BB_Credit	Buffer-to-buffer credit. The number of frames that can be transmitted to a directly connected recipient or within an arbitrated loop. Determined by number of available receive buffers. See also <i>Buffer-to-buffer flow control</i> , <i>EE_Credit</i> .
BER	Bit Error Rate. Rate at which bits are expected to be received in error. Expressed as ratio of error bits to total bits transmitted. See also <i>Error</i> .
Bit synchronization	The delivery of correctly clocked bits at the required BER. See also <i>BER</i> .
Broadcast	Transmission of data from a single source to all devices in fabric, regardless of zoning. See also <i>Multicast</i> , <i>Unicast</i> .
Brocade SES	Brocade product that allows monitoring, configuring, and maintenance of SilkWorm [®] switches using SCSI-3 Enclosure Services.
Brocade Distributed Fabrics	The combined user's guides for Brocade Extended Fabrics and Brocade Remote Switch. Not a software product.

Brocade Extended Fabrics	Brocade product that allows interconnection of fibre channel fabric over distances of up to 100 kilometers.
Brocade Remote Switch	Brocade product that enables two SilkWorm 2000-series switches to connect over an ATM connection. Requires compatible fibre channel-to-ATM gateways. Can be up to 10 kilometers distance between each switch and respective gateway.
Brocade Web Tools	Brocade product that provides a graphical interface for monitoring and managing individual switches or entire fabrics from standard workstations.
Brocade Zoning	Brocade product that allows partitioning of fabric into logical groupings of devices. See also <i>Zone</i> .
Buffer-to-buffer flow control	Management of frame transmission rate between directly connected ports or within an arbitrated loop. See also <i>BB_Credit</i> .
Cascade	Two or more interconnected fibre channel switches. Switches from the SilkWorm 1000 series can cascade up to 32; switches from the SilkWorm 2000 series can cascade to 239. For BROCADE switches, a maximum of seven hops is recommended (no path longer than eight switches).
Circuit	Established communication path between ports. Consists of two virtual circuits that transmit in opposite directions. See also <i>Link</i> .
Class 1	A connection-oriented service that provides a dedicated connection between two ports, with notification of delivery or non-delivery.
Class 2	A multiplex and connectionless frame switching service between two ports, with notification of delivery or non-delivery.
Class 3	A connectionless frame switching service between two ports, without notification of delivery or non-delivery. Can also be used to provide a multicast connection between originator and recipients, with notification of delivery or non-delivery.
Class F	A connectionless service for control traffic between switches, with notification of delivery or non-delivery between the E_Ports.
Class of service	A set of specific delivery characteristics and attributes for frame delivery.
Comma	Unique pattern (either 1100000 or 0011111) used in 8b/10b encoding to specify character alignment within a data stream. See also <i>K28.5</i> .
Community (SNMP)	Relationship between a group of SNMP managers and an SNMP agent, in which authentication, access control, and proxy characteristics are defined.
CRC	Cyclic Redundancy Check. A check for transmission errors; included in every data frame.
Credit	As applies to fibre channel, the number of receive buffers available for transmission of frames between ports. See also <i>BB_Credit</i> and <i>EE_Credit</i> .
Cut-through	Switching technique that allows selection of a transmission route for a frame as soon as destination address is received. See also <i>Route</i> .

Data word	Type of transmission word that occurs within frames. The frame header, data field, and CRC all consist of data words. See also <i>Frame</i> , <i>Ordered set</i> , <i>Transmission word</i> .
Defined configuration	The complete set of all zone objects defined in the fabric; can include multiple zone configurations. See also <i>Enabled configuration</i> , <i>Zone configuration</i> .
Disparity	The relationship of ones and zeros in an encoded character. Neutral disparity indicates an equal number of each, positive disparity a majority of ones, and negative disparity a majority of zeros.
DLS	Dynamic Load Sharing. Dynamic distribution of traffic over available paths. Allows for redistribution when an Fx_Port or E_Port comes up or down.
Domain ID	As applies to switches in the BROCADE SilkWorm 2000 series, a unique number between 1 and 239 that identifies the switch to the fabric.
E_D_TOV	Error Detect Time-out Value. Time allowed for round-trip transmission before recovery is initiated. Can also be defined as the minimum time an L_Port waits for sequence completion before initiating recovery. See also <i>R_A_TOV</i> .
E_Port	Expansion Port. A switch port that has the ability to connect to a similar port on another switch, allowing creation of an interswitch link. See also <i>ISL</i> .
EE_Credit	End-to-end credit. The number of receive buffers allocated by recipient port to originating port. Used by Class 1 and 2 services to manage exchange of frames across intervening ports in fabric. See also <i>End-to-end flow control</i> , <i>BB_Credit</i> .
Enabled configuration	The currently enabled zone configuration. Only one configuration can be enabled at a time. See also <i>Defined configuration</i> , <i>Zone configuration</i> .
End-to-end flow control	Governs flow of Class 1 and 2 frames between N_Ports. See also <i>Buffer-to-buffer flow control</i> , <i>EE_Credit</i> .
Error	As applies to fibre channel, a missing or corrupted frame, time-out, loss of synchronization, or loss of signal. See also <i>Loop failure</i> .
Exchange	As applies to fibre channel, a communication session between N_Ports involving the transmission of one or more related sequences, in one or both directions. See also <i>Sequence</i> .
F_Port	Fabric Port. A port that can transmit using fabric protocol and can interface over links. Can be used to connect N_Ports to a switch. See also <i>FL_Port</i> , <i>Fx_Port</i> .
Fabric	A fibre channel network of two or more switches. Also called a “switched fabric.” See also <i>SAN</i> , <i>Cascade</i> .
Fabric name	Unique 64-bit identifier assigned to each separate fabric. Communicated during login and port discovery.
Fabric OS	Proprietary operating system on Brocade switches.
Fabric Watch	Brocade product that allows monitoring and configuration of fabric and switch elements.
FC-AL-3	The Fibre Channel Arbitrated Loop standard. Defined on top of FC-PH standards.

FC-FLA	The Fibre Channel Fabric Loop Attach standard.
FCP	Fibre Channel Protocol. Mapping of protocols onto fibre channel standard protocols. For example, SCSI FCP maps SCSI-3 onto fibre channel.
FC-PH-1, 2, 3	The Fibre Channel Physical and Signaling Interface standards.
FC-PI	The Fibre Channel Physical Interface standard.
FC-PLDA	The Fibre Channel Private Loop Direct Attach standard. Applies to operation of peripheral devices on private loops.
FC-SW-2	The Fibre Channel Switch Fabric standard, second generation. Specifies tools and algorithms for interconnection and initialization of fibre channel switches.
Fibre channel transport	Protocol service that supports communication between fibre channel service providers. See also <i>FSP</i> .
Fill word	A word transmitted to keep a fibre active. Either an idle or ARB ordered set.
FL_Port	Fabric Loop Port. A port that can transmit under both fabric protocol and loop protocol. Can be used to connect NL_Ports to a switch. See also <i>F_Port</i> , <i>Fx_Port</i> .
FLOGI	Fabric Login. Process by which a node makes a logical connection to fabric. Used by ports to determine if fabric is present, and if so to exchange service parameters with the fabric. See also <i>PLOGI</i> .
Frame	Fibre channel structure used to transmit data. Consists of start-of-frame delimiter, header, any optional headers, data payload, cyclic redundancy check (CRC), and end-of-frame delimiter. There are two types: data frames and link control frames. Similar to the networking concept “packet”. See also <i>Sequence</i> , <i>data word</i> .
FRU	Field Replaceable Unit. A component that can be replaced on site.
FS	Fibre Channel Service. A service that is defined by fibre channel standards and exists at a well-known address. For example, Name Server is a fibre channel service. See also <i>FSP</i> .
FSP	Fibre Channel Service Protocol. The common protocol used for all fabric services, transparent to fabric type or topology. See also <i>FS</i> .
FSPF	Fabric Shortest Path First. BROCADE routing protocol for fibre channel switches.
Full-duplex	Mode of communication that allows a port to simultaneously transmit and receive frames. See also <i>Half-duplex</i> .
Fx_Port	Fabric port that can operate either as F_Port or FL_Port. See also <i>F_Port</i> , <i>FL_Port</i> .
G_Port	Generic Port. Port that can operate either as E_Port or F_Port. Ports are defined as G_Ports when disconnected or have not assumed specific function within fabric.
Gateway	IP address assignment that provides translation for incompatible networks. For example, ATM gateway can connect a fibre channel link to an ATM connection.
GBIC	Gigabit Interface Converter. Removable serial transceiver module that allows gigabit physical-layer transport for fibre channel.

Gbps	Gigabits (1,062,500,000 bits) per second.
GBps	Gigabytes (1,062,500,000 bytes) per second.
Half-duplex	Mode of communication that allows a port to either transmit or receive frames, but not both at once. The only exception is link control frames, which can be transmitted at any time. See also <i>Full-duplex</i> .
Hard address	The AL_PA that an NL_Port attempts to acquire during loop initialization.
HBA	Host Bus Adapter. Interface card between a server or workstation bus and the fibre channel network. Similar to a network interface card.
Hub	Fibre channel wiring concentrator that collapses loop topology into physical star topology. Nodes are automatically added when active and removed when inactive.
Idle	Continuous transmission of an ordered set when no data is being transmitted to maintain an active fibre channel link and synchronization. See also <i>Fill word</i> .
Initiator	Server or workstation that initiates communications with storage devices over a fibre channel network. See also <i>Target</i> .
IOD	In Order Delivery. A parameter that, when set, guarantees that frames are delivered in-order if possible, and dropped if not.
ISL	Interswitch Link. Fibre channel link from the E_Port of one switch to E_Port of another.
IU	Information Unit. An individual set of information as defined by higher level process protocol definition, or upper-level protocol mapping.
JBOD	Just a Bunch Of Disks. A number of disks connected in a single chassis to one or more controllers. See also <i>RAID</i> .
K28.5	Special 10-bit character used to indicate beginning of transmission words that perform fibre channel control and signaling functions. First seven bits are comma pattern. See also <i>Comma</i> .
L_Port	Loop Port. Node or fabric port that can use loop protocol or fabric protocol. See also <i>Non-participating mode</i> , <i>Participating mode</i> .
Latency	Time required to transmit a frame, from the time sent until time of arrival.
Link	As applies to fibre channel, a physical connection between two ports, consisting of both transmit and receive fibres. See also <i>Circuit</i> .
Link services	Protocol for link-related actions.
LIP	Loop Initialization Primitive. The signal used to begin initialization in a loop. Indicates either loop failure or resetting of a node. See also <i>Loop initialization</i> .
Loop failure	Loss of signal within a loop for any period of time, or loss of synchronization for longer than the time-out value. See also <i>E_D_TOV</i> .
Loop initialization	Logical procedure used by L_Ports to discover environment. Can be used to assign AL_PA addresses, detect loop failure, or reset a node. See also <i>LIP</i> .

Loop_ID	Hex value representing one of 127 possible AL_PA values in a loop.
Looplet	Set of devices connected in a loop to a port that is part of another loop.
LPSM	Loop Port State Machine. Logical entity that performs arbitrated loop protocols and defines behavior of L_Ports when they require access to arbitrated loop.
LWL	Long wavelength fibre optic cable. Based on 1300 nm lasers supporting 1.0625 Gbps link speeds. Connectors are color-coded blue. See also <i>SWL</i> .
MIB	Management Information Base. SNMP structure that provides configuration and device information to assist with device management.
Multicast	Transmission of data from a single source to a number of specified N_Ports. See also <i>Broadcast</i> , <i>Unicast</i> .
Multimode	Fibre-optic cabling specification allowing up to 500 meters between devices.
N_Port	Node Port. Port that can attach to a fibre channel port. See also <i>NL_Port</i> , <i>Nx_Port</i> .
Name server	Service of storing names, addresses, and attributes for up to 15 minutes, provided by a switch to other entities in fabric. Defined by fibre channel standards, and existing at a well-known address. Also called Simple Name Server, SNS, or directory service. See also <i>FS</i> .
NL_Port	Node Loop Port. An N_Port that can use loop protocol. See also <i>N_Port</i> , <i>Nx_Port</i> .
Node	Fibre channel entity with one or more N_Ports or NL_Ports.
Node name	Unique identifier for a node, communicated during login and port discovery.
Non-participating mode	Mode in which L_Port is inactive in loop and cannot arbitrate or send frames, but can retransmit received transmissions. Port enters mode if there are more than 127 devices in loop, and an AL_PA cannot be acquired. See also <i>Participating mode</i> .
Nx_Port	Node port that can operate as either an N_Port or NL_Port.
Ordered set	A type of transmission word that occurs outside of frames, and is used to manage frame transport and differentiate fibre channel control information from data. See also <i>Data word</i> , <i>Transmission word</i> .
Participating mode	Mode in which an L_Port in a loop has valid AL_PA and can arbitrate, send frames, and retransmit received transmissions. See also <i>Non-participating mode</i> .
Phantom device	Device not physically in a loop but logically included by phantom address.
Phantom address	AL_PA value assigned to device not physically in loop. Also called phantom AL_PA.
PLOGI	Port Login. Port-to-port login process by which initiators establish sessions with targets. See also <i>FLOGI</i> .
Point-to-point	Two fibre channel devices connected by a direct link. See also <i>Topology</i> .
Port_Name	Unique FC identifier for port, communicated during login and port discovery.

POST	Power On Self Test. Series of self-tests run after a switch is rebooted or reset.
Private NL_Port	NL_Port that does not log into the fabric and communicates only with private NL_Ports in same loop.
Private device	Device that supports arbitrated loop protocol and understands 8-bit addresses, but cannot log into fabric.
Private loop	An arbitrated loop with no fibre channel attachment.
Protocol	A defined method and standards for communication.
Public NL_Port	NL_Port that logs into the fabric, can function within public or private loops, and can communicate with public or private NL_Ports.
Public device	Device that supports arbitrated loop protocol, understands 8-bit addresses, and can log into fabric.
Public loop	An arbitrated loop attached to a switch.
QuickLoop	Can indicate either the BROCADE product that allows private devices within loops to communicate over the fabric with other devices, or the set of actual devices or looplets connected in a loop by BROCADE's QuickLoop technology.
R_A_TOV	Resource Allocation Time-out Value. Maximum time a frame can be delayed in the fabric and still be delivered. See also <i>E_D_TOV</i> .
RAID	Redundant Array of Independent Disks. Collection of disk drives that appear as a single volume to the server, and are fault-tolerant through mirroring or parity checking. See also <i>JBOD</i> .
Route	As applies to fabric, a communication path between two switches. See also <i>FSPF</i> .
RSCN	Registered State Change Notification. Switch function that sends notification of fabric changes from the switch to specified nodes.
SAN	Storage Area Network. Network of systems and storage devices that usually communicate using fibre channel protocols. See also <i>Fabric</i> .
Sequence	A fibre channel structure containing one or more frames transmitted in a unidirectional manner between N_Ports. See also <i>Exchange, Frame</i> .
SilkWorm[®]	Brand name for line of BROCADE switches.
Single mode	Fibre-optic cabling standard that provides for distances of up to 10 kilometers between devices.
SNMP	Simple Network Management Protocol. Internet management protocol that does not rely on underlying communication protocols and can therefore be made available over other protocols, such as UDP/IP. See also <i>Community (SNMP)</i> .
SNS	Simple Name Server. See <i>Name server</i> .
Switch	A combination of hardware and firmware that routes frames according to fibre channel protocol. Switches can have G_Ports, E_Ports, F_Ports, and FL_Ports.

Switch Domain_ID	Unique identifier for a switch, used in routing frames. Usually automatically assigned by the switch, but can be manually assigned by administrator.
Switch name	Arbitrary name assigned to switch by administrator. See also <i>Switch Domain_ID</i> .
SWL	Short wavelength fiber-optic cable. Based on 850 nm lasers supporting 1.0625 Gbps link speeds. Connectors are color-coded black. See also <i>LWL</i> .
Target	Storage device that receives communications from a server or workstation over a fibre channel network. See also <i>Initiator</i> .
Topology	As applies to fibre channel, the structure of the fibre channel network and the resulting possible communication paths. There are three fibre channel topologies: point-to-point, fabric, and arbitrated loop.
Translative mode	Mode in which public devices can communicate with private devices across fabric.
Transmission Character	A 10-bit character encoded according to the rules of the 8b/10b algorithm. See also <i>8b/10b encoding</i> , <i>Transmission word</i> .
Transmission Word	Group of four transmission characters, totaling 40 bits. Two types: data words and ordered sets. See also <i>Data word</i> , <i>Ordered set</i> , <i>Transmission character</i> .
Trap (SNMP)	Message sent by SNMP agent to inform SNMP management station of critical error. See also <i>SNMP</i> .
Tunneling	Technique for enabling source and destination hosts to communicate when on same type of network but connected by a different type of network.
U_Port	Universal Port. Switch port that can operate as G_Port, E_Port, F_Port, or FL_Port. A port is defined as a U_Port if not connected or if it has not assumed a specific function in the fabric.
ULP	Upper Layer Protocol. Protocol that runs on top of fibre channel. Typical upper layer protocols: SCSI, IP, HIPPI, IPI.
Unicast	Transmission of data from a single source to single destination. See also <i>Broadcast</i> , <i>Multicast</i> .
Well-known address	As applies to fibre channel, a logical address stored on the switch and defined by fibre channel standards as being assigned to a specific function.
WWN	World Wide Name. Identifier that is unique world-wide. Each entity in a fabric has a separate WWN.
Zone	Set of hosts and devices attached to same fabric and having access permission, including RSCNs and user data, to each other. Entities inside a zone are not visible to entities outside the same zone, even if the outside entities are in another zone.
Zone configuration	A specified set of zones. Enabling a zone configuration enables all zones in that configuration. See also <i>Defined configuration</i> , <i>Enabled configuration</i> .

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