



## **Cisco SFS 7024 Hardware Installation Guide**

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# New and Changed Information

The *Cisco SFS 7024 Hardware Users Guide* applies to the SFS 7024 Release 3.1 or later. [Table 1](#) lists the new and changed features available with each supported SFS 7024 release.

**Table 1** Documented Features for the Cisco SFS 7024 Hardware Users Guide

Feature	Description	Changed in Release	Where Documented
	Initial release of the <i>Cisco SFS 7024 Hardware Users Guide</i>		
Redundant Management	Added redundant management information.	3.3	<a href="#">Installing the Spine and Leaf Modules</a> , page 2-16 <a href="#">Updating Management Spine IP Addresses in a Redundant Management Configuration</a> , page 2-23 <a href="#">Rebooting Multiple Managed Spines</a> , page 2-31





# Preface

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This preface describes the audience, organization, and conventions of the *Cisco SFS 7024 Hardware Users Guide* . It also provides information on how to obtain related documentation.

## Audience

The intended audience for this document are network administrators responsible for configuring and operating network equipment. It assumes a basic working knowledge of:

- Local Area Networks (LANs)
- Ethernet concepts
- Simple Network Management Protocol (SNMP)
- InfiniBand

## Organization

This guide is organized as follows:

Chapter	Title	Description
Chapter 1	Product Overview	High-level information about the Cisco SFS 7024™
Chapter 2	Installation	Task-oriented information for installing the SFS 7024
Chapter 3	Operations and Administration	Task-oriented information for configuring and monitoring the SFS 7024
Appendix A	Technical Specifications	SFS 7024 technical specifications
Appendix B	Command Line Interface	Reference information for the SFS 7024 command line interface (CLI)
Appendix C	Troubleshooting	Troubleshooting symptoms and resolutions for the SFS 7024

# Conventions

This document uses the following conventions for notes, cautions, and safety warnings.

Notes and Cautions contain important information that you should be aware of.



## Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.



## Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement.



## Warning

**This warning symbol means *danger*. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the *Regulatory Compliance and Safety Information* document that accompanied this device.**

## Related Documentation

- *Cisco SFS 7024 Release Notes*

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

## Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

## Ordering Documentation

You can find instructions for ordering documentation at this URL:

[http://www.cisco.com/univercd/cc/td/doc/es\\_inpk/pdi.htm](http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm)

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San Jose, CA 95134-9883

We appreciate your comments.

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## Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

**Severity 1 (S1)**—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

**Severity 2 (S2)**—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

**Severity 3 (S3)**—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

**Severity 4 (S4)**—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

# Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:

<http://cisco.com/univercd/cc/td/doc/pcat/>

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>







# Product Overview

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The Cisco SFS 7024™ is an industry leading modular system used for creating large, single-system Grid/Cluster server fabrics, or as a building block for larger fabrics. The SFS 7024 is designed to maximize performance, streamline operations, and ensure uptime by providing full hardware and software reliability, availability, and serviceability (RAS) features.

Leveraging InfiniBand (IB) — an industry-standard interconnect — the SFS 7024 provides high performance, offering a full bisectional bandwidth (FBB) fabric (10Gb-30Gb) and ultra-low switching latency.

All major SFS 7024 components and expansion modules are field replaceable and hot pluggable. To allow easy scaling, the SFS 7024 provides 24 expansion slots. Each slot can support expansion modules with twelve 10 Gbit/sec (or 4X) IB ports, meaning the SFS 7024 can scale to 288 (4X) InfiniBand ports. The SFS 7000 Series switches make possible the highest density of InfiniBand fabrics available today.

## SFS 7024 Feature Set

### Strategic Benefits

- Creates the industry's simplest way to build medium to large server fabrics
  - Modular systems up to 288 ports (4X)
- Eliminates requirement for parallel storage networks
- High-availability design for mission critical needs
- Lowers Total Cost of Ownership (TCO)

### Key Design Features

- All field-replaceable units (FRU's) can be replaced while under power
- Redundant management, power and cooling
- High performance 10Gb/s
- Full Bisectional Bandwidth InfiniBand switching fabric
- Twenty-four (24) expansion slots for InfiniBand (4X)
- Embedded system management

# SFS 7024 Product Specifications

## Mechanical/Thermal/Power Specifications

- 14U - 19" rack mount environment
- Integrated thermal management
- Front-to-back airflow
- Hot plug, redundant cooling
- Hot plug, redundant power supplies
- 90/264 VAC operation
- 50/60 Hz Frequency
- Redundant, isolated AC inputs
- FCC and VCCI compliant
- U.L. Listed

## Thermal Management Features

- Eight (8) fan trays, hot plug, N+1 fans
- Two (2) fans per tray, 60mm, 12VDC
- Available air flow: 400 cfm @ .20 in H2O
- Expected air velocity on the switch chip: 400 lfpm
- Fan rotation monitor
- I2C interface to CME
- Thermal input from ambient air sensor and Switch chip via IBML links

## Power Design Features

- Up to twelve (12), 350 Watt power supplies
- 3.30" Width x 10.67" Depth x 1U height
- 12V bulk power
- Status indicators
- Four (4) independent AC input lines

## Switch Characteristics

- 14U form factor
- Full module enclosure
- Available power (all copper): 1489 Watts max

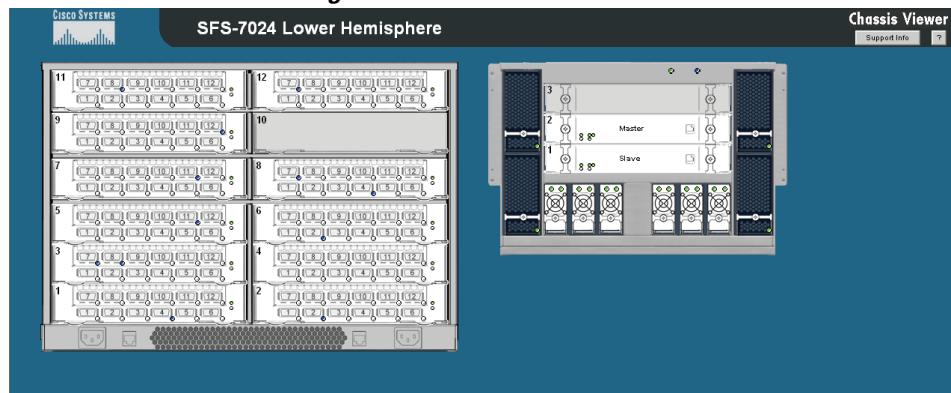
- Available power (all fiber): 1758 Watts max
- Available air flow: 200 cfm
- Thermal status reporting to CME via IBML
- Up to two hundred eighty-eight (288) 4X IB external copper ports
- Four (4) RJ-45 connectors for 100BASE Ethernet connection to management LAN.
- One (1) RJ-11 serial port per spine module for configuration.

## Chassis Viewer Software

The Chassis Viewer is Cisco's browser-based management software. Primary functions of Chassis Viewer for the SFS 7024 switch and its associated components include:

- Management
- Configuration
- Monitoring
- Diagnostics

**Figure 1-1 Chassis Viewer Home Page**



The Chassis Viewer runs on the Chassis Management Unit (CMU) processor of the SFS 7024 spine module(s), and is accessed through an OOB LAN workstation connected to the Ethernet port of the switches.

## Chassis Viewer Functionality

For the SFS 7024, Chassis Viewer provides an interface for performing the following management, configuration, and monitoring tasks:

- Manage and view user-defined data
- Monitor component status
- Monitor Switch-level detailed information
- Configure the OOB LAN IP address
- Manage and monitor log files, including:
  - Set debug levels determining the amount of information to be logged

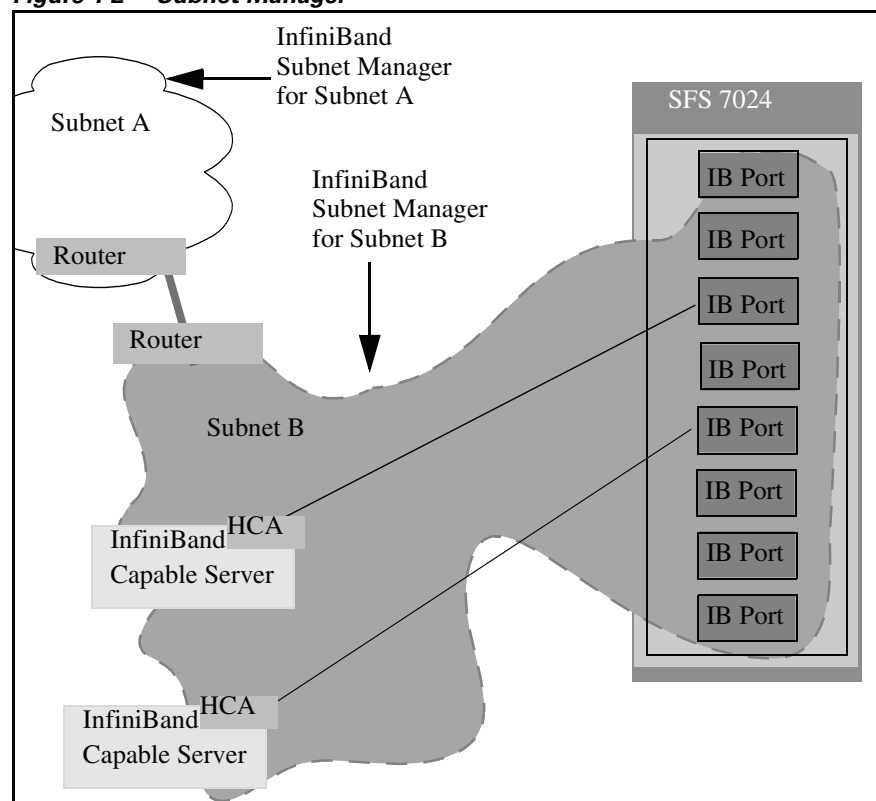
- Reset the logs
- Perform maintenance tasks
- Manage firmware updates, including uploading new firmware and setting the active version.

## Subnet Manager

Every InfiniBand fabric subnet requires a single *active* Subnet Manager (SM) to initialize and maintain the subnet. The fabric may also have one or more *standby* Subnet Managers. One of the standby Subnet Managers can be configured to become the active SM in the event of a failure.

As Figure 1-2 shows, InfiniBand-enabled fabrics consist of one or more subnets. Each subnet consists of a number of InfiniBand-capable servers connected to target devices. InfiniBand-capable routers provide connectivity between InfiniBand subnets.

**Figure 1-2 Subnet Manager**



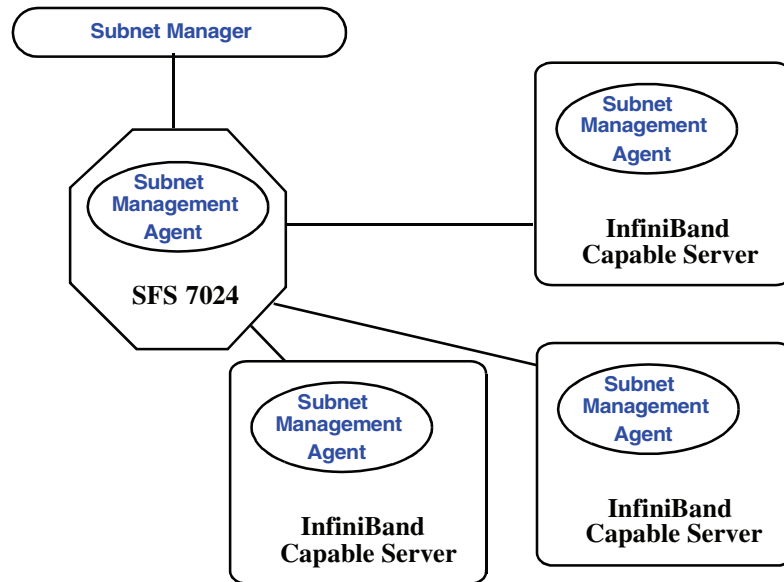
When a network is initially powered up, the Subnet Manager queries the subnet management agents running on the network devices, for information about node/port addressing schemes, routing tables and partitions. From that point on, the Subnet Manager periodically sweeps the network for changes. Once the InfiniBand network is up and running, the InfiniBand General Services Managers (GSMs) begin to interface with General Services Agents (GSAs).

## Subnet Management

### Subnet Management Agents

A Subnet Management Agent processes management requests from the Subnet Manager. Subnet Management Agents are implemented on all nodes within the InfiniBand fabric. These nodes include IB-capable switches, routers, and channel adapters. Each node implements a Subnet Management Agent. Within the SFS 7024 Switch, a Subnet Management Agent (SMA) is implemented within its firmware. An SMA also runs on every InfiniBand-capable server that is equipped with an HCA. As shown in Figure 1-3 the Subnet Manager interacts with these SMAs to discover information about the nodes on the fabric.

**Figure 1-3 InfiniBand Managers and Agents**



The Subnet Manager utilizes the agent information to discover and manage connections from the SFS 7024 to the InfiniBand fabric. The Subnet Manager maintains a database tracking subnet topology information as a result of its interaction with the SMAs.

## InfiniBand General Services Managers and Agents

The InfiniBand specification defines the InfiniBand General Services Managers and their associated agents. General Services Managers exchange messages with agents to manage and monitor the performance and the physical environment of devices on the network.

Once the InfiniBand network is up and running, the InfiniBand General Services Managers begin to interface with General Services Agents. The General Services Managers and Agents include:

- **Subnet Administration (SA)**

SA provides InfiniBand fabric nodes with an interface to the Subnet Manager. This interface is used by the nodes on the fabric to interact with the Master Subnet Manager and to discover information about the fabric. Every InfiniBand fabric subnet requires a SA.

- **The Device Manager (DM) and Device Management Agent (DMA)**

The DM and DMA discover and manage the association between hosts and devices behind the Target Channel Adapters.

- **The Communications Manager (CM)**

The CM establishes and manages communication channels between nodes.

- **The Baseboard Manager (BM) and Baseboard Management Agent (BMA)**

The BM and BMA exchange messages relating to items such as temperature monitoring and hardware control to manage hardware on the fabric.

- **The Performance Manager (PM) and Performance Management Agent (PMA)**

The PM and PMA exchange messages about performance statistics and error information of InfiniBand devices on the fabric.

## SNMP Support

Built-in support for Simple Network Management Protocol (SNMP) allows users to integrate a SFS 7024 into their existing management frameworks. SNMP allows users access to all statistics, trend analysis, alarm handling, filtering, and performance monitoring capabilities supported by these management frameworks.

## SNMP MIBs

SNMP Management Information Bases (MIBs) are management elements that are used by industry frameworks to monitor information about the SFS 7024 switch. The SFS 7024 switch supports MIBs from the following sources:

- **Switch-sourced MIBs:** MIBs from the CMU of the SFS 7024 provide status information regarding the physical environment of the switch. Additionally, the CMU MIBs provide status and activity information for all line cards residing in the switch.



# Installation

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This chapter describes how to install the Cisco SFS 7024™ and its components, and it includes the following information:

- [Planning the Installation, page 2-8](#)
- [Installation Tasks, page 2-15](#)
- [Hot Swapping Components, page 2-31](#)



---

**Note**

Before you install, operate, or service the system, read the *Regulatory Compliance and Safety Information for the Cisco SFS 7012 and SFS 7024* for important safety information.

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Warning

**IMPORTANT SAFETY INSTRUCTIONS**

**This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.**

Statement 1071

**SAVE THESE INSTRUCTIONS**

Warning

**This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.**

Statement 1017



Warning

**Only trained and qualified personnel should be allowed to install, replace, or service this equipment.**

Statement 1030



Warning

**A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.** Statement 1022

## Planning the Installation

### Environmental Requirements

To assure proper operation and avoid unnecessary maintenance, the installation site must conform to certain environmental specifications.

**Figure 2-1 Environmental Requirements**

Ambient operating temperature	41° - 113°F (5° - 45°C)
Non-operating temperature	-35°C to 65°C
Airflow requirements	<p>Air flows into the switch from front to back. Cabinet doors must not impede the front-to-back air flow.</p> <p>Power supplies use the air inside the chassis and exhaust out the front of the chassis.</p>
Humidity	5% to 85% relative humidity (noncondensing).



## Rack Specifications and Recommendations

The SFS 7024 switch is designed to be installed in an existing 19-inch equipment rack or server rack. The SFS 7024 switch is designed for a four-post server cabinet. *It is not designed for a two-post telco cabinet.*

Racks should conform to conventional standards. In the United States, use American National Standards Institute (ANSI)/Electronic Industries Association (EIA) standard ANSI/EIA-310-D-92, and International Electrotechnical Commission (IEC) 297

- Racks should meet the following mechanical recommendations:
  - Four-post, 19" rack to facilitate easy maintenance
  - Universal mounting rail hole pattern identified in IEC Standard 297
  - Mounting holes flush with the rails to accommodate the switch
- Use a rack grounding kit and a ground conductor that is carried back to earth or to another suitable building ground. Ground the equipment rack to earth ground.
- Provide enough room to work on the equipment. Clear the work site of any unnecessary materials. Make sure the equipment will have enough clearance for front and rear access.

## Installing and Routing Cable



### Note

Building and electrical codes vary depending on the location. Comply with all code specifications when planning the site and installing cable.

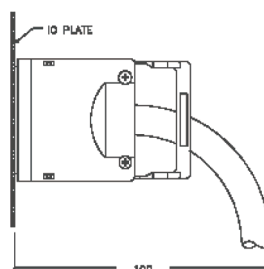
When running cables to the equipment, consider the following:

- Do not run cables where they can be stepped on or rolled over.
- Be sure cables are intact with no cuts, bends, or nicks.
- Provide proper strain relief for standard IB cables by adhering to the following guidelines:

**Figure 2-2 Cable Bend Radii**

Assembly 90-Degree Bend Radii	
American Wire Gauge (AWG) Size Cable	4X Bend Radius
24	5.20 inches
26	4.80 inches
28	4.70 inches

- Temporary 90-degree bend can never be more than 0.5 inches tighter than the values listed above for any assembly.
- This is the absolute minimum sustained bend radius for each 4X cable AWG size. This measurement is the distance from the panel to the point where the cable makes a 90-degree bend. In other words, this number includes the 2" connector stand-off from the panel surface.

**Figure 2-3 Bend Radius Measurement Diagram**

- Support cable using a cable manager mounted above connectors to avoid unnecessary weight on the cable bundles.
- Bundle cables using velcro straps to avoid damaging cables.
- Keep all ports and connectors free of dust.
- Unshielded Twisted Pair (UTP) cables can build up Electrostatic Discharge (ESD) charges when being pulled into a new installation. Before installing category 5 UTP cables, discharge ESD from the cable by plugging it into a port on a system that is not powered on.
- When required for safety and fire rating requirements, plenum-rated cable can be used. Check the local building codes to determine when it is appropriate to use plenum-rated cable, or refer to IEC standard 850.

## Power Requirements

### Power Supply

- The switch power supplies have a maximum power consumption requirement of 350W. Also ensure that the site meets all power supply requirements.
- Before installation and periodically after installation, check that the site is receiving clean power. Install a power conditioner if necessary.
- Be sure the site is properly grounded to avoid damage from lightning and power surges.

### Uninterruptible Power Supply

Consider the following when selecting Uninterruptible Power Supply (UPS) equipment:

- The minimum amperage requirements for a UPS:
  - Calculate VA (Volt-Amps): Locate the voltage and amperage requirements for each piece of equipment (usually located on a sticker on the back or bottom of the equipment). Multiply the numbers together to get VA.
  - Add the VA from each piece of equipment together to find the total VA requirement. Then add 30% to determine the minimum amperage requirements for the UPS.
- Transition time (the time necessary for the UPS to transfer from utility power to full-load battery power).
- The longest potential time period the UPS might be required to supply backup power.
- Whether or not the UPS unit also provides online protection.

## Installation Tasks Checklist

To perform the actual switch installation, the site implementation engineer must perform the following tasks, which are detailed in this section.


**Caution**

Be sure to review the Safety Information on page 11 *before* starting the installation and *during* the installation process.

- 
- Step 1** Check the installation site to verify the installation of cabinet power feeds, rails, and grounding.
  - Step 2** Unpack the equipment and inspect for any shipping damage. Any shipping damage should be reported to the shipping company.
  - Step 3** Verify that the equipment serial numbers match those on the packing slip.
  - Step 4** Mark the rack and install the mounting rails.
  - Step 5** Physically install the switch in the rack.
  - Step 6** Install IB cables between the SFS 7012 and other IB-enabled network devices.
  - Step 7** Install intra-cabinet power and grounding cables for the switch.
  - Step 8** Power up the switch.
  - Step 9** Verify the default system IP address for each hemisphere (192.168.100.9)
  - Step 10** Add the equipment to the network.

## Safety Information

The following safety guidelines are provided to ensure both personal safety for the user and to protect the system from potential damage. These precautions cover the following categories:

- Precautions for Rack-Mountable Products
- Protecting Against Electrostatic Discharge
- Electrical Safety Precautions

Precautions fit into one of three categories:


**Note**

A textual callout designed to emphasize:

- Tasks of particular importance.
- Tips and reminders to maximize the use of the equipment.


**Caution**

Potential for damage to system equipment. Damage to the system caused by the user may have potential warranty implications.


**Warning**

**Potential for personal injury.**

## Precautions for Rack-Mountable Products



### Warning

Installing system components in a rack without the front and side stabilizers installed could cause the rack to tip over. Therefore, always install the stabilizers before installing components in the rack.



### Warning

After installing system components in a rack never pull more than one component at one time out of the rack on its slide assemblies. The weight of more than one extended component could cause the rack to tip over.



### Warning

Do not step on or stand on any component when servicing other components in a rack.



### Warning

The chassis, when fully populated with leaf modules, spine modules, power and fan supplies, is very heavy (approximately 175 lbs.). It is recommended that a lifting device be used to handle a fully loaded chassis.



### Caution

Always load the rack from the bottom up, loading the heaviest item first.



### Caution

Make sure the rack is level and stable before extending any component from the rack.



### Note

Ensure that proper airflow is provided to components of the rack.

## Protecting Against Electrostatic Discharge



### Caution

Use a grounded wrist strap designed to prevent static discharge.



### Caution

Static electricity can harm delicate components inside the system. To prevent ESD damage, users need discharge any static electricity from their bodies before touching any electronic components. Touching an unpainted metal surface will discharge static electricity.



### Caution

When transporting an ESD sensitive component, first place it in an antistatic container or packaging.

## Electrical Safety Precautions



### Warning

Do not work alone when working with high voltage components.

**Warning**

**This unit may have more than one power cord. To reduce the risk of electrical shock, disconnect both cords before servicing the unit.**

**Warning**

**To avoid potential electrical shock, operate this unit only when the cover is in place.**

**Warning**

**To avoid potential electrical shock, use only a grounded (three wire) electrical outlet.**

**Warning**

**Keep objects that might damage this unit and liquids that might spill clear from this unit. Liquids and foreign objects that come into contact with voltage points could create the risk of fire or electrical shock.**

**Caution**

Do not overload the power supply branch circuit providing power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

**Caution**

Keep power cord and connection cables clear of obstructions that might cause damage.

**Caution**

Do not attempt to service the unit yourself. The first course of action is to contact Technical Support.

**Note**

Unplug this unit from the electrical outlet and refer servicing to a qualified service center if any of the following conditions occur:

- The power cord is damaged or frayed.
- The unit has been dropped or the case has been damaged.
- The unit has been exposed to any liquids.
- The unit does not operate normally when all operating instructions have been followed.
- The unit exhibits a distinct change in performance, indicating a need for service.

## Tools and Equipment Required

- An ESD wrist strap
- A #2 Phillips screwdriver
- Pen (felt-tip) to mark the mounting holes

## Check the Installation Site

The SFS 7024 switch is designed to be installed in an existing server cabinet (not a telco cabinet), where it can be mounted in a standard equipment rack. Mounting brackets are integrated with the switch.

Be sure of the following:

- The cabinet has a full earth ground to provide reliable grounding.
- There is enough room to work on the equipment.
- The equipment will have enough clearance for front and rear access.
- The IB cables can be accessed easily.
- Water or moisture cannot enter the switch.
- The ambient temperature stays between 50° - 113°F (10° - 45° C).
- Cabinet doors do not interfere with front-to-back air flow.

The cabinet should have its own power distribution (with switch). If the switch has two power supplies, it is suggested that a cabinet with dual power distribution units is used.

It is recommended that cabinet anti-tip devices are used. This is especially true if installing or removing an SFS 7024 switch in the upper half of the cabinet when the lower half is empty.

## Unpack the Equipment



### Warning

**Read all installation instructions before connecting the system to its power source.**

- Step 1** Carefully open the box and unpack the SFS 7024 switch. The SFS 7024 is shipped fully populated and should contain.
- SFS 7024 Chassis
  - Leaf modules (up to 24)
  - Leaf module blanks (up to 23). These blanks populate unused leaf module slots to help maintain the thermal integrity of the chassis.
  - Spine modules (up to 6)
  - Spine module blanks (up to 4). These blanks populate unused spine module slots to help maintain the thermal integrity of the chassis.
  - Power Supplies: up to twelve (12)
  - Power supply blanks (up to 6). These blanks populate unused power supply slots to help maintain the thermal integrity of the chassis.
  - Fans (8)
  - Mounting hardware kits
- Step 2** Inspect the equipment for any shipping damage and report any problems to the shipping company.
- Step 3** Verify that the equipment serial numbers match those on the packing slip.
- Step 4** Resolve any issues with incorrect serial numbers or missing/incorrect parts *before* installing the equipment.

## Installation Tasks

The following is an overview of the installation tasks detailed in this section:

- 
- Step 1** If applicable, remove the doors of the rack.
  - Step 2** Mark the rack, allowing 14 U (24.50 inches) of vertical space to install the SFS 7024 switch.
  - Step 3** Install the support rails.
  - Step 4** Rack mount the switch.
  - Step 5** If applicable, replace the rack's doors.

## Mounting Kit

The mounting kit hardware contains all of the necessary parts for installing and mounting the SFS 7024 switch into a rack. These kits are intended for use in cabinets with a depth ranging from 28 - 34 inches.



### Note

If the rack is less than 28", or more than 34" deep, instead of using the rails, a support shelf able to support 175 lbs is required.

---

### Mounting Hardware Kit Contents:

- **Kit Mounting Rails** containing:
  - One pair (left and right) of support rail assemblies
- **Kit Mounting Hardware 3/8" Square Hole** containing:
  - Eight 10/32" x 0.375" pan-head Phillips screws
  - Eight caged nut adapters for square-holed racks

## Mark the Rack

Allow 14U (24.50 inches) of vertical space to install the SFS 7024 switch in the rack.

- 
- Step 1** Determine the location on the rack of the bottom of the switch.
  - Step 2** Mark the upper and lower mounting positions on the vertical rails on the front of the rack.
  - Step 3** Mark the upper and lower mounting positions on the vertical rails on the back of the rack.

## Install the Rails in the Rack



### Note

The front flange (chassis fan side) of the rail has 3 holes. The back flange of the rail (chassis leaf module side) has two holes, which correspond to the bottom two holes on the front flange.

---

- 
- Step 1** Install the caged nuts into the 2 back holes (chassis leaf module side) and the top and bottom holes (chassis fan side) in the front of the rack.

**Note**


---

The 2 front holes should match up with the *top and bottom* holes of the rail front flange.

---

All holes should correspond to the rail mounting positions (i.e., the holes marked with pen or tape).

- Step 2** Fasten the rail back flange (chassis leaf module side) to the rack by installing two screws into the rail and rack.
- Step 3** Fasten the rail front flange (chassis fan side) to the rack by installing one screw into the top hole of each rail.

Install the second rail on the other side of the rack by repeating steps 1 through 3.

## Rack-Mount the Switch

**Caution**


---

Because of its size and weight, it is recommended that either a lifting device or three (3) people install the SFS 7024.

---

To install the switch into the rack, perform the following steps:

- 
- Step 1** Clear the area of any unnecessary materials.
- Step 2** Attach the clip of the ESD wristband (strap) to bare metal on the cabinet. Put the wristband around one wrist with the metal button against the skin.
- Step 3** Lift the switch and, from the front of the cabinet, slide it onto the rails. The fans and power supplies are on the *front* of the chassis; leaf modules are to the *rear*.

**Caution**


---

Never lift the switch with the handles on the spine modules, leaf modules, power supplies, and fan trays. These handles are not designed to support the weight of the SFS 7024.

---

- Step 4** Tighten the screw on the bottom of each side of the chassis into the corresponding bottom hole of the front flange of each rail.
- Step 5** If applicable, reinstall the chassis fascia(s).

## Installing the Switch Face Plate

To install the switch face plate(s):

- 
- Step 1** On the switch fan side, insert the notches on the top of the fascia into the two slots on the chassis frame. Snap the bottom of the faceplate in place.

## Installing the Spine and Leaf Modules

**Note**


---

The purchased configuration for the SFS 7024 is shipped fully populated. Follow these steps when it becomes necessary to install or replace spine modules and leaf modules.

---



**Step 1** Remove the necessary spine modules, spine module blanks, leaf modules, and leaf module blanks. For detailed instructions, please refer to the section [Removing a Module or Blank](#), page 2-18.



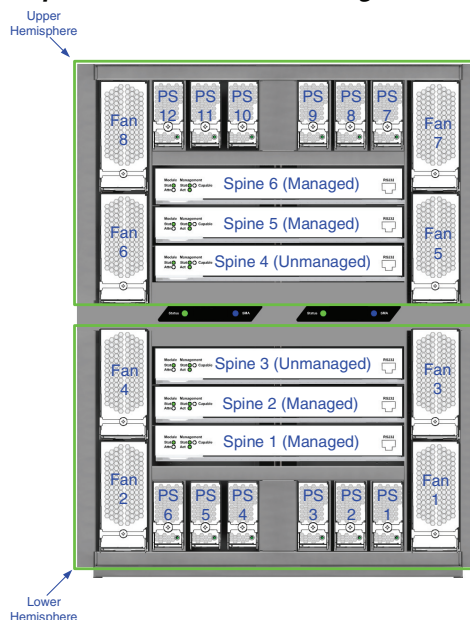
**Note** If the user is only adding additional modules, remove only the blank(s) for the slot(s) to be populated. These will not be replaced.

**Step 1** When placing the spine modules and leaf modules into chassis slots, the following recommendations apply:

- a. Spine Modules — It is recommended that the spine module(s) be installed into:
  - Lower Hemisphere: Slot 1 for managed. For redundant management, populate slots 1 and 2 with management-capable spines. Use slot 3 for unmanaged.
  - Upper Hemisphere: Slot 5 for managed. For redundant management, populate slots 5 and 6 with management-capable spines. Use slot 4 for unmanaged.

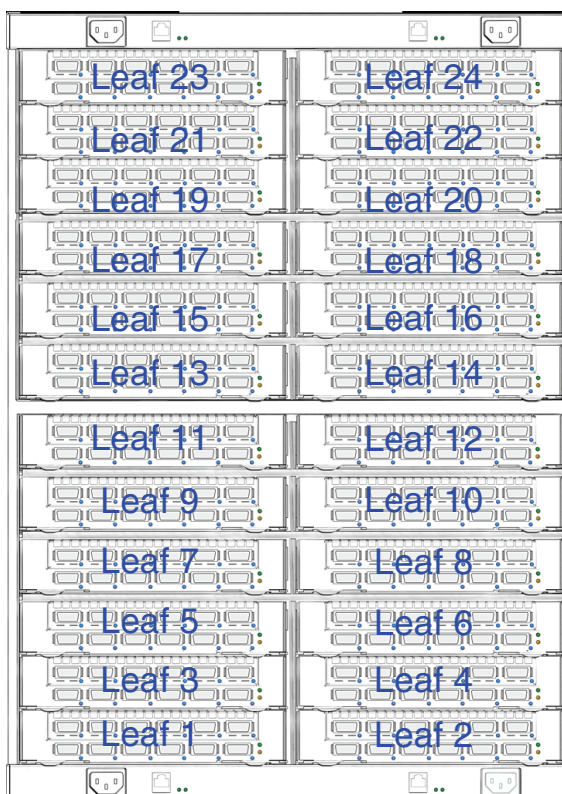
Refer to [Figure 2-4](#) below:

**Figure 2-4 SFS 7024 Chassis — Spine Module Slot Numbering**



- b. Leaf Modules— Leaf modules should be populated beginning with slot 1, then slot 2, then slots 3 through 24 respectively. Refer to [Figure 2-5](#):

**Figure 2-5 SFS 7024 Chassis — Leaf Module Slot Numbering**



- Step 2** To install a module or filler, hold it so that the ejector handles are on the bottom.
- Step 3** Pull the handles out to extend them. Slide the module into the appropriate slot of the chassis until it makes contact with the backplane. As the module seats in the chassis, the handles will begin to close.
- Step 4** Push the handles in to fully close.



**Note**

Be sure that all cards are fully inserted in their respective chassis slots, and that the handles are in the locked position. This prevents accidental removal, provides proper grounding for the system, and helps to seat the bus connectors in the backplane receptacles.

## Removing a Module or Blank

The handles are self-locking. To unlock, push up on the handles to disengage from the lock notch. Then gently pull the handles out and slide the module out of the slot.



**Note**

If removing, but not *replacing* a module, remember to replace with a module blank. All slots must be either populated with a module or have blanks for EMI and thermal integrity.

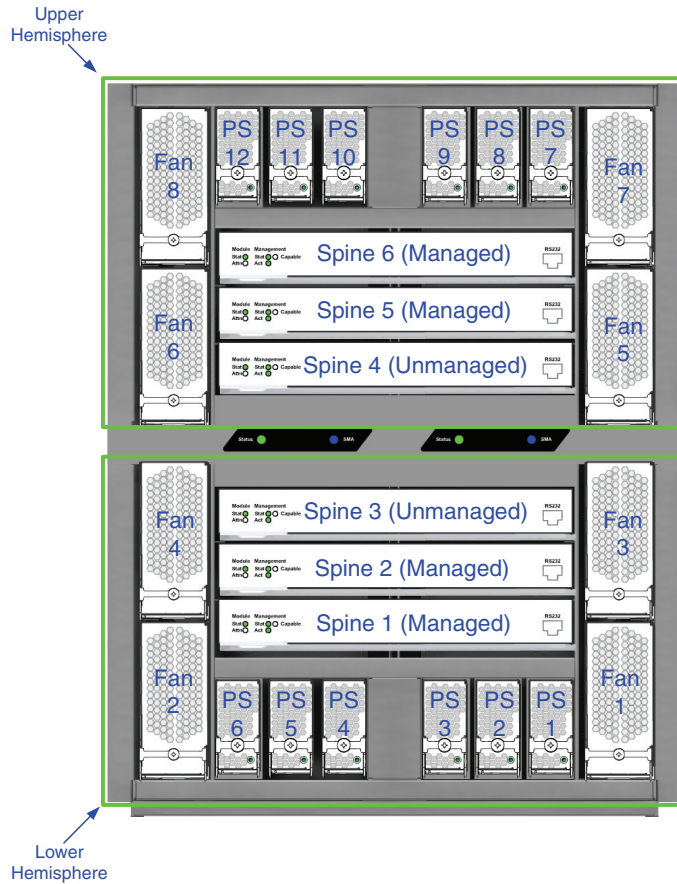
## Connect Equipment to the Ports and Power On the System

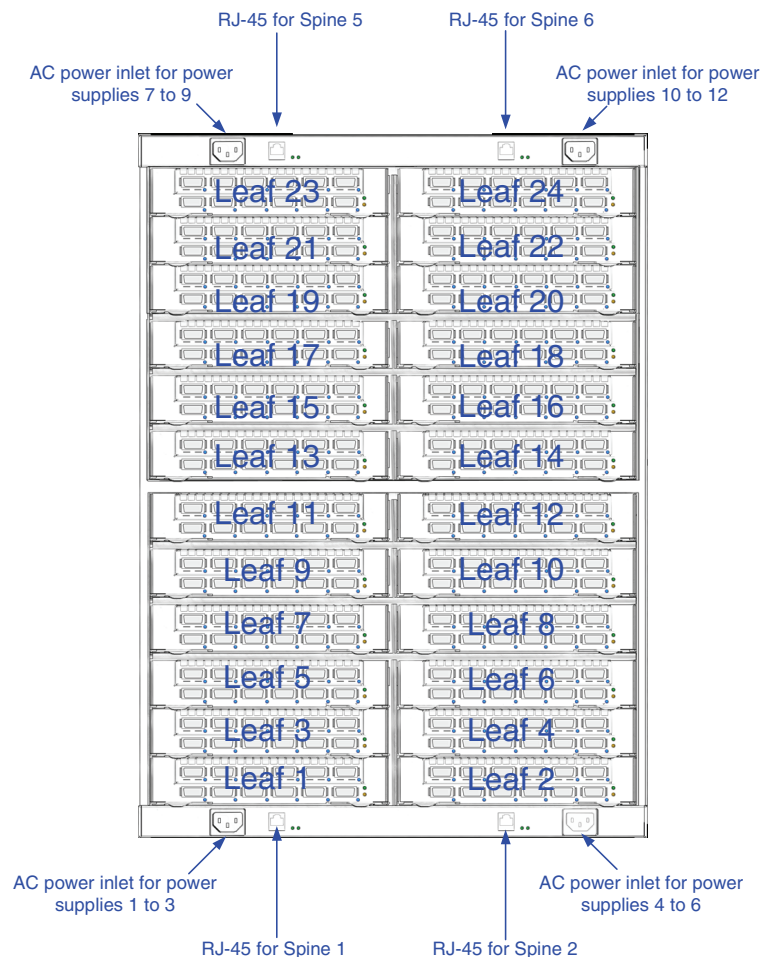


### Note

Before performing the tasks in this section, take a few minutes to review [Figure 2-6](#) and [Figure 2-7](#) below. It is important to understand the slot numbering for the leaf modules and spine modules (and the corresponding spine RJ-45 ports). It is also important to understand the slot numbering for the fans and power supplies (and the corresponding AC power inlets for the power supplies).

**Figure 2-6 SFS 7024 Chassis Front View**



**Figure 2-7 SFS 7024 Chassis Back View**

**Step 1** Connect a Category 5 or 6 (Cat 5/6) Ethernet cable to one of the RJ-45 connectors on the SFS 7024. Connect the other end of the Cat 5/6 to the OOB LAN workstation. Refer to [Figure 2-7](#) for which RJ-45 connector(s) to use:

**Step 2** Connect the switch to IB-enabled hosts using 4X-to-4X IB cables.

**Note**

Make sure all cables latch securely into the corresponding port connectors. If the IB cable connector is not properly oriented to fit onto the port receptacle (i.e., while attempting to insert the cable in the port), *do not* twist the connector to achieve the correct orientation. Instead, reach back a few feet on the cable, and twist the bulk cable to allow the connector to rotate to the proper orientation. Doing this prevents all of the rotational forces from acting right at the connector terminations.

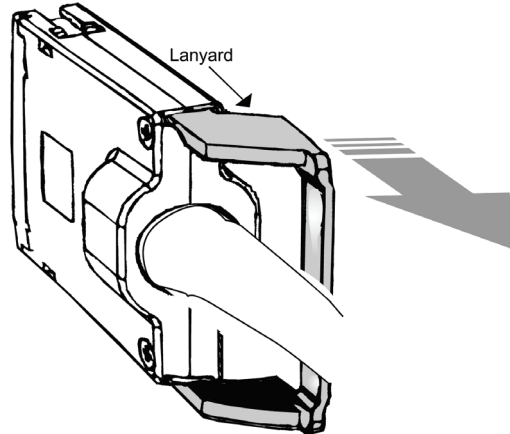
**Caution**

It is important to provide strain relief for the IB cable connector.

**Note**

When handling IB connectors, make certain to remove the connectors by pulling on the *center of the lanyard only* as shown in [Figure 2-8](#) below. Pulling abruptly on the lanyard, or pulling on only one side of the lanyard will prevent the latch/unlatch operation from occurring, and could damage or break the lanyard.

**Figure 2-8 4X IB Cable Connector**



## Connecting Power

**Step 1** Provide strain relief for the power cable(s).

**Note**

Be certain that the power cords are firmly seated into the SFS 7024 AC power inlets. Depending upon the purchased configuration, refer to [Figure 2-7](#) for which AC power inlet to use.

**Step 2** If necessary, replace the faceplates over the switch fans.

**Step 3** Connect the power cables to an AC power outlet.

**Step 4** When the SFS 7024 switch is plugged into an AC power outlet:

- a. The system powers up.
- b. The fans start.
- c. The system performs a power-on self test (POST).

**Step 5** The switch, power supply, and fan LEDs light up.

## Bringing Up the System For the First Time

### Start-up Procedures

**Step 1** Power up the SFS 7024.

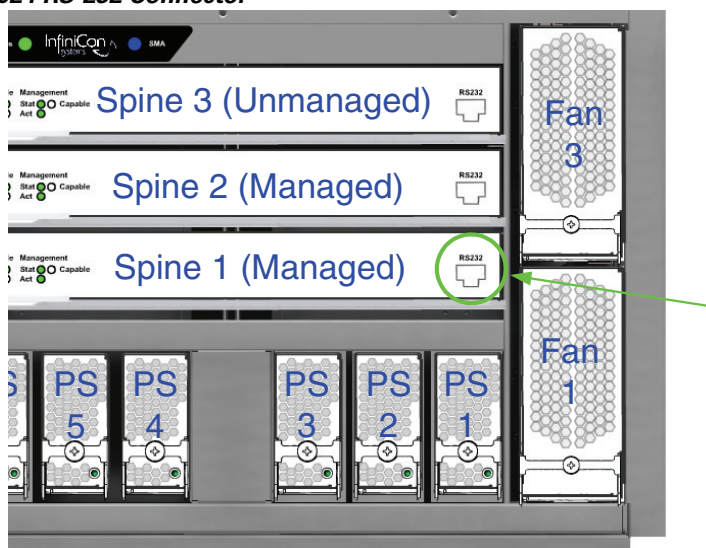
**Step 2** From its flash image on the CMU spine module, the switch begins its boot process.

**Note**

If the spine module RS-232 port is connected to a terminal emulation program, the user will be able to view the switch boot process. Be certain to use a *null-modem/crossover* serial cable for the console port. The settings for the terminal emulation device should be:

- 8 data bits
- no parity bits
- 1 stop bit
- 56K baud
- Use VT100 emulation.
- Flow control = XON/XOFF

**Figure 2-9 SFS 7024 RS-232 Connector**



**Step 3** Verify the IP address with the command line interface (CLI) command **showChassisIpAddr** command. The system returns the information similar to the following:

```
Chassis IP Address: 192.168.100.9 Net mask: 0xffffffff00
```

## Changing the SFS 7024 IP Address and Default Gateway via the CLI

**Note**

The following tasks must be performed for both the upper and lower hemispheres of the SFS 7024.

The CLI can be accessed via Telnet, SSH, or through the SFS 7024 RS232 serial ports.

**Step 1** Connect null-modem/crossover serial cables to the RS-232 ports of the SFS 7024. If using a terminal emulation device, the settings should be:

- 8 data bits
- no parity bits
- 1 stop bit

- 56K baud
- Use VT100 emulation.
- Flow control = XON/XOFF

**Step 2** Power up the SFS 7024.



**Note**

If using the RS-232 port, skip to **Step 6**. **Steps 3 through 5** are for those users accessing the SFS 7024 via Telnet or SSH.

**Step 3** If using Telnet or SSH, access the SFS 7024 with the following command:

```
open 192.168.100.9
```

**Step 4** The system prompts for a user name. In order to change the IP address and default gateway, the user must be logged in as the administrator. At the prompt enter:

```
admin
```

**Step 5** The system prompts for a password. At the prompt enter:

```
adminpass
```

The system responds with:

```
Welcome to the SFS 7024 CLI. Type 'list' for the list of commands.
```

**Step 6** To change the SFS 7024 default IP address enter:

```
setChassisIpAddr -h ipaddress -m netMask
```

where **-h ipaddress** is the new IP address in dotted decimal (i.e., xxx.xxx.xxx.xxx) format, and **-m netMask** is the new subnet mask in dotted decimal (i.e., xxx.xxx.xxx.xxx) format.

**Step 7** To change the SFS 7024 default gateway IP address enter:

```
setDefaultRoute -h ipaddress
```

where **-h ipaddress** is the new default gateway IP address in dotted decimal (i.e., xxx.xxx.xxx.xxx) format.

**Step 8** To to exit the CLI enter:

```
logout
```

## Updating Management Spine IP Addresses in a Redundant Management Configuration



**Note**

This procedure should be performed the first time the SFS 7024 is powered on. Additionally, it is recommended to change the managed spine IP address for all available images (i.e., Image 1 *and* Image 2) when performing this procedure.

Each managed spine must have a unique IP address that is different than the chassis IP address of the SFS 7024. Therefore, a redundantly-managed SFS 7024 will have six (6) unique IP addresses; three (3) for each hemisphere. The current default IP addresses are:

### Lower Hemisphere

- Chassis: 192.168.0.9
- Spine 1: 192.168.0.11
- Spine 2: 192.168.0.12

### Upper Hemisphere

- Chassis: 192.168.0.10



- Spine 5: 192.168.0.13
- Spine 6: 192.168.0.14

It is necessary for each managed spine to have a unique IP address for the following reasons:

- Unique IP addresses are used when sending syslog messages from a managed spine to a syslog server.
- Gives the user the ability to ping each management spine separately.
- If the IP addresses are not unique, collisions will occur, causing IP operations to fail.

To update the IP address on managed spine, do the following:

---

**Step 1** Ensure that the spine module is connected to a COM port on a serial terminal device via the RS-232 port.

**Step 2** Get to a **[boot] :** prompt by following Step a or b.

- a. If the managed spine is running, enter the following command at the console:

```
reboot
```

Then press **Enter**.

- b. If the managed spine is not running, power on the switch.

**Step 3** After selecting **image1** or **image2**, press the **Spacebar** to interrupt the auto load sequence before the counter expires (within 5 seconds).

**Step 4** At the **[boot] :** prompt enter the new spine IP address with the following syntax:

```
spineip <NEW IP ADDRESS>
```

Then press **Enter**.

**Step 5** At the **[boot] :** prompt, enter **reboot**, and press **Enter**. Upon reboot the managed spine will display information similar to the following:

```
Unified Boot Manager For The T3 Platform.
Image Date: Jan 19 2006, 15:03:31
Checking L2 functionality...
BCM1125
L2 caches initialized and invalidated
CPU0 caches initialized
Initialized SMBUS Channels
SPD Checksum ok.
MEM_SEL = 0x00000007
CPU_REV = 0x00000001_112421FF
CPU speed = 400 MHz
IO Bridge 0,1 speed = 133, 200 MHz
Memory size = 128 MB
MC1 Configured for 128M SODIMM, CAS=2, 100 MHz
Configured Memory Size = 0x08000000
Channel Interleave Bit = 0
Number of Mem Channels = 1
Testing memory
Memory tests pass
CPU0 flushing caches
L2 flush complete
Start type = 0xBFC006A0
Jumping to romStart
Initializing HyperTransport bus
HyperTransport initialization completed
rintf MBOX connect interrupt_source=28 vector=62 status=0
Printf MBOX intEnable status=0
Found Intel Strata Flash 128 MBit (0x8918).
Mounted raw file system on device /image1. (size=6291456 bytes)
Mounted raw file system on device /image2. (size=6291456 bytes)
```



```
Mounted raw file system on device /dump0. (size=1048576 bytes)
Mounted flash file system on device /rfa1. (size=2097152 bytes)
```

```
Unified Boot Manager
[1] image1
[2] image2
```

```
CPU: Broadcom BCM1125
VxWorks Version: 5.4
```

```
[boot]:
```

```
Unified Boot Manager For The T3 Platform.
Image Date: Jan 19 2006, 15:03:31
Checking L2 functionality...
BCM1125
L2 caches initialized and invalidated
CPU0 caches initialized
Initialized SMBUS Channels
SPD Checksum ok.
MEM_SEL = 0x00000007
CPU_REV = 0x00000001_112421FF
CPU speed = 400 MHz
IO Bridge 0,1 speed = 133, 200 MHz
Memory size = 128 MB
MC1 Configured for 128M SODIMM, CAS=2, 100 MHz
Configured Memory Size = 0x08000000
Channel Interleave Bit = 0
Number of Mem Channels = 1
Testing memory
Memory tests pass
CPU0 flushing caches
L2 flush complete
Start type = 0xBFC006A0
Jumping to romStart
Initializing HyperTransport bus
HyperTransport initialization completed
rintf MBOX connect interrupt_source=28 vector=62 status=0
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Mounted raw file system on device /image2. (size=6291456 bytes)
Mounted raw file system on device /dump0. (size=1048576 bytes)
Mounted flash file system on device /rfa1. (size=2097152 bytes)
```

```
Unified Boot Manager
[1] image1
[2] image2
```

```
CPU: Broadcom BCM1125
VxWorks Version: 5.4
```

```
boot device      : icspkg0
processor number  : 0
host name        : home
file name        : /image1
inet on ethernet (e) : <NEW IP ADDRESS>
inet on backplane (b):
host inet (h)     : 192.168.100.1
gateway inet (g)  :
user (u)          : ftp
ftp password (pw) (blank = use rsh): ftp
flags (f)         : 0x0
target name (tn)  :
```

```

startup script (s)      :
other (o)               : sbe

Loading package from flash device /image1 ...
Boot System             = 7024
Boot Image Information:
  Product               = SFS7012
  BSP                   = t3
  Version               = 3.3.0.0.4
  Compressed Image Size = 3616523 bytes
  md5                   = 46086777be1b5bae45140a440425b915
  vxWorks Image Type   = loadable
  Computed md5         = 46086777be1b5bae45140a440425b915
  md5 values match!
11088736
Starting at 0x80010000...

sysI
REGS
BOOT
Initializing HyperTransport bus
HyperTransport initialization completed
Found Intel Strata Flash 128 MBit (0x8918).
Mounted raw file system on device /image1. (size=6291456 bytes)
Mounted raw file system on device /image2. (size=6291456 bytes)
Mounted raw file system on device /dump0. (size=1048576 bytes)
Mounted flash file system on device /rfa1. (size=2097152 bytes)
Network configuration requested.
cliEnabled=1

sbe0 speed=100 fullDuplex=0 flowControl=0
sbe1 speed=100 fullDuplex=1 flowControl=0

```

**Note**


---

The command **spineip** changes the IP address for **image1** and **image2**,

---

**Verifying Start-up**

The following are ways to determine that the system has started successfully:

- The IB link status indicator LEDs are lit up on the switch ports which are connected to an IB host.
- The user is able to bring up the Chassis Viewer (for each hemisphere) through a web browser on the OOB LAN. The home page displays the front and back views of the SFS 7024 switch.

**SFS 7024 Component LEDs****Chassis Status LED**

The chassis status LED is **Green** when the system is functioning normally.

The chassis status LED is **Amber** when one of the following conditions exists:

- The system ambient temperature exceeds 52 C but remains less than 60 C.
- Any Fan Alarm is amber.
- Any power supply AC OK LED is off.
- Any power supply DC OK LED is off

- Any spine module Attention LED is on, or it has been determined that a spine is not functioning (even if it is unable to light the LED).
- Any leaf module Attention LED is on, or it has been determined that a leaf is not functioning (even if it is unable to light the LED).

The chassis status LED is **Red** when the system can no longer function properly and indicates one of the following conditions:

- The system ambient temperature exceeded 60 degrees C.
- No functional fan trays are present.
- No functional spines are present.
- No functional leaves are present.

The chassis status LED is **off** when:

- There are no functional power supplies present.
- There are no management cards in the system
- AC power has been removed from the system.

### Subnet Manager Agent (SMA) LED

There is a single SMA LED associated with the system. This LED is **Blue** if any external InfiniBand links have been established. If no external IB links have been established, the LED is **off**.

### RJ45 LEDs

The SFS 7024 RJ45 connector has two LEDs, **Act** and **100**. The **100** LED is **Green** when a 100Mbps link is connected. The **Act** LED is **Green** when an Ethernet link has been established, and blinking when the link is active.

### Fan LEDs

Fan LEDs indicate the following status(es):

- **Green** indicates that the fan is functioning properly.
- **Amber** indicates that the following warning condition exists:
  - A single fan rotation failure at less than 4000 RPM or greater than 10950 RPM.
- **Red** indicates a possible problem, including:
  - The fan tray is not responding to commands for configuration and temperature-related operations.
  - A fan is not responding to commands for temperature and speed related operations.
  - The fan speed has fallen below the minimum allowed RPM for a fan.

### Power Supply LEDs

Each SFS 7024 power supply has two LEDs: DC OK and AC OK. Following are the statuses for each.

#### DC OK

- **Green** indicates that DC power is normal.
- **Off** indicates a DC power failure or no DC power is present.

**AC OK**

- **Amber** indicates that AC power is normal.
- **Off** indicates a AC power failure or no AC power is present.

**SFS 7024 Leaf and Spine Module LEDs****Leaf Module IB Port LEDs**

Each SFS 7024 leaf module port has a **Blue** IB link status LED that provide the following indications:

- **On** - the logical link is up (port is in the Active state).
- **Slow Blink** - the physical link is up (port is in the Initialization state).
- **Fast Blink** - IB data is flowing through the port.
- **Off** - the physical link is down (port is in the Down state).

**Spine and Leaf Module Status LED**

The status LED indicates one of the following conditions:

- Steady **Green** - the module is operating normally.
- Blinking **Green** (twice per second) - transitioning to the removal state.
- Blinking **Green** (once every four seconds) - LED test state.
- **Off** - module is in the removable state.

**Spine and Leaf Module Attention LED**

The Attention LED indicates one of the following conditions:

- **Off** - the system functioning normally.
- Steady **Amber** - the system requires some attention, which could indicate one of the following conditions:
  - The switch temperature is at a warning level on the module.
  - The switch silicon temperature is at a warning level (approximately 90 degrees C).
  - DC voltages on the board are slightly out of tolerance (12V Bulk, 5V, 3.3V, 1.8V, VBIO are all monitored).
  - The module can no longer function properly. The system will take the appropriate actions to ensure that no damage is done to its components.
- Blinking **Amber** (once every four seconds) - LED test state.

**Spine Module Management LEDs**

Each SFS 7024 spine module has three management LEDs:

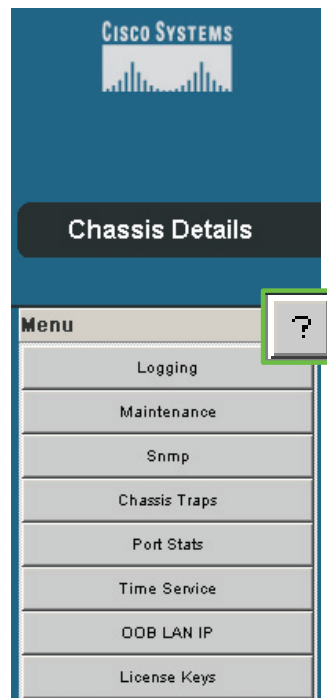
- Capable:
  - **Green** indicates that the spine slot supports management.
  - **Off** indicates that the spine slot does not support management.
- Stat:

- **Green** indicates that a management board is present.
- **Off** indicates that no management board is present.
- Act:
  - **Green** indicates that management board is in the active mode.
  - **Off** indicates that the management board is in the standby mode (if the STAT LED is **Green**).

## Accessing On-line Help

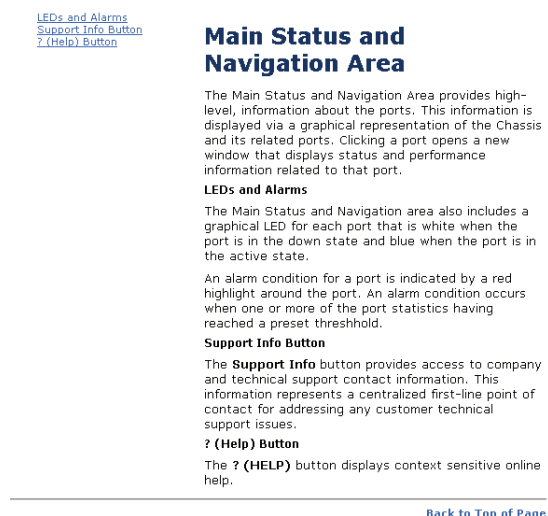
Online help can be accessed from anywhere within the Chassis Viewer by clicking on the ? buttons as shown in [Figure 2-10](#):

**Figure 2-10 Chassis Viewer Online Help Button(s)**



The on-line help screens contain topical information with textual references to more detailed information within the documentation. A sample on-line help screen is shown in [Figure 2-11](#):

**Figure 2-11 Sample Chassis Viewer On-line Help Screen**



## Shutdown Procedures

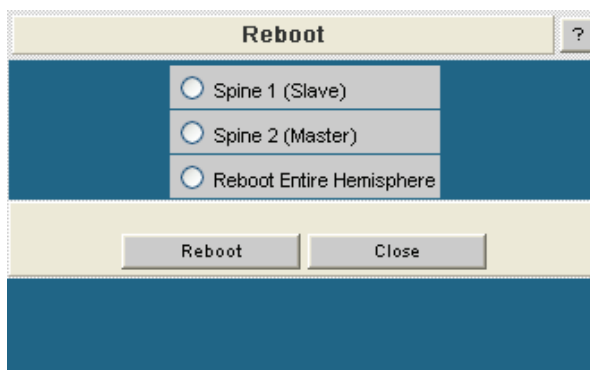
In order to shutdown the SFS 7024:

- 
- Step 1** Power down the switch by removing the power cords from the AC power inlets.

## Rebooting Components from Chassis Viewer

- 
- Step 1** From the **Chassis Details** header, click **Reboot**. A screen similar to the following is displayed.

**Figure 2-12 Reboot Window**



- Step 2** Select the radio button of the spine to be rebooted, or select the radio button to reboot the entire hemisphere.
- Step 3** Click **Reboot**.

## Rebooting Multiple Managed Spines

In a redundant management configuration it may occasionally be necessary for the user to reboot both managed spines in a hemisphere. This is accomplished through the CLI of the master spine.

---

**Step 1** Access the master spine CLI via Telnet, SSH, or through the SFS 7024 RS232 serial ports.

**Step 2** The system prompts for a user name. At the prompt enter:

`admin`

**Step 3** The system prompts for a password. At the prompt enter:

`adminpass`

The system responds with:

`Welcome to the SFS 7024 CLI. Type 'list' for the list of commands.`

**Step 4** To reboot multiple spines on the SFS 7024 enter the following command:

`reboot now -m -n`

where:

- **now** initiates the reboot process as soon as the user presses **Enter** (i.e., no system **y/n** prompt).
- **-m** reboots just the management card of the master spine. This is a non-disruptive reboot (i.e., the reboot will not interfere with any switch traffic).
- **-n** reboots just the management card of the slave spine (in a non-disruptive manner).



### Note

If accessing the CLI through Telnet or SSH, the user will need to reconnect to the CLI following the reboot.

---

## Hot Swapping Components

### Hot Swapping Spine and Leaf Modules



### Note

Following are the general guidelines for hot swapping leaf and spine modules:

---



### Caution

Be certain that the managed spine to be hot swapped is at the same firmware level as all other components in the SFS 7024. A hot swap of a managed spine with another firmware level will cause a disruptive reboot (i.e., I/O traffic is interrupted).

---

- Hot swap one module at a time, allowing the chassis to completely update it before hot-swapping the next module. The module update is complete when it becomes visible within the Chassis Viewer GUI. Listed below are the approximate times to fully update each module type:
  - Spines modules: up to 4 minutes
  - Leaf modules: up to 2 minutes
- When a management spine is hot swapped, the rest of the chassis will continue to move packets without interruption.
- There is no need to reboot the chassis when replacing either a spine or leaf module.

- 
- Step 1** Remove the module by pushing up on the handles to disengage from the lock notch. Once the handles are disengaged, gently pull the handles out and slide the module out of the slot.
  - Step 2** To install a module, hold it so that the ejector handles are on the bottom.
  - Step 3** Pull the handles out to extend them. Slide the module into the appropriate slot of the chassis until it makes contact with the backplane. As the module seats in the chassis, the handles will begin to close.
  - Step 4** Push the handles in to fully close.

## Hot Swapping the Fan Unit

- 
- Step 1** Loosen the captive panel screw.
  - Step 2** Pull the panel screw down to partially disengage the unit.
  - Step 3** Slowly pull the unit. The unit will disengage from the connector.
  - Step 4** Carefully slide the fan out until it is completely removed from its slot.

To install a fan unit:

- 
- Step 1** Place the unit into the slot. Slowly slide the fan unit in until it engages into the connector.
  - Step 2** Using the panel screw, push up to re-engage the unit.
  - Step 3** Tighten the captive panel screw.

## Hot Swapping Power Supplies

The SFS 7024 switch requires a minimum of four power supplies for normal operation. Power supplies can be hot swapped without powering down the switch. To replace a power supply:

- 
- Step 1** Loosen the captive panel screw.
  - Step 2** Pull the panel screw down to partially disengage the unit.
  - Step 3** Slowly pull the unit. The unit will disengage from the connector.
  - Step 4** Carefully slide the power supply out until it is completely removed from its slot.
  - Step 5** To install a power supply:
  - Step 6** Place the unit into the slot. Slowly slide the power supply in until it engages into the connector.
  - Step 7** Using the panel screw, push up to re-engage the unit.
  - Step 8** Tighten the captive panel screw.
-





## Operations and Administration

---

This chapter describes how to administer and configure the Cisco SFS 7024™ and its components, and it includes the following information:

- [Logging, page 3-45](#)
- [Firmware Update, page 3-50](#)
- [SNMP, page 3-51](#)
- [Chassis Traps, page 3-56](#)
- [SFS 7024 Port Statistics, page 3-59](#)
- [License Keys; Key Administration, page 3-72](#)

### Chassis Viewer

The Chassis Viewer is Cisco's browser-based management software. The Chassis Viewer provides the primary management interface for each hemisphere of the SFS 7024 switch (one Chassis Viewer for each hemisphere), allowing the user to perform management, configuration, and monitoring tasks related to InfiniBand networks.

- The Chassis Viewer runs on the Chassis Management Unit (CMU) of the SFS 7024 managed spine modules.
- The browser must be on a workstation which has connectivity to the RJ-45 OOB LAN port on the switch.
- Management Workstation Requirements
  - Browser Level: Internet Explorer 5.5+ or Mozilla 1.6.x+
- To access the Chassis Viewer, point a browser to the IP address of the SFS 7024.

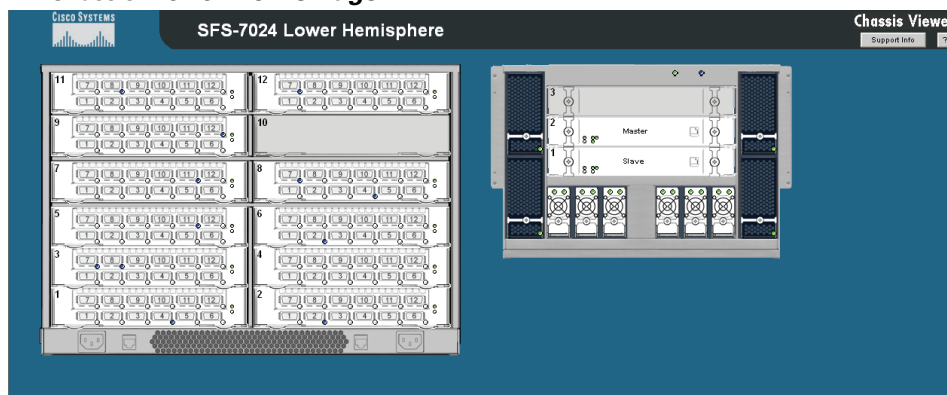
### The Chassis Viewer Manages

For each hemisphere:

- The SFS 7024 chassis.
- Each SFS 7024 leaf module.
- Each SFS 7024 spine module.
- Logging and monitoring functionality.

## Home Page

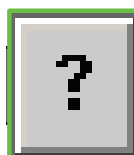
**Figure 3-1 Chassis Viewer Home Page**



The Chassis Viewer's home page provides a high-level overview of each hemisphere of the SFS 7024 switch and individual leaf and spine modules. This area is the starting point to more detailed information for the SFS 7024 chassis and components (fans and power supplies), leaf modules, and spine modules. The selected component provides hyperlinks to related menus and information where the user can perform configuration and monitoring tasks.

## ? (Help) Button

**Figure 3-2 Help Button**



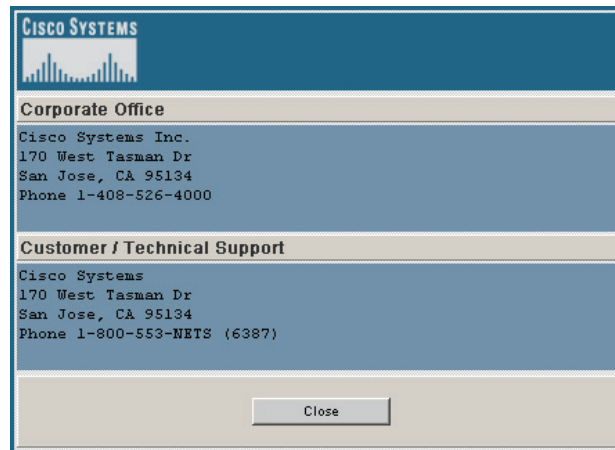
The ? (**HELP**) button displays online help. Each help screen gives the user a high-level, topic-specific description.

## Support Button

**Figure 3-3 Support Button**



The Support button displays key contact information for support, displayed in the following window:

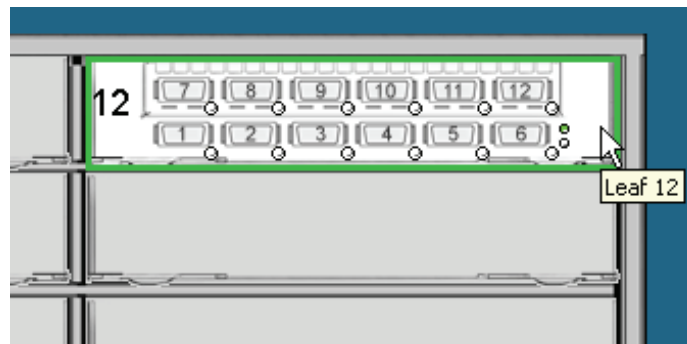
**Figure 3-4 Support Contact Screen**

## Displaying the Leaf and Spine Module Views

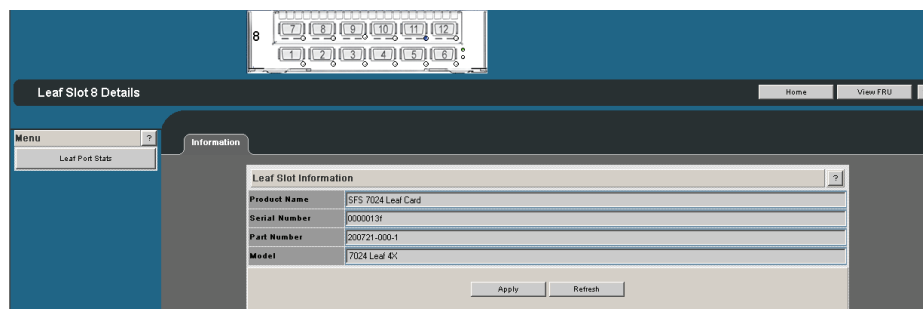
### Leaf Module View

To display the leaf module view for the SFS 7024:

- Step 1** Mouse over the leaf module to display. The edges of the leaf module are highlighted green as shown in Figure 3-5 below:

**Figure 3-5 Leaf Module Mouseover**

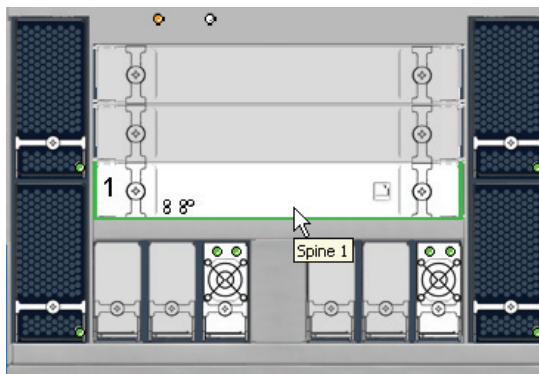
Left click the mouse. The leaf module view will be displayed.

**Figure 3-6 Leaf Module View**

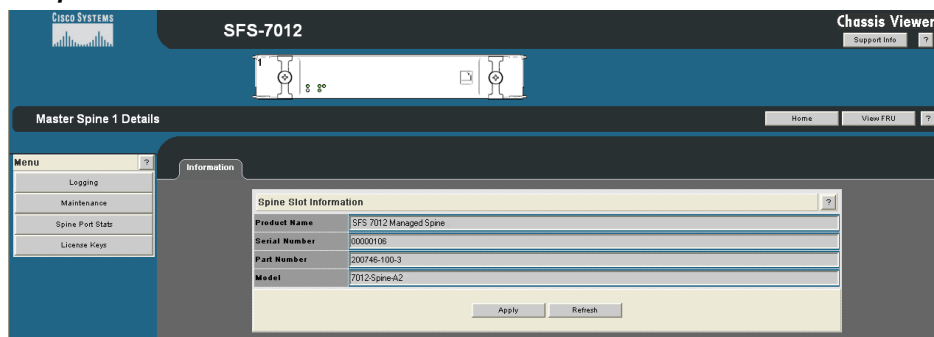
## Spine Module View

To display the spine module view for the SFS 7024:

- Step 1** Mouse over the spine module to display. The edges of the spine module are highlighted green as shown in Figure 3-7 below:

**Figure 3-7 Spine Module Mouseover**

Left click the mouse. The spine module view will be displayed.

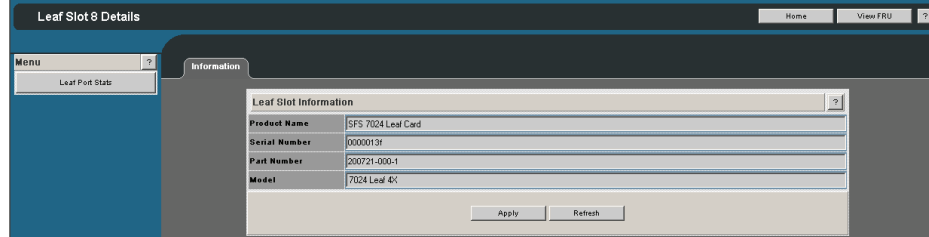
**Figure 3-8 Spine Module View**

## Leaf and Spine Module Component Details Area

The **Component Details Area** contains three areas.

- Details Header
- Information area.
- Menu

**Figure 3-9 Leaf and Spine Component Details Area**



## Leaf and Spine Details Header

The leaf and spine Details Header allows the user to execute the most common tasks for the SFS 7024 switch:

- Display the applicable hemisphere Home page
- View field-replaceable unit (FRU) information.
- Access online help

**Figure 3-10 Leaf and Spine Details Header**



## Leaf and Spine Information Area

The **Leaf and Spine Information Area** allows the user to view high-level information for each specific leaf or spine module. The information area contains two different fields:

- The white fields allow the user to add or modify applicable general and system information which is specific to their environment.
- The gray fields are tied to live data from the selected hardware component as well as live system information.

Additionally, the Component Information Area has **Apply** and **Refresh** buttons, which perform the following functionality:

**Apply:**

Saves any user edits within the white fields to flash memory.

**Refresh:**

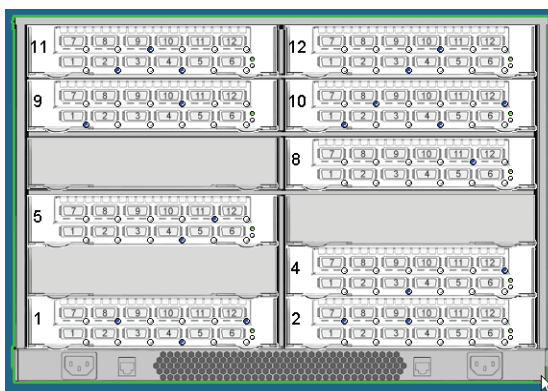
Refreshes all fields in the information areas.

## Displaying the Chassis View

There are two ways to display the chassis view for the SFS 7024:

- Step 1** Mouse over the outer region of the leaf module view. The edges of the chassis are highlighted green as shown in Figure 3-11 below:

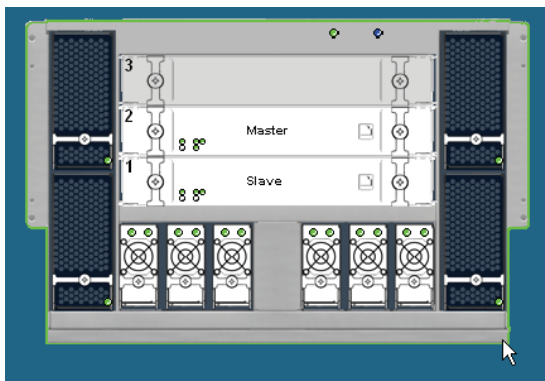
**Figure 3-11 Leaf Module Chassis Mouseover**



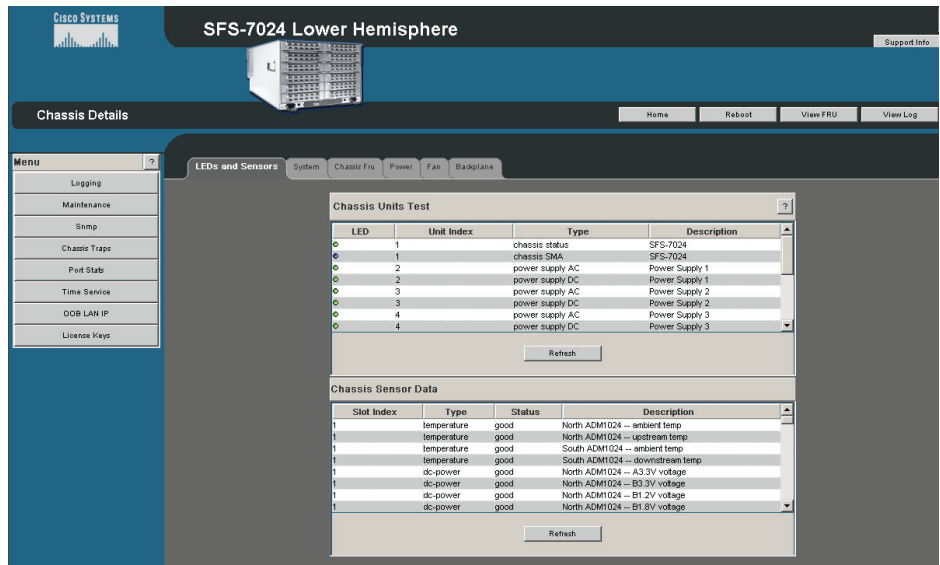
Left click the mouse. The chassis view will be displayed.

- Step 2** The second way is to mouse over the outer region of the spine module view. The edges of the chassis are highlighted green as shown in Figure 3-12 below:

**Figure 3-12 Spine Module Chassis Mouseover**



Left click the mouse. The chassis view will be displayed.

**Figure 3-13 Chassis Viewer Component Details Area**

## Chassis View Component Details Area

The **Component Details Area** contains three areas.

- Details Header
- Information area.
- Menu

## Chassis Details Header

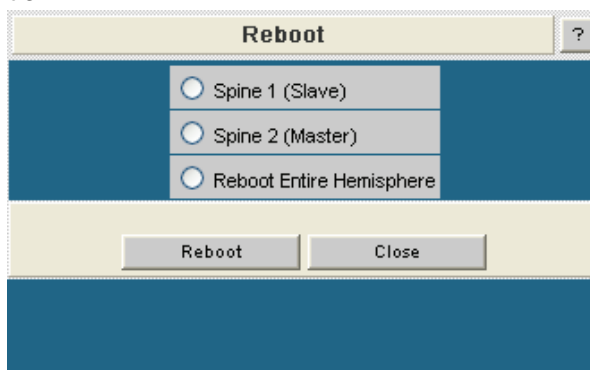
The Chassis Details Header allows the user to execute the most common tasks for the SFS 7024 switch:

- Display the applicable hemisphere Home page
- Reboot
- View FRU
- View Log

**Figure 3-14 Chassis Details Header**

## Rebooting Components from Chassis Viewer

**Step 1** From the **Chassis Details** header, click **Reboot**. A screen similar to the following is displayed.

**Figure 3-15 Reboot Window**

- Step 2** Select the radio button of the spine to be rebooted, or select the radio button to reboot the entire hemisphere.
- Step 3** Click **Reboot**.

### Rebooting Multiple Managed Spines

In a redundant management configuration it may occasionally be necessary for the user to reboot both managed spines in a hemisphere. This is accomplished through the CLI of the master spine.

- 
- Step 1** Access the master spine CLI via Telnet, SSH, or through the SFS 7024 RS232 serial ports.
- Step 2** The system prompts for a user name. At the prompt enter:
- ```
admin
```
- Step 3** The system prompts for a password. At the prompt enter:
- ```
adminpass
```
- The system responds with:
- ```
Welcome to the SFS 7024 CLI. Type 'list' for the list of commands.
```
- Step 4** To reboot multiple spines on the SFS 7024 enter the following command:
- ```
reboot now -m -n
```
- where:
- **now** initiates the reboot process as soon as the user presses **Enter** (i.e., no system **y/n** prompt).
  - **-m** reboots just the management card of the master spine. This is a non-disruptive reboot (i.e., the reboot will not interfere with any switch traffic).
  - **-n** reboots just the management card of the slave spine (in a non-disruptive manner).



#### Note

If accessing the CLI through Telnet or SSH, the user will need to reconnect to the CLI following the reboot.



## Chassis View Component Information Area

**Figure 3-16 Component Information Area**

Chassis System Information	
Out of Band LAN IP	172.26.0.235
Net Mask	255.255.240.0
System Description	SFS 7024 Firmware Version: 3.0.0.0.8, Apr 8 2006
IB Node Description	System 1, Rack 3 <span>Field Default</span>
System Uptime	0 Day(s), 0 Hour(s), 31 Minute(s), 45 Second(s)
System Contact	--Empty, No Value Set--
System Name	--Empty, No Value Set--
System Location	--Empty, No Value Set--

The **Chassis View Component Information Area** allows the user to monitor important information for each specific hardware component, as well as important system information. The information area is comprised of two different fields:

- The white fields allow the user to add or modify applicable general and system information which is specific to their environment.
- The gray fields are tied to live data from the selected hardware component as well as live system information.

Additionally, the Component Information Area has **Apply** and **Refresh** buttons, which perform the following functionality:

**Apply:**

Saves any user edits within the white fields to flash memory.

**Refresh:**

Refreshes all fields in the information areas.

## Chassis View Component Information Area Tabs

The tabs along the top of the information area present information about the following components:

- LED and sensor information
- Overall system information
- Switch Field Replaceable Unit (FRU) Information
- Power supply information
- Fan information
- Switch backplane information

### LEDs and Sensors Tab

The LEDs and Sensors tab displays for the applicable hemisphere:

- Switch component LED information for chassis status, chassis SMA, fan and power supplies.
- Slot-based temperature and AC-power sensor data for the internal switching complex.

**Figure 3-17 LEDs and Sensors Tab**

LED	Unit Index	Type	Description
1	1	chassis status	SFS-7024
1	1	chassis SMA	SFS-7024
2	2	power supply AC	Power Supply 1
2	2	power supply DC	Power Supply 1
3	3	power supply AC	Power Supply 2
3	3	power supply DC	Power Supply 2
4	4	power supply AC	Power Supply 3
4	4	power supply DC	Power Supply 3

Slot Index	Type	Status	Description
1	temperature	good	North ADM1024 -- ambient temp
1	temperature	good	North ADM1024 -- upstream temp
1	temperature	good	South ADM1024 -- ambient temp
1	temperature	good	South ADM1024 -- downstream temp
1	dc-power	good	North ADM1024 -- A3.3V voltage
1	dc-power	good	North ADM1024 -- B3.3V voltage
1	dc-power	good	North ADM1024 -- B1.2V voltage
1	dc-power	good	North ADM1024 -- B1.8V voltage

**Note**

For a detailed explanation of physical LEDs on the hardware components, please refer to the section [SFS 7024 Component LEDs, page 2-26](#).

**System Tab**

The System tab displays the overall system information for the applicable hemisphere of the SFS 7024. This information includes the following items:

**Out of Band LAN IP**

The IP address for the applicable hemisphere of the switch. Note that changes to this field only take effect after a switch power cycle (i.e., shutting the switch and powering it back up). The IP address of the switch can be changed by the administrator.

**Netmask**

The current net mask settings for the Chassis. Note that changes to this field only take effect after a chassis power cycle (i.e., shutting down the chassis and powering it back up). The net mask of the chassis can be changed by the administrator.

**System Description**

A textual description of the system, which can be assigned by the administrator.

**IB Node Description**

Assigned by the administrator, the IB node description is an IB fabric-applicable name that will be displayed within a subnet manager GUI. Note that changes to this field will only take effect after a the chassis is rebooted. To reset this field to the default setting, click the **Field Default** button.

**Note**

If the IB Node Description field has been changed since the last reboot of either spine, the next reboot will be treated as disruptive.

**System Uptime**

The elapsed time since the last time the applicable hemisphere was re-initialized.

**System Contact**

The textual identification of the contact person and their contact information for this system, assigned by the administrator.

**System Name**

The name for the system, assigned by an administrator. One convention is to use the system's fully qualified domain name as the **System Name**.

**System Location**

The location of the system, assigned by an administrator.

**Apply Button**

Saves any changes made by the user in the System tab to memory.

**Refresh Button**

Refreshes all fields in the System tab.

**Chassis FRU Tab**

The Chassis FRU tab displays switch Field Replaceable Unit (FRU) information. This information includes the following items:

**Type**

The type of component.

**Description**

A description of the component, assigned by an administrator.

**Alias Name**

Name of the component, assigned by an administrator.

**Serial Num**

Component serial number

**Detail**

A button for each row that displays additional detail about the component. Additional details include: Part Number, Model, Version, Manufacturer Name, Product Name, Manufacturer Identification, and Manufactured Date.

**Apply Button**

Saves any changes made by the user in the Chassis FRU tab to memory.

**Refresh Button**

Refreshes all fields in the Chassis FRU tab.

**Power Tab**

The Power tab displays switch power supply information. This information includes the following items:

**Description**

A description of the component, assigned by an administrator.

**Status**

Displays the status of the component.

**Part Num**

Displays the part number of the component.

**Detail**

A button for each row that displays additional detail about the component. Additional details include: Model, Version, Manufacturer Name, Product Name, Manufacturer Id, Manufactured Date

### Apply Button

Saves any changes made by the user in the Power tab to memory.

### Refresh Button

Refreshes all fields in the Power tab.

## Fan Tab

The Fan tab displays switch fan information. For descriptions of the fields, see the Power Tab.

## Backplane Tab

The Backplane tab displays switch backplane information. For descriptions of the fields, see the Power Tab.

Additionally, the user can add or modify applicable Switch component information, which is specific to their network environment.

## Modifying Switch Component Information

Following is the procedure for modifying the fields for switch components:

- Step 1** Select the applicable tab; **System**, **Chassis FRU**, **Power**, **Fan**, or **Backplane**.
- Step 2** Click on the row to be modified. The row changes to orange.
- Step 3** In the text boxes, enter information which is applicable to the existing network environment.
- Step 4** To save, click the **Apply** button at the bottom of the screen.

**Figure 3-18 System Information Area**

Chassis System Information	
Out of Band LAN IP	172.26.0.235
Net Mask	255.255.240.0
System Description	SFS 7024 Firmware Version: 3.3.0.0.8, Apr 8 2006
IB Node Description	System 1, Rack 3 <span style="float: right;">Field Default</span>
System Uptime	0 Day(s), 0 Hour(s), 31 Minute(s), 45 Second(s)
System Contact	--Empty; No Value Set--
System Name	--Empty; No Value Set--
System Location	--Empty; No Value Set--

# Configuration and Monitoring Features

The following section provides detailed, task-oriented descriptions for configuring and monitoring the SFS 7024 switch and its feature functionality.

## Chassis View Menu

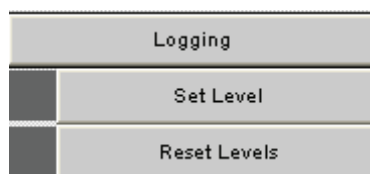
**Figure 3-19 Chassis View Menu**



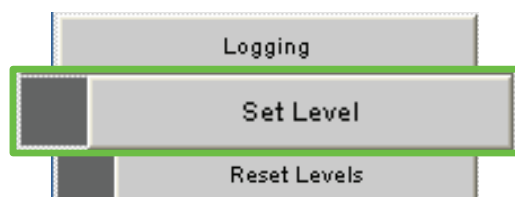
The **Chassis View Menu** allows the user to execute all configuration and operation tasks available for the SFS 7024 switch.

## Logging

The Logging submenu allows the user to set and reset levels for the message log file.

**Figure 3-20 Logging Submenu**

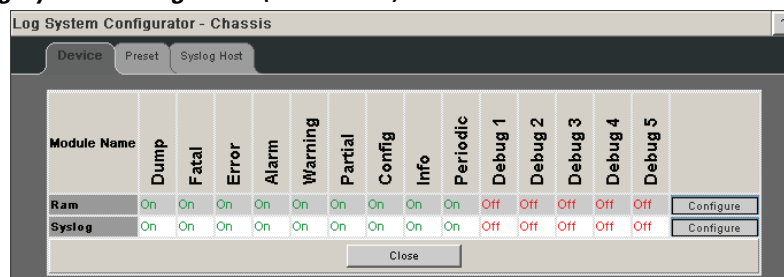
## Set Level

**Figure 3-21 Set Level Button**

The Set Level button allows the user to set log level configuration parameters for all software modules on the SFS 7024.

To set log levels:

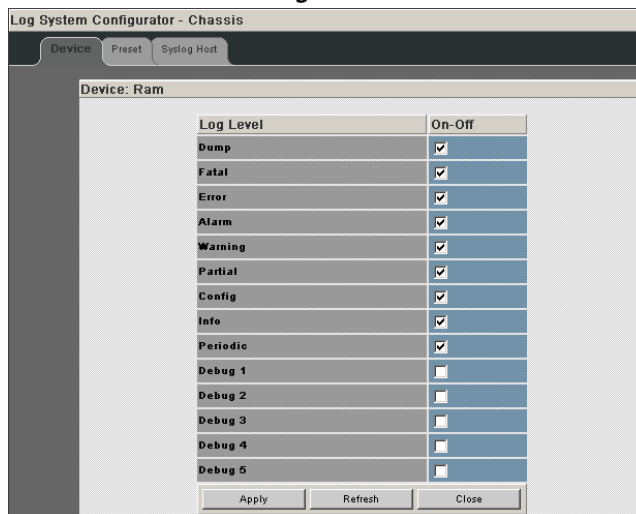
- 
- Step 1** From the menu, select **Logging**.
- Step 2** From **Logging**, select **Set Level**. The Log System Configurator (Device Tab) window is displayed:

**Figure 3-22 Log System Configurator (Device Tab)**

The Device tab presents current log level configuration settings for the following software modules:

- **RAM** = The circular log buffer contained in memory. To access the contents of this buffer, use the Chassis Viewer **View Log** button
- **Syslog** = All output messages are saved to the syslog host.

From this screen, the user can change any of the log level settings for a specific software module by clicking on the **Configure** hyperlink, which displays a configuration screen:

**Figure 3-23 Device Tab: Software Module Configurator**

To change any Log Level settings:

**Step 1** Click the **On-Off** checkbox to the right of the setting.

**Step 2** Click the **Submit** button to save any changes.

The following list describes each of the Log Level configuration parameters.

- **DUMP** – Dump: Indicates that a problem has caused the system to produce a system dump file. In most circumstances, it is recommended that the user retrieve the dump that was produced. Support engineers may require the information contained in the dump file to diagnose the cause of the problem.
- **FATAL** – Indicates that a non-recoverable system problem has occurred. The user should reboot the system or component and verify that the subsystem is fully functional to determine whether the fault has been corrected. If the problem persists, the user should contact the supplier.
- **ERROR** – Indicates that a serious system error has occurred which might be recoverable. If the system exhibits any instability, the user should reboot the system or component. If errors persist, the user should immediately contact the supplier's technical support.
- **ALARM** - Indicates that a serious problem has occurred which degrades capacity or service. If the error is recoverable, the user should correct the failure. If the alarm/failure persists, the user should reboot the system at a convenient time. If the problem is still not cleared, the user should contact the supplier.
- **WARNING** - Indicates that a recoverable problem has occurred. The user does not need to take action.
- **PARTIAL** - When more information is available, Partial causes additional message-related details to be displayed.
- **CONFIGURATION**: An informational message indicating changes that a user has made to the system configuration. The user does not need to take any action.
- **INFO**: Informational messages that occur during a system or component boot. The user does not need to take any action.
- **PERIODIC**: An informational message containing periodic statistics. The user does not need to take action.

**Debug message levels 1 through 5:** Debug messages are for supplier and/or Cisco engineering use and are not necessarily indicative of actions that an end user may need to take.

- **DEBUG1** – Messages that describe the states of connections and links.
- **DEBUG2** – Messages that describe major configuration changes or operations.
- **DEBUG3** – Messages that describe the I/O flow.
- **DEBUG4** – Messages that contain the packet dumps within an I/O flow. I/O flows contain multiple packets.
- **DEBUG5** – Messages that contain the packet dumps within an I/O flow. I/O flows contain multiple packets.



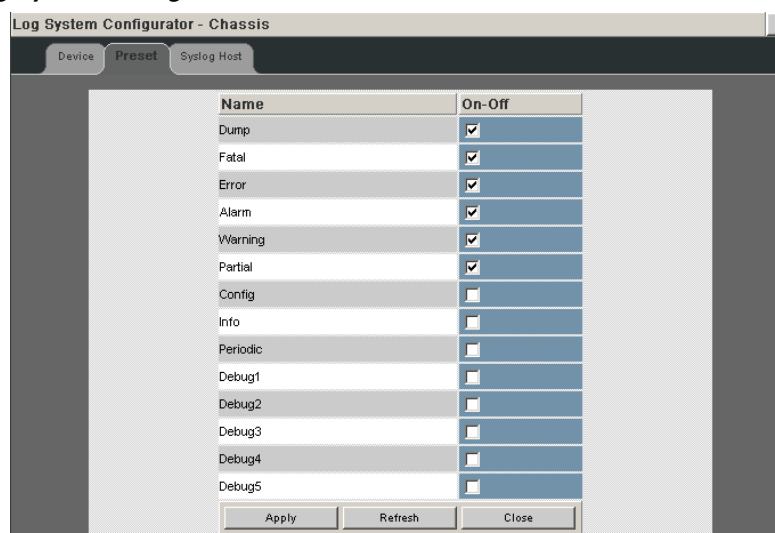
**Note**

When configuring the log levels to display debug messages, care should be taken to ensure that system performance issues are weighed against troubleshooting requirements. Generally, the higher the debug number the more information is written to the log. Specifically, debug 3-5 have the most affect on system performance.

## Preset Tab

The Preset tab allows the user to quickly change log level settings for all software modules on the switch.

**Figure 3-24 Log System Configurator: Preset Tab**



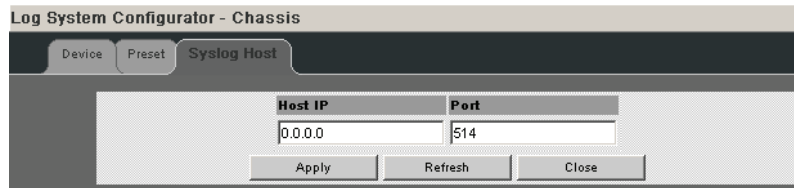
To change the log level settings:

- Step 1** Click the **On-Off** checkbox to the right of the setting(s).
- Step 2** Click the **Submit** button to save any changes.



## Syslog Tab

**Figure 3-25 Log System Configurator: Syslog Host Tab**



The Syslog tab allows the user to save log files to a syslog host.

To setup the syslog host:

- Step 1** In the **Host IP** dialog box, enter the IP address of the syslog host where the log files are to be saved.
- Step 2** Click the **Apply** button to save the IP address.



**Note** Do not change the **Port** setting.

## Configure Syslog on a Linux Server

- Step 1** Edit the `/etc/sysconfig/syslog` file and ensure that the `-r` is included in the `SYSLOGD_OPTIONS`. This allows logging from a remote system. For example:

```
SYSLOGD_OPTIONS="-r -m 0"
```

- Step 2** Type `/etc/init.d/syslog restart`, and press **Enter**.

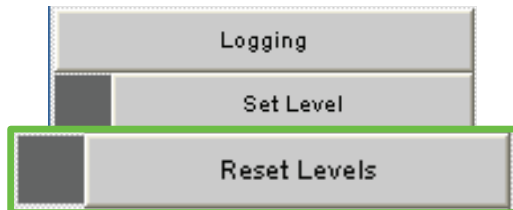


**Note** To centralize logging for all switches in an IB fabric, the user can configure each switch to point to the same syslog server (running Linux), which has the syslog daemon (**syslogd**) running.

## Reset Log Levels

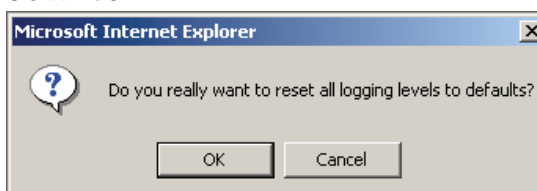
The Reset Levels button resets the logging levels to their factory default values.

**Figure 3-26 Reset Levels Button**



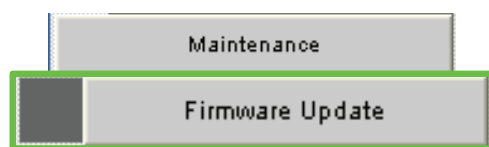
To reset the logging levels:

- Step 1** From the menu, select **Logging**.
- Step 2** Click **Logging**.
- Step 3** Click **Reset Levels**. The Reset Levels window is displayed:

**Figure 3-27 Reset Log Levels Window**

**Step 4** To reset the logging levels, click **OK**.

## Firmware Update

**Figure 3-28 Firmware Update ButtonSFS 7024**

The Firmware Update button allows the user to select an alternate firmware file for the SFS 7024. These alternate files are reflected in the drop-down lists in the Firmware Update screen.

To download firmware:

**Step 1** From the menu, select **Maintenance**.

**Step 2** Click **Firmware Update**. The Firmware Update screen is displayed.

**Figure 3-29 Firmware Update Screen**

Select Target Slot	Image to Overwrite	Booted Image	Boot?	Completion State
<input type="checkbox"/> Spine 1	3.1.5.0.12[2]	3.2.0.0.7	<input type="checkbox"/>	
<input type="checkbox"/> Spine 2				

Firmware Update Package:

**Step 3** In the **Select Target Slot** Column, select the hardware component to change its firmware.



**Note** If there are multiple spine modules, the user can select all applicable slots.

**Step 4** From the **Image to Overwrite** drop-down list, choose a firmware image to overwrite.

**Step 5** In the **Firmware Update Package:** text box, enter the path to the alternate firmware file. If the path is not known, the user can use the **Browse...** button to locate it.

**Step 6** To have the new image become active after the next reboot, check the box in the **Boot?** Column.

**Step 7** Click the **Update Firmware** button.

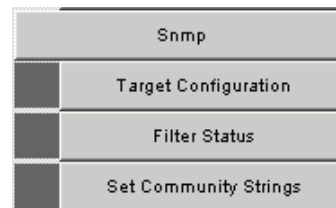


**Note** Before using the **Browse...** button, make certain that the browser can connect to the server where the firmware files reside.

## SNMP

The SNMP submenu allows the user to configure and filter SNMP trap information.

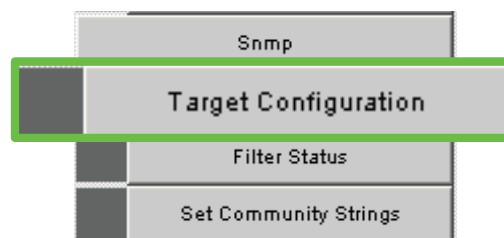
**Figure 3-30** *SNMP Submenu*



### Target Configuration

The Target Configuration button displays the SNMP Target Configuration Window, allowing the user to view and edit existing SNMP trap destinations.

**Figure 3-31** *Target MIB Configuration Button*



To display the Target Configuration window:

- 
- Step 1** From the menu, select **SNMP**.
  - Step 2** Select **Target Configuration**.
  - Step 3** The SNMP Target Configuration window is displayed:

**Figure 3-32 SNMP Target Configuration Window**

SNMP Target Address									
Addr Name	Transport Dom	Transport Addr	Port	Timeout	Retry Cnt	Tag List	Params	Storage Type	Status
snms v1	1.3.6.1.6.1.1	0.0.0.0	0	1500	3	rfc1493 rfc1757 rfc1907 rfc2233 tmscom	v1 params	nonVolatile	Not Ready
snms v2	1.3.6.1.6.1.1	0.0.0.0	0	1500	3	rfc1493 rfc1757 rfc1907 rfc2233 tmscom	v2 params	nonVolatile	Not Ready
snms v3	1.3.6.1.6.1.1	0.0.0.0	0	1500	3	rfc1493 rfc1757 rfc1907 rfc2233 tmscom	v3 params	nonVolatile	Not Ready

Apply Refresh Close

SNMP Target Parameters						
Parameter Name	MP Model	Security Model	Security Name	Security Level	Storage Type	Status
v1 params	0	1	public	No Auth No Priv	nonVolatile	Active
v2 params	1	2	public	No Auth No Priv	nonVolatile	Active
v3 params	3	3	initialnone	No Auth No Priv	nonVolatile	Active

Apply Refresh Close

The top section of the window, SNMP Target Addresses, allows the user to determine what type of SNMP traps are sent, and where they are sent. The rows provide an area for specifying multiple trap destinations. The bottom section of the window, SNMP Target Parameters, allows the user to configure each trap destination with version, optional security information, and filtering mechanisms.

The **Apply** button applies the current settings to either the SNMP Target Addresses or SNMP Target Parameters section.

**Note**

The Target Configuration window is used for viewing and modifying existing SNMP target entries. It is not used for creating new target entries.

To create a new target entry, use the following CLI command:

```
snmpTargetAddr add -n name -a addr [-p port] [-t timeout] [-r retry_count] [-l tag_list] [-v parameters] [-s storage_type]
```

For example:

To add a trap target with the IP address 192.168.0.123 that accepts SNMP v2c style traps:

```
snmpTargetAddr add -n traphost1 -a 192.168.0.123 -p "v2 params"
```

Or, to add the same target except using SNMP v1traps:

```
snmpTargetAddr add -n traphost1 -a 192.168.0.123 -p "v1 params"
```

**Target Configuration Window Field Descriptions**

The following are descriptions for each field in the Target MIB Configuration window:

**SNMP Target Addresses:**

- **Address Name**  
Specifies a unique, administrator-defined name the system uses to identify a row.
- **Transport Domain**  
Specifies the transport type of the address contained in the snmpTargetAddrTAddress object.
- **Transport Address**  
Specifies the IP address and port in hex, separated by colons. The first eight values make up the IP address, the last 4 make up the port number. For example, specify **0xc0:a8:00:65:00:a2** for **192.168.0.101 Port: 162**.

**Note**


---

The combination of the Transport Domain and the Transport Address determines the trap destination.

---

- Port  
Specifies the TCP port which the SNMP trap will be sent.
- Timeout  
Specifies the time that the trap sender waits on a response before re-sending the trap.
- Retry Count  
Specifies the number of attempts to be made to send the trap after a timeout condition occurs.

**Note**


---

Timeout and Retry Count are SNMP v2.c and above. Not applicable for v1 traps.

---

- Tag List  
Specifies which traps should be sent to this particular destination.

**Note**


---

RFC2233 specifies the link up/down traps. Including RFC2233 in the Tag List specifies that the trap receiver will get link up/down traps.

---

- Parameters  
Specifies a mapping to an entry in the SNMP Target Parameters table, determining the version of SNMP to use.
- Storage Type  
This field determines whether or not the entry is saved for each reboot of the SFS 7024.
  - *Nonvolatile* means that the value is saved, and remains with each subsequent reboot.
  - *Volatile* or *Other* indicates it will not be saved.
- Status  
Indicates the current status of the row. The row may be in one of three states:
  - Active
  - Not in service
  - Not Ready

**Note**


---

A status of **not in service** indicates that the current row will not be used in the event a trap is generated by the system. Toggling a trap to not in service, which temporarily suspends trap forwarding, may be useful to keep values intact.

---

**SNMP Target Parameters:**

- Parameter Name  
Specifies a mapping to an entry in the SNMP Target Parameters table, determining the version of SNMP to use.
- MP Model  
The Message Processing Model to be used when generating SNMP messages for entry.

- Security Model

The Security Model to be used when generating SNMP messages using this entry. Values for this field are 1, 2, or 3.

- Security Name

Security name identifies the entity for whom SNMP messages will be generated.


**Note**

This is equivalent to the community string in an SNMP get.

- Security Level

One of three options:

- *NoAuthNoPriv*: No Authentication, no privacy.
- *AuthNoPriv*: Authentication, no privacy.
- *AuthPriv*: Authentication and privacy

- Storage Type

This field determines whether or not the entry is saved for each reboot of the SFS 7024.

- *Nonvolatile* means that the value is saved, and remains with each subsequent reboot.
- *Volatile* or *Other* indicates it will not be saved.

- Status

Indicates the current status of the row. The row may be in one of three states:

- Active
- Not in service
- Not Ready

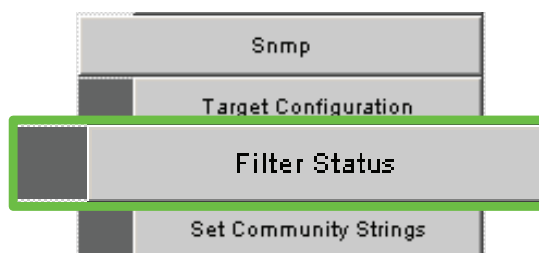

**Note**

A status of **not in service** indicates that the current row will not be used in the event a trap is generated by the system. Toggling a trap to not in service, which temporarily suspends trap forwarding, may be useful to keep values intact.

## Filter Status

The SNMP Filter Status screen allows the user to view parameters for rfc2273 (SNMP-NOTIFICATION-MIB).

**Figure 3-33 Filter Status Button**



To view SNMP filter status:

- Step 1** From the menu, select **SNMP**
- Step 2** Click **Filter Status**. The **SNMP Filter Status** screen is displayed.

**Figure 3-34 Filter Status Screen**

SNMP Filter Parameters					
Notify Name	Tag	Type	Storage Type	Status	
bridge	rfc1493	Trap	nonVolatile	Active	
interfaces	rfc2233	Trap	nonVolatile	Active	
rmon	rfc1757	Trap	nonVolatile	Active	
snmp	rfc1907	Trap	nonVolatile	Active	
lms	lmscom	Trap	nonVolatile	Active	
Refresh Close					

SNMP Filter Parameters			
Filter Profile Name Parameter	Storage Type	Status	
v1 params	nonVolatile	Active	
v2 params	nonVolatile	Active	
v3 params	nonVolatile	Active	
Refresh Close			

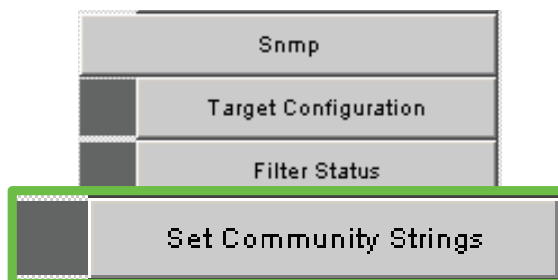
SNMP Filter Parameters					
Filter Subtree	Filter Mask	Filter Type	Storage Type	Status	
0	0	1	nonVolatile	Active	
0	0	1	nonVolatile	Active	
0	0	1	nonVolatile	Active	
Refresh Close					

## Setting Community Strings

The Set Community Strings screen allows the user to set two SNMP community names:

- Read Only Community Name
- Read/Write Community Name

**Figure 3-35 Set Community Strings Button**



To set the Community Strings:

- Step 1** Click **SNMP**
- Step 2** Click **Set Community Strings**. The **Set Community Strings** screen is displayed.

**Figure 3-36 Set Community Strings Window**


The image shows a window titled "Set Community Strings" with a question mark icon in the top right corner. It contains two text input fields: "Read Only Comm. Name" with the value "public" and "Read/Write Comm. Name" with the value "private". At the bottom, there are three buttons: "Apply", "Refresh", and "Close".

The first field, "**Read Only Comm. Name**," is the community string that when specified in an SNMP client, allows read only access to SNMP fields exported by the SNMP server.

The second field, "**Read/Write Comm. Name**," is the community string that when specified in an SNMP client, allows read and write access to SNMP fields exported by the SNMP server.

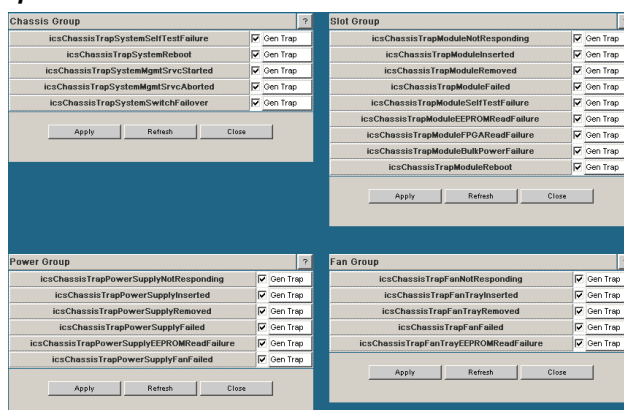
- Step 3** In each field, enter a meaningful name (such as **public** and **private** shown above), and click on **Apply**.

## Chassis Traps

The Chassis Trap Control screen allows the user to set default trap scenarios related to SFS 7024.

**Figure 3-37 Chassis Trap Control**

- Step 1** Click **Chassis**.
- Step 2** Click **Chassis Traps**
- Step 3** Click **Trap Control**. The **Chassis Trap Control** screen is displayed.

**Figure 3-38 Chassis Trap Control Screen**


The image shows the "Chassis Trap Control" screen with four sections: "Chassis Group", "Slot Group", "Power Group", and "Fan Group". Each section contains a list of traps with checkboxes and a "Gen Trap" button. The "Chassis Group" and "Slot Group" sections have "Apply", "Refresh", and "Close" buttons at the bottom.

Chassis Group	Slot Group
icsChassisTrapSystemSelfTestFailure ✓ Gen Trap	icsChassisTrapModuleNotResponding ✓ Gen Trap
icsChassisTrapSystemReboot ✓ Gen Trap	icsChassisTrapModuleInserted ✓ Gen Trap
icsChassisTrapSystemMgmtSvcStarted ✓ Gen Trap	icsChassisTrapModuleRemoved ✓ Gen Trap
icsChassisTrapSystemMgmtSvcAborted ✓ Gen Trap	icsChassisTrapModuleFailed ✓ Gen Trap
icsChassisTrapSystemSwitchFailover ✓ Gen Trap	icsChassisTrapModuleSelfTestFailure ✓ Gen Trap
	icsChassisTrapModuleEEPROMReadFailure ✓ Gen Trap
	icsChassisTrapModuleFPGAReadFailure ✓ Gen Trap
	icsChassisTrapModuleBulkPowerFailure ✓ Gen Trap
	icsChassisTrapModuleReboot ✓ Gen Trap

Power Group	Fan Group
icsChassisTrapPowerSupplyNotResponding ✓ Gen Trap	icsChassisTrapFanNotResponding ✓ Gen Trap
icsChassisTrapPowerSupplyInserted ✓ Gen Trap	icsChassisTrapFanTrayInserted ✓ Gen Trap
icsChassisTrapPowerSupplyRemoved ✓ Gen Trap	icsChassisTrapFanTrayRemoved ✓ Gen Trap
icsChassisTrapPowerSupplyFailed ✓ Gen Trap	icsChassisTrapFanFailed ✓ Gen Trap
icsChassisTrapPowerSupplyEEPROMReadFailure ✓ Gen Trap	icsChassisTrapFanTrayEEPROMReadFailure ✓ Gen Trap
icsChassisTrapPowerSupplyFanFailed ✓ Gen Trap	

- Step 4** Select or deselect the desired trap(s).



### Note

To generate an immediate trap, click the applicable **Gen Trap** button.



**Step 5** To save settings, click on **Apply**.

Following are definitions for each chassis trap:

#### **Chassis Group**

##### **icsChassisTrapSystemSelfTestFailure**

This trap indicates that the chassis failed one or more of its self-test(s).

##### **icsChassisTrapSystemReboot**

This trap indicates that the chassis is in the process of rebooting.

##### **icsChassisTrapSystemMgmtSrvcStarted**

This trap indicates that the internal service used to support the management of the chassis is operational.

##### **icsChassisTrapSystemMgmtSrvcAborted**

This trap indicates that the internal service used to support the management of the chassis has terminated abnormally.

##### **icsChassisTrapSystemSwitchFailover**

This trap indicates that there was a fail over from one switch in the chassis to the other.

#### **Slot Group**

##### **icsChassisTrapModuleNotResponding**

This trap indicates that a module is not responding to HEARTBEAT poll requests, that are issued by the internal chassis management service.

##### **icsChassisTrapModuleInserted**

This trap indicates that a module was inserted into the chassis.

##### **IcsChassisTrapModuleRemoved**

This trap indicates that a module was removed from the chassis.

##### **icsChassisTrapModuleFailed**

This trap indicates that a module has failed and is not operational.

##### **icsChassisTrapModuleSelfTestFailure**

This trap indicates, that the module failed one or more of its self-test.

##### **icsChassisTrapModuleEEPROMReadFailure**

This trap indicates, that an error condition was encountered when reading the EEPROM of the module.

##### **icsChassisTrapModuleFPGAReadFailure**

This trap indicates, that an error condition was encountered when reading the Field-Programmable Gate Array (FPGA) of the module.

##### **icsChassisTrapModuleBulkPowerFailure**

This trap indicates, that the bulk power used by a module has failed within the chassis.

##### **icsChassisTrapModuleReboot**

This trap indicates that the chassis is in the process of rebooting.

#### **Power Group**

##### **icsChassisTrapPowerSupplyNotResponding**

This trap indicates that a power supply is not responding to HEARTBEAT poll requests, that are issued by the internal chassis management service.

**icsChassisTrapPowerSupplyInserted**

This trap indicates that a power supply was inserted into the chassis.

**icsChassisTrapPowerSupplyRemoved**

This trap indicates that a power supply was removed from the chassis.

**icsChassisTrapPowerSupplyFailed**

This trap indicates that a power supply has failed and is not operational.

**icsChassisTrapPowerSupplyEEPROMReadFailure**

This trap indicates, that an error condition was encountered when reading the EEPROM of the power supply.

**icsChassisTrapPowerSupplyFanFailed**

This trap indicates that a power supply fan has failed and is not operational.

**Fan Group**

**icsChassisTrapFanNotResponding**

This trap indicates that a fan is not responding to HEARTBEAT poll requests, that are issued by the internal chassis management service.

**icsChassisTrapFanTrayInserted**

This trap indicates that a fan was inserted into the chassis.

**icsChassisTrapFanTrayRemoved**

This trap indicates that a fan was removed from the chassis.

**icsChassisTrapFanFailed**

This trap indicates that a fan has failed and is not operational.

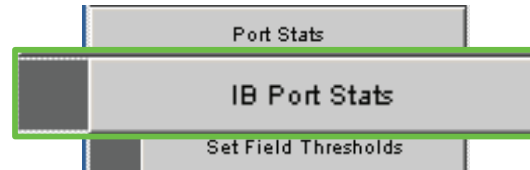
**icsChassisTrapFanTrayEEPROMReadFailure**

This trap indicates, that an error condition was encountered when reading the EEPROM of the fan tray.

## SFS 7024 Port Statistics

The **Chassis View Port Statistics** area provides IB port information for all of the external and internal ports of the SFS 7024.

**Figure 3-39 IB Port Statistics**



To view port statistical information, do the following:

- Step 1** From the Chassis View Port Statistics submenu, select **IB Port Stats**. The IB Port Statistics window is displayed:

**Figure 3-40 IB Port Statistics**

Chassis IB Port Statistics

Port Name	Port #	Link State	Physical State	Link Down Default	Active Link Width	Link Width Enabled	Link Width Supported	Active Link Speed	Link Speed Enabled	Link Speed Supported	Transmit 32bit Words	Receive 32bit Words	Transmit Packets	Receive Packets	Transmit Wait	Symbol Errors
L01P01	1.1	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P02	1.2	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P03	1.3	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P04	1.4	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	178631126	610400360	641393735	640006228	0	0
L01P05	1.5	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P06	1.6	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	21584414	22716720	300323	315510	0	0
L01P07	1.7	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P08	1.8	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P09	1.9	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L01P10	1.10	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	16242531	17303496	226349	240340	0	0
L01P11	1.11	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	788414067	898704574	549172841	549694536	0	61490
L01P12	1.12	down	Disabled	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L02P01	2.1	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	3047409	3098882	42415	43043	0	0
L02P02	2.2	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L02P03	2.3	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L02P04	2.4	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	21584558	22716792	300325	315511	0	0
L02P05	2.5	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L03P06	3.6	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	183886	804156	11081	11171	0	0
L03P07	2.7	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	488897586	309181893	547890977	547883200	0	0
L03P08	2.8	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L03P09	2.9	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
L03P10	2.10	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0
S01P01	3.1	active	Up	Poling	4X	1X or 4X	1X or 4X	2.5Gb/s	2.5Gb/s	2.5Gb/s	0	0	0	0	0	0

### Understanding Port Naming Conventions

Following is an explanation of the conventions used in the **Port Name** column.

#### Leaf modules/ports:

L = Leaf module number

P = Leaf module port number

Example: L13P01 is leaf module 13 port number 1.

#### Interswitch Link (ISL) Ports:

S = Spine module number

L = Leaf leaf module number

A = Spine module switch chip A

B = Spine module switch chip B

Example: S4AL24 is the ISL between spine module 4, switch chip A and leaf module 24.

**Note**

Spine chips are referenced by the spine number and the switch chip identifier. Each spine module contains two switch chips (Switch chip A and B).

## Port Statistics Field Descriptions

### Port Name/Port Number:

Corresponds to external leaf module number/port number, spine module number/port number, and all interswitch links.

### Link State:

Indicates whether the InfiniBand link associated with the physical port is up or down. Possible values are **no state change**, **down**, **init**, **armed**, **active**, and **unknown**.

### Physical State:

Indicates whether the internal connection to the InfiniBand port is up or down. Possible values are **No State Change**, **Sleep**, **Polling**, **Disabled**, **Training**, **Up**, and **Error Recovery**.

### Link Down Default:

Indicates the default down state as set by the subnet manager. Possible values are **No State Change**, **Sleep**, **Polling**, and **Unknown**.

### Active Link Width:

Indicates the bandwidth of the link on the backplane. The bandwidth is specified as a multiplier of 2.5 Gbit/sec full duplex serial links. As an example, 4X specifies a bandwidth of 10 Gbit/sec.

**Note**

Values of 1X are possible in this field with 4X IB cables if poor cable connections or defective 4X IB cables are used.

### Link Width Enabled:

Indicates actual link width as opposed to the supported link width.

### Link Width Supported:

Indicates the link width in terms of multipliers of 2.5 Gbit/sec full duplex serial links supported by the port.

### Active Link Speed:

Indicates the speed of the full duplex serial link. This is either 2.5Gbps (single data rate, or SDR), or 5.0Gbps (double data rate, or DDR).

### Link Speed enabled:

Indicates the actual link speed as opposed to the supported link speed. This could be 2.5Gbps (SDR), 5.0Gbps (DDR) or both.

### Link Speed supported:

The supported link speed of the port. This could be 2.5Gbps (SDR), 5.0Gbps (DDR) or both.

## InfiniBand Statistics:

### Transmit 32 Bit Words:

The number of 32-bit data words transmitted by the port, not including flow control and VCRC data.

**Receive 32 Bit Words:**

The number of 32-bit data words received by the port, not including flow control and VCRC data.

**Transmit Packets:**

The number of data packets transmitted by the port, not including flow control packets.

**Receive Packets:**

The number of data packets received by the port, not including flow control packets.

**Symbol Errors:**

The number of times an 8B10B encoding violation, or a disparity violation was detected. If multiple errors are detected simultaneously (in more than one lane), the counter only increments by one. The value of the counter does not increment past 255. The Performance Manager may reset and/or consolidate the results of this counter.

**Link Error Recovery:**

Indicates the number of times the link error recovery process happened successfully. The value of the counter does not increment past 255. The Performance Manager may reset and/or consolidate the results of this counter.

**Link Downed:**

The number of times the link error recovery process failed. The value of the counter does not increment past 255. The Performance Manager may reset and/or consolidate the results of this counter.

**Receive Errors:**

Number of errors received on the port.

**Remote Physical Error Received:**

Number of remote physical errors received on the port.

**Transmit Discards:**

Number of port transmit discards.

**Local Link Integrity Errors:**

Number of local link integrity errors.

**Excessive Buffer Overrun:**

Number of excessive buffer overrun errors.

**Pkey Violations Inbound:**

Indicates the number of times an invalid partition key (PKey) was received. PKeys support an advanced InfiniBand feature for logically partitioning a physical subnet into logical access domains.

**Pkey Violations Outbound:**

Indicates the number of times an invalid PKey was sent. PKeys support an advanced InfiniBand feature for logically partitioning a physical subnet into logical access domains.

**Raw Violations Inbound:**

Number of times raw inbound packet discarded.

**Raw Violations Outbound:**

Number of times raw outbound packet was discarded.

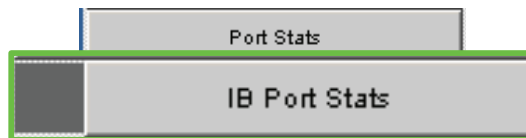
## Leaf and Spine Module IB Port Statistics

To access IB port statistics for a specific leaf or spine module, perform the following steps.

### Leaf Modules

- Step 1** Select a leaf module. The leaf module view is displayed.
- From the Leaf Port Stats menu, select IB Port Stats.

**Figure 3-41 Leaf Port Stats Menu**



The leaf port statistics window is displayed:

**Figure 3-42 Leaf Port Statistics Window**

Leaf Slot IB Port Statistics

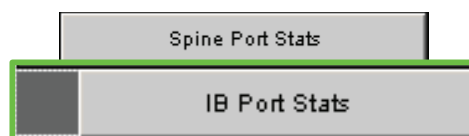
Port Name	Port #	Link State	Physical State	Link Down Default	Active Link Width	Link Width Enabled	Link Width Supported	Active Link Speed	Link Speed Enabled	Link Speed Supported	Transmit 32Bit Words	Receive 32Bit Words	Transmit Packets	Receive Packets
L08P01	8.1	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	1676313036	2194608751	124776860	125036412
L08P02	8.2	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08P03	8.3	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08P04	8.4	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	33490130	268809116	345060452	403527044
L08P05	8.5	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	2465956636	2427418228	5197900	5136119
L08P06	8.6	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08P07	8.7	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	1268511170	1117790011	568119524	568650704
L08P08	8.8	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08P09	8.9	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	3129876636	3492582806	91737443	91895650
L08P10	8.10	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	524043717	1091591351	696518632	696759390
L08P11	8.11	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	3836481803	3909633543	579359806	579978987
L08P12	8.12	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08S2A	8.13	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	84023875	3630886041	224807473	197605406
L08S1A	8.14	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	2677824852	3473811845	288000467	253191364
L08S2A	8.15	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08S2A	8.16	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08S2A	8.17	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	729650727	3970586405	316884549	26039748
L08S2A	8.18	down	Poling	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	0	0	0	0
L08S1B	8.19	active	up	Poling	4X	1X or 4X	1X or 4X	2.5Gbps	2.5Gbps	2.5Gbps	3338099114	3892641259	172449702	341102568

For information on the each IB port statistic field, refer to the section [Port Statistics Field Descriptions](#), page 3-60

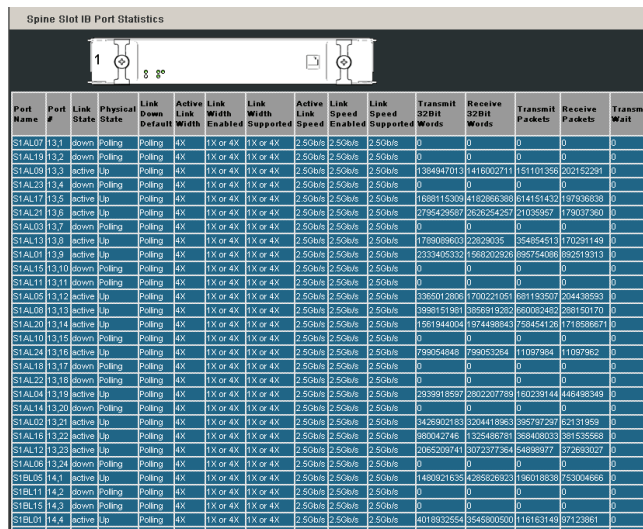
### Spine Modules

- Step 1** Select a spine module. The spine module view is displayed.
- Step 2** From the Spine Port Stats menu, select IB Port Stats.

**Figure 3-43 Spine Port Stats Menu**



The spine port statistics window is displayed:

**Figure 3-44 Spine Port Statistics Window**


Port Name	Port #	Link State	Physical State	Link Down Default	Active Link Width	Link Width Enabled	Link Width Supported	Active Link Speed	Link Speed Enabled	Link Speed Supported	Transmit 52Bt Words	Receive 52Bt Words	Transmit Packets	Receive Packets	Transmit Wait
STAL07	13.1	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL19	13.2	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL09	13.3	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	1384947013	1416002711	151101356	202152291	0
STAL23	13.4	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL12	13.5	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	1088115300	1162966330	14151432	12703839	0
STAL21	13.6	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	229542959	243624425	21035957	17903730	0
STAL03	13.7	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL13	13.8	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	1789088603	22829035	35485451	170291149	0
STAL01	13.9	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	2333405332	1568202926	895754086	892519313	0
STAL15	13.10	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL11	13.11	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL05	13.12	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	3365012806	1700221051	861155020	204838583	0
STAL08	13.13	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	328818189	3559919263	300902483	320120170	0
STAL20	13.14	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	1501944004	157448894	258454126	1718586671	0
STAL10	13.15	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL24	13.16	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	799054848	799053264	11097994	11097962	0
STAL18	13.17	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL22	13.18	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL04	13.19	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	2939910597	3802207789	160239144	446496349	0
STAL14	13.20	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STAL02	13.21	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	4126392193	3264419863	285797231	32131959	0
STAL16	13.22	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	380042746	1325486793	368408013	331535568	0
STAL12	13.23	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	2065209741	3072377384	54898977	372693027	0
STAL06	13.24	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STBL05	14.1	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	1480921635	4285826823	196018838	753004666	0
STBL11	14.2	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STBL15	14.3	down	Poling	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	0	0	0	0	0
STBL01	14.4	active	Up	Poling	4K	1X or 4K	1X or 4K	2.50Gbs	2.50Gbs	2.50Gbs	4018932554	3545800503	116163140	07123861	0

For information on the each IB port statistic field, refer to the section [Port Statistics Field Descriptions](#), page 3-60

## Set Field Thresholds

The Set Field Thresholds screen allows the user to set, for a specific parameter(s), an error message threshold for the 12 cable ports on the SFS 7024.

**Figure 3-45 Set Field Thresholds**

To change error reporting thresholds, do the following:

- Step 1** Click on **Port Stats**.
- Step 2** Click on **Set Field Thresholds**. The Set Field Thresholds screen is displayed:

**Figure 3-46 Set Error Reporting Thresholds Screen**

Set Field Thresholds		
Field	Threshold	Time Unit
portXmitDataThresh	0	Percent of Max
portRecvDataThresh	0	Percent of Max
portXmitPktsThresh	0	Percent of Max
portRecvPktsThresh	0	Percent of Max
portSymbolErrThresh	1	1 Second
portLinkErrRecvThresh	1	1 Second
portLinkDownedThresh	1	1 Second
portRecvErrThresh	1	1 Second
portRecvRemPhysErrThresh	1	1 Second
portRecvSwRelayErrThresh	0	1 Second
portXmitDiscardThresh	0	1 Second
portPKeyViolInThresh	1	1 Second
portPKeyViolOutThresh	1	1 Second
portRawViolInThresh	1	1 Second
portRawViolOutThresh	1	1 Second
portLocalLinkIntegThresh	1	1 Second
portExcBufferOverrunThresh	1	1 Second
<input type="button" value="Apply"/> <input type="button" value="Refresh"/> <input type="button" value="Close"/>		

**Step 3** To change a threshold value for any field:

- a. Click in the **Threshold** field.
- b. Enter a new threshold value.



**Note** For those fields with a “**Percent of Max**” time unit, the user may enter a number from 0 to 100. For those fields with a “**1 Second**” time unit, the user may enter a number from 1 to 65,535.

- c. Click **Apply**.



**Note** Any port which exceeds the configured thresholds will be displayed as red on the home page.

The following are descriptions for each field in the Set Field Thresholds area:



**Note** The thresholds for the following four fields are set as a percentage of maximum; that is the percentage of maximum port capacity, which depending upon the IB fabric configuration can be:

- 4X (10 Gbps)
- 1X (2.5 Gbps)

#### **portXmitDataThresh**

The threshold for the number of 32-bit data words transmitted by the port.

#### **portRecvDataThresh**

The threshold for the number of 32-bit data words received by the port.

#### **portXmitPktsThresh**

The threshold for the number of data packets transmitted by the port.

#### **portRecvPktsThresh**

The threshold for the number of data packets received by the port.



**Note**

The thresholds for the following fields are set based upon the number of error message which can occur in one second. The value can be from 1 to 65,535.

**portSymbolErrThresh**

The threshold for the number of times a 8B10B encoding violation, or a disparity violation was detected on the port.

**portLinkErrRecvThresh**

The threshold for the number of times the link error recovery process happened successfully on the port.

**portLinkDownedThresh**

The threshold for the number of times the link error recovery process failed on the port.

**portRecvErrThresh**

The threshold for the number of errors received on the port.

**portRecvRemPhysErrThresh**

The threshold for the number of remote physical errors received on the port.

**portRecvSwRelayErrThresh**

The threshold for the number of switch relay errors received on the port.

**portXmitDiscardThresh**

The threshold for the number of transmit discards received on the port.

**portPKeyViolInThresh**

The threshold for the number of times PKey inbound was invalid on the port.

**portPKeyViolOutThresh**

The threshold for the number of times PKey outbound was invalid on the port.

**portRawViolInThresh**

The threshold for the number of times a raw inbound packet was discarded by the port.

**portRawViolOutThresh**

The threshold for the number of times a raw outbound packet was discarded by the port.

**portLocalLinkIntegThresh**

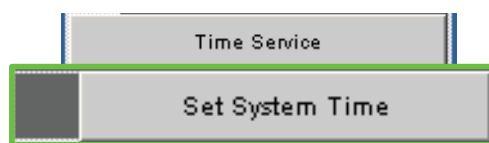
The threshold for the number of local link integrity errors on the port.

**portExcBufferOverrunThresh**

The threshold for the number of excessive buffer overrun errors on the port.

## Time Service

The System Time Information screen allows the user to set the system time using either network time protocol (NTP) or manual overrides.

**Figure 3-47 Switch Time Service**

To set the system time:

- 
- Step 1** From the menu, click **Time Service**.
- Step 2** Click **Set System Time**. The **System Time Information** screen is displayed:

**Figure 3-48 System Time Information Screen**

 A screenshot of the 'System Time Information' web interface. The title bar says 'System Time Information' with a help icon. Below is a section titled 'NTP Settings'. It contains:
 

- 'Current Date & Time' field showing 'Mon, 7 Nov 2005 15:49:14 (GMT -5)'.
- 'Use Network Time Protocol?' checkbox, which is checked.
- 'NTP IP' text field containing '172.26.0.254'.
- 'Set Current Date and Time' section with dropdowns for Month (Nov), Day (7), Year (2005), and input fields for Hour (03), Minute (47), Second (59), and AM/PM (PM).
- An 'Apply' button below the date/time fields.

 Below the NTP settings is a section titled 'Time Zone and DST Settings'. It contains:
 

- 'Time Zone' dropdown set to '-5'.
- 'Daylight Saving Time' section with 'Start Date' (Which: 1st, Day: Mon, in Month: Mar) and 'End Date' (Which: 5th, Day: Sun, in Month: Oct).
- An 'Apply' button below the DST settings.
- 'Refresh' and 'Close' buttons at the bottom.

To use NTP:

- 
- Step 1** Click the **Use Network Time Protocol?** checkbox.
- Step 2** Enter the IP address for the NTP server.
- Step 3** To save, click on **Apply**.

**Figure 3-49 Time Service - NTP Setup**

 A screenshot of the 'System Time Information' web interface, similar to Figure 3-48. In this version, green circles highlight the 'Use Network Time Protocol?' checkbox, the 'NTP IP' field (172.26.0.254), and the 'Apply' button, indicating the steps to configure NTP.

To manually set the system time:

- Step 1** Make sure the **Use Network Time Protocol?** checkbox is unchecked.
- Step 2** Set the current date and time using the drop-downs for **Month**, **Day**, and **Year** as well as **Hour**, **Minute**, **Seconds**, and **AM/PM**.
- Step 3** To save, click on **Apply**.

**Figure 3-50 Time Service - Manual Setup**

To set time zone and daylight saving time (DST) settings:

- Step 1** In the **Time Zone** drop-down, select the correct time zone based upon Greenwich Mean Time (GMT).
- Step 2** Using the **Which**, **Day**, **in Month** drop-downs, set the start and end dates for daylight saving time.
- Step 3** To save, click on **Apply**.

**Figure 3-51 Time Service - Time Zone/Daylight Saving Time Setup**

#### Time Zone Tips:

In the U.S. the following time zones are in effect:

- Eastern Standard Time = GMT -5
- Central Standard Time = GMT -6
- Mountain Standard Time = GMT -7
- Pacific Standard Time = GMT -8

#### Daylight Saving Time Tips:

For most of the United States, Daylight Saving Time begins at 2 a.m. on the first Sunday of April, and ends at 2 a.m. on the last Sunday of October. Using this information, the Daylight Saving Time Start Date will always be the 1st Sunday in April. However, the Daylight Saving Time End Date will vary between the 4th and 5th Sunday of October. Be certain to check a calendar when setting this parameter. Following are upcoming DST end dates:

**Note**

Beginning in 2007, Daylight Saving Time in the United States begins at 2 a.m. on the second Sunday of March, and ends at 2 a.m. on the first Sunday in November.

– 2006 = Oct. 29 (5th)

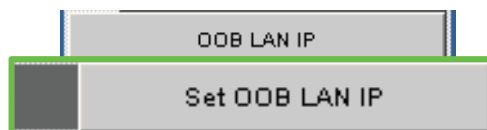
Additionally, for those US regions that do not observe DST, the start and end dates in the **Which, Day, in Month** settings, should be set to the **exact same date**.

## Configuring the Switch OOB IP Address

To configure the Switch IP address:

- Step 1** From the **OOB LAN IP** submenu, click **Set OOB LAN IP**.

**Figure 3-52 Set Switch OOB IP Address Button**



- Step 2** Click in the **OOB IP Address** field.

**Figure 3-53 Set OOB LAN IP Window**

Set OOB LAN IP	
Out of Band LAN IP	172.21.1.34
Net Mask	255.255.240.0
<input type="button" value="Apply"/> <input type="button" value="Refresh"/> <input type="button" value="Close"/>	

- Step 3** Enter the correct switch IP address.
- Step 4** Enter the correct net mask.
- Step 5** Click **Apply**.

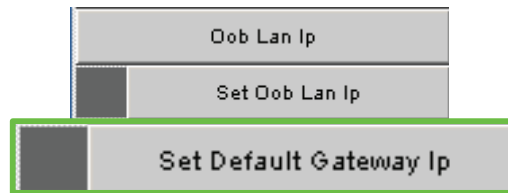
## Configuring the Switch Default Gateway IP Address

The **Set Default Gateway IP** address Window allows the user to configure the IP address for the default gateway to route packets from the OOB management port to an external network.

To configure the Switch default gateway IP address:

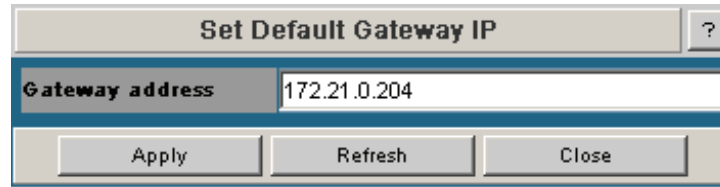
- Step 1** From the **OOB LAN IP** submenu, click **Set Default Gateway IP**.

**Figure 3-54 Set Switch Default Gateway IP Address Button**



**Step 2** Click in the **OOB IP Address** field.

**Figure 3-55 Set Default Gateway IP Window**



**Step 3** Type in the correct switch default gateway IP address.

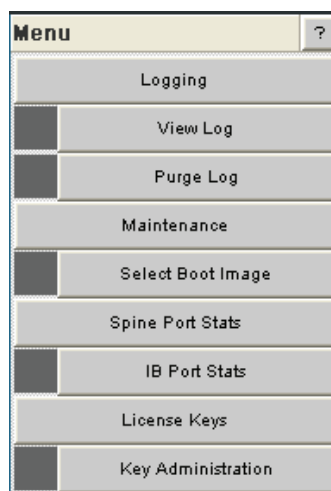
**Step 4** Click **Apply**.



**Note** A reboot is required to activate the new gateway IP address.

## Spine View Menu

**Figure 3-56 Spine View Menu**



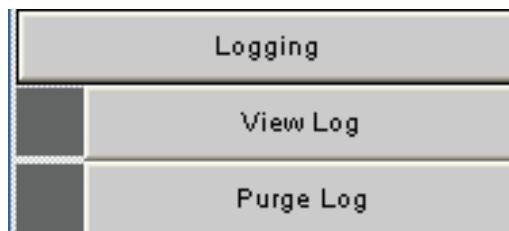
**Note**

For information on IB port statistics refer to the section [SFS 7024 Port Statistics, page 3-59](#).

## Logging

The Logging submenu allows the user to view, set levels, reset levels, and purge the message log file.

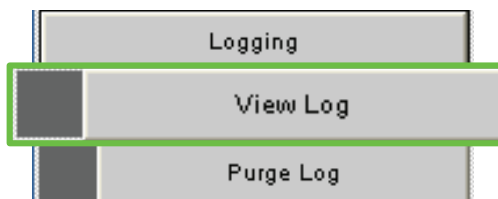
**Figure 3-57 Logging Submenu**



### Viewing the Log

The View Log button allows the user to view the message log.

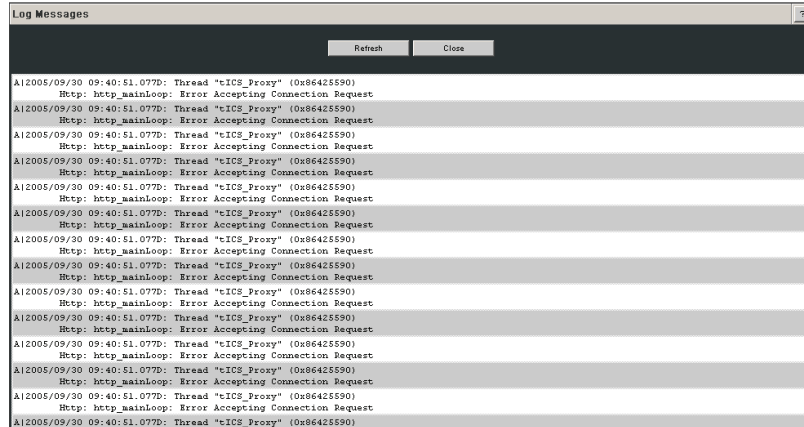
**Figure 3-58 View Log Button**



To view the message log:

- Step 1** From the menu, select **Logging**.
- Step 2** Click **View Log**. The log message window is displayed:

**Figure 3-59 Sample Message Log**



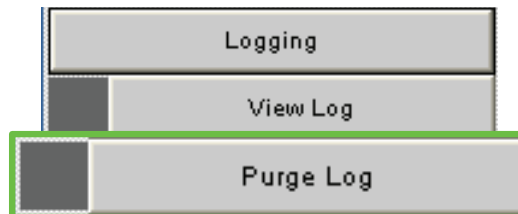
To save a log message for further analysis, perform the following steps:

- Step 1** From the Messages window, select **Edit, Select All** (or **CTRL + A**).
- Step 2** Select **Edit, Copy** (or **CTRL + C**).
- Step 3** Open a text editing package, such as Notepad.
- Step 4** Select **Edit, Paste** (or **CTRL + V**).
- Step 5** Save as a plain text (.txt) file.

## Purging the Log

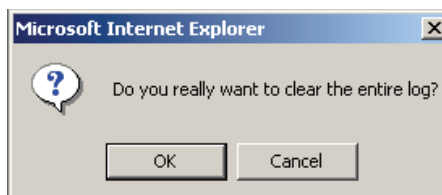
The Purge Log button purges the RAM, clearing the log file(s).

**Figure 3-60 Purge Log Button**



To purge the log:

- Step 1** From the menu, click **Logging**.
- Step 2** Click **Purge Log**. The Purge Log confirmation window is displayed

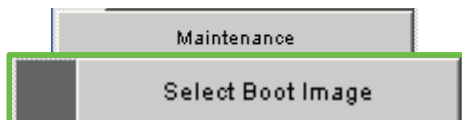
**Figure 3-61 Purge Log Confirmation Window**

**Step 3** Click **OK**.

**Step 4** The message log file is now purged.

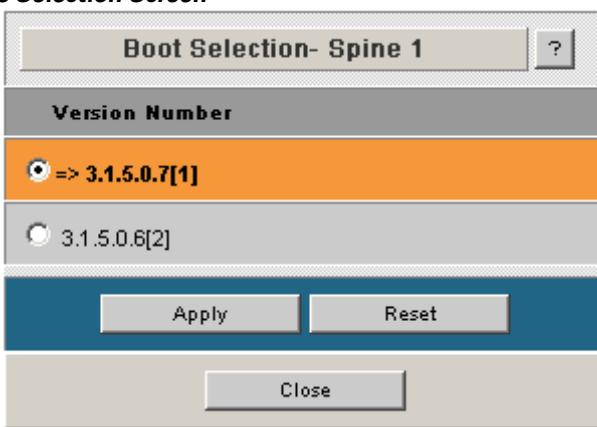
## Select Boot Image

The Select Boot Image button allows the user to choose an alternative boot image for the SFS 7024. To select a boot image:

**Figure 3-62 Select Boot Image Button**

**Step 1** From the menu, select **Maintenance**.

**Step 2** Click **Select Boot Image**. The Boot Image Selection screen is displayed:

**Figure 3-63 Boot Image Selection Screen**

To choose a new boot image:

**Step 1** Click on the radio button of the new boot image.

**Step 2** Click **Apply**.

## License Keys; Key Administration

The **License Key** submenu allows the user to activate and deactivate feature functionality that is sold as an add-on to the SFS 7024.



## Adding a New License Key

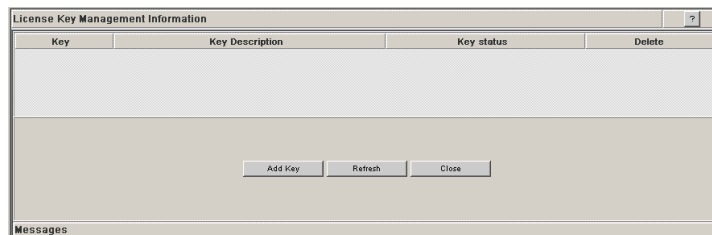
- Step 1** Click **License Keys**. The **Key Administration** button is displayed:

**Figure 3-64 License Key Submenu**



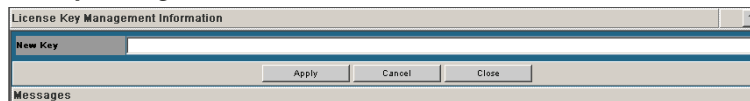
- Step 2** Click **Key Administration**. The **Key Management** window is displayed:

**Figure 3-65 Key Management Window**



- Step 3** To add a new license key, click the **Add Key** button. The **License Key Management Information** window is displayed:

**Figure 3-66 License Key Management Information Window**



- Step 4** Enter the license key information in the **New Key** text box, and click **Apply**.



**Note**

The license key number should be part of the paperwork shipped with the product. If the feature functionality is purchased at a later date, the license key number will be provided via e-mail.

## Deleting a License Key

- Step 1** Click on the **License Keys** submenu.

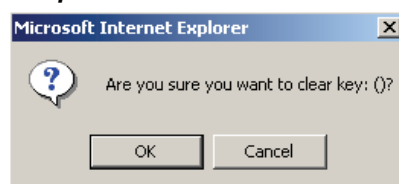
**Figure 3-67 License Key Submenu**



- Step 2** Click on **Key Administration**. The **Key Management** window is displayed.

- Step 3** To delete a license key, click the **Delete** button. The system prompts with the following:

**Figure 3-68 License Key Delete Prompt**



**Step 4** Click **OK** to delete.

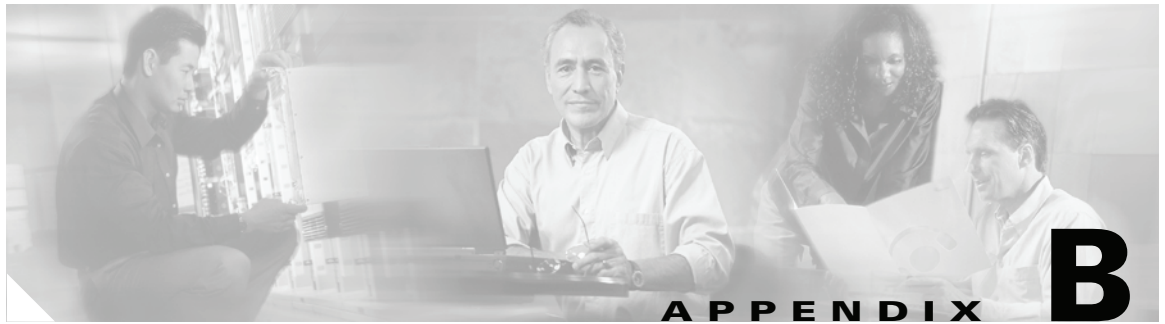


# Technical Specifications

**Table A-1 SFS 7024 Technical Specifications**

Switch Physical Dimensions	<ul style="list-style-type: none"> <li>• 14U high (24.5")</li> <li>• 19" rack mount (17.32" wide)</li> <li>• 25 3/4" deep (without cables)</li> </ul>
Weight	<ul style="list-style-type: none"> <li>• 175 lb. (including power supplies)</li> </ul>
Cooling	<ul style="list-style-type: none"> <li>• Air cooled with 8 hot plug fan trays</li> <li>• Two fans per tray, 60mm, 12VDC</li> <li>• Front-to-back airflow</li> <li>• Active thermal performance monitoring switch board via IBML links</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Operating temperature: 41° - 113°F (5° - 45°C) at sea level, altitude derating 2°F (1°C) per 300m to 2,400m</li> <li>• Non-operating temperature: -35°C to 65°C</li> <li>• Relative humidity (non-condensing): operating 5% – 85%; non-operating 5% – 90%</li> <li>• Self-contained thermal management</li> </ul>
Power Supply	<ul style="list-style-type: none"> <li>• Up to twelve redundant, hot plug supplies</li> <li>• 90/264 VAC operation</li> <li>• 350W max power per supply</li> <li>• Input:</li> <li>• 90–264V AC, 47–63Hz, 1 Phase, 4.0A max current at 115VAC</li> <li>• Inrush Current:</li> <li>• 15A @ 115VAC (25°C cold start)</li> <li>• 30A @ 230VAC (25°C cold start)</li> <li>• Power Factor 0.95</li> <li>• Two IEC 320 connectors for independent AC inputs</li> </ul>
Certification Marks	<ul style="list-style-type: none"> <li>• UL, CSA, CE, VCCI, GS, FCC Class B, IC Class B, ICES - 003</li> </ul>





# Command Line Interface

---

This appendix includes the following information:

- [Commands and Functional Groups, page B-78](#)
- [Accessing the CLI, page B-79](#)
- [Groups and Commands, page B-80](#)

## Overview

This section details the usage of the Command Line Interface (CLI) feature for the Cisco SFS 7024™. The CLI allows the user to perform remote configuration and management tasks, which in many respects mirrors the functionality of the Chassis Viewer GUI.

The CLI is accessed via a terminal attached to the SFS 7024 spine module(s) RS232 port(s) or via the OOB management port using Telnet and secure shell (SSH). For a standalone SFS 7024, the user would Telnet to the unit's IP address(es). Once connected, the CLI works as any telnet session does.

To access the CLI, a login and password is required. There are two user modes, operator and administrator with the following access privileges:

**Operator:**

- Read only access.

**Administrator:**

- Read and write Access.
- Reboot access.
- Can change operator and administrator passwords.
- Can disable user login and passwords. This would allow all users administrator-level access without the need for a user name or password.
- Can view all current user sessions
- Can access all of the commands executed from any open operator session.
- Can log out any open user sessions

Can send messages to the open user sessions

The CLI allows multiple users to be logged in simultaneously. However, some commands will be locked to a user(s) if another user is executing the same command.

The CLI is also accessible through the RS232 serial port of the SFS 7024. Accessing the CLI through the serial port never requires a login and password and defaults to administrator privileges. Providing access through the serial port means that users will always have access to the SFS 7024, even if Telnet and SSH are not functioning.

## Commands and Functional Groups

The list of available commands can be accessed by typing **list**. To keep the list short, the commands are grouped into functional groups, which are:

### General:

General administrative commands

### Firmware:

Provides commands for updating the firmware via a File Transfer Protocol (FTP) server or Secure Copy Protocol (SCP) (if using SSH to access the SFS 7024). The SFS 7024 has the ability to store the location of the firmware files for future upgrades. Additionally, the Firmware functional group includes commands for viewing the current firmware revisions and for changing the boot image.

### IbSwitchInfo:

Provides commands for displaying InfiniBand (IB) statistics for all IB ports on the SFS 7024.

### Chassis:

Provides commands for configuring and managing chassis-level functionality. This includes commands for changing the SFS 7024 IP address, and displaying fan tray, power supply, and FRU information.

### Log:

Provides commands for viewing log files as well as configuring logging parameters. This includes commands for changing the SFS 7024 IP address, and displaying fan tray, power supply, and FRU information.

### KeyManagement:

Provides commands for adding, removing and displaying license keys on the SFS 7024.

### TimeManagement:

Provides commands for retrieving and setting the current system time, as well as commands for setting the time zone and daylight saving time parameters.

### Snmp:

Provides commands for configuring SNMP trap destinations and security parameters required to access the SFS 7024 from an SNMP manager.

### Capture:

Provides commands for capturing switch-specific information for the purposes of analysis and debugging.

### Deprecated:

Commands that have been deprecated.



#### Note

The Deprecated group contains CLI commands that been replaced or are to be removed. Please use the new command where appropriate.

To list commands within a functional group, simply type in the functional group name. For example, to list all of the firmware commands, type **Firmware**. The system would display the following:

```
-> Firmware
fwUpdate          Update units firmware
fwVersion         Display Firmware revisions
bootSelect       Change boot selection
```

## Online Help

The online help for the CLI provides, for each command, all necessary information to successfully execute the command. For example, typing **help fwUpdate** displays the following information for the firmware update command:

```
NAME
    fwUpdate
SYNOPSIS
    fwUpdate [host user password dir filename]
DESCRIPTION
    Updates the firmware.
OPTIONS
    host      - hostname where the file resides
    user      - username for ftp
    password  - username for ftp
    dir       - directory to cd to after logging in
    filename  - name of the firmware file
NOTES
    Firmware update works by using ftp to retrieve the firmware file, then writes the file
    to flash. Omitting [host user password dir filename] will cause the user to be
    prompted for this information.
```

## Keyboard Shortcuts

- The CLI keeps a history of recently executed commands. This history is available via the **Up** and **Down** arrow keys.
- Users may edit the current command with the **Left** and **Right** arrow keys.
- Tab completion: pressing the **Tab** key after typing at least one character either completes a command or lists all the available commands that begin with the characters already typed.

## Accessing the CLI



### Note

The CLI can be accessed via Telnet, SSH, or through the SFS 7024 RS232 serial port. The following instructions use Telnet.

- 
- Step 1** Telnet to the IP address of the SFS 7024 (the default IP address is 192.168.100.9) with the following command:
- ```
open <IP ADDRESS>
```
- Step 2** The system prompts for a username. The CLI has the following default user names:
- Operator access: **operator**
  - Administrator access: **admin**

Type the appropriate username and press **Enter**.

**Step 3** The system prompts for a password. The CLI has the following default passwords:

- Operator access: **operpass**
- Administrator access: **adminpass**

Type the appropriate password and press **Enter**. The system responds with:

Welcome to the SFS 7024 CLI. Type 'list' for the list of commands.

## Groups and Commands

The following section lists the CLI's functional groups along with the commands for each group. For more specific information for each functional group, the user would execute the **help <GROUP NAME>** command. For more specific command information, the user would execute the **help <COMMAND NAME>** command.

### General

```

help
    Prints out help info for a specific command
list
    Lists all the valid commands
history
    Display command history
reboot
    Reboots the device
who
    Display all the active CLI sessions
killCliSession
    Kill a CLI session
broadcast
    Write a message to all active CLI sessions
swapBsDel
    Toggle the key binding for the backspace character
setTermWidth
    Change the terminal width for formatting purposes
prompt
    Set the CLI prompt (global)
showLastRetCode
    Display the return code from the last command
showLastScpRetCode
    Display the return code from the last SCP Firmware Push
logout
    Exit the CLI
user
    Change user accounts
passwd
    Change user accounts password
loginMode
    Change the login authentication mode
  
```

### Firmware

```

fwUpdate
    Update units firmware
fwVersion
    Display Firmware revisions
  
```



```

bootQuery
    Query boot image information
bootSelect
    Change boot selection
fwListFiles
    Lists the contents of the firmware RAM disk
fwShowUpdateParams
    Display firmware default update parameters
fwSetUpdateParams
    Configure firmware default update parameters
showCapability
    Display the capabilities/features

```

## IbSwitchInfo

```

ismPortStats
    Show statistics for all ports
ismPortCounters
    Show Port Counters
ismLinearFwdb
    Show/set Linear Forwarding Database for switch
ismMultiFwdb
    Show Multicast Forwarding Database for switch
ismAutoClearConf
    Configure the port statistics counter auto-clear options
ismPortEnable
    Adjust port settings
ismPortDisable
    Disables the named port
ismPortSetSpeed
    Sets a named port's speed to 2.5Gbs, 5.0Gbs, or auto-negotiate
ismShowPStatThresh
    Display the port statistics thresholds
ismSetPStatThresh
    Modify the port statistics thresholds

```

## Chassis

```

slotInfo
    Prints out chassis slot occupants
hwMonitor
    Monitor fans, power supplies, and port state
fruInfo
    Display field replaceable unit information
ifShow
    Displays the interface statistics for the OOB management port
routeShow
    Displays the interface routes for the OOB management port
showChassisIpAddr
    Displays the chassis IP address
setChassisIpAddr
    Change the chassis IP address
showDefaultRoute
    Displays the default gateway IP address
setDefaultRoute
    Sets the gateway IP address
arpShow
    Displays the link level address resolution protocol (ARP) table
hostShow
    Displays the host name table
memShow

```

```

Displays internal memory usage
chassisQuery
Displays information about the line cards in a chassis

```

## Log

```

logShow
    Display the Log file
logClear
    Clear the Log file
logConfigure
    Configure the log settings

```



### Note

When configuring log devices (option 1), do not change settings for the following devices:

**BriefRam:** Changes will have no effect.

**Console:** This device changes log messages that are displayed on the RS232 port.

**Trap:** Modifying traps may have adverse effects if the device is configured to send traps to a SNMP management station. By default it is configured to send traps. Enabling additional log levels will have no effect, but disabling log levels will prohibit traps from being sent.

These devices are for internal use only.

```

logSaveAsDefault
    Save current log level settings as the defaults
logResetToDefaults
    Restore the log default settings
logSyslogConfig
    Configure the syslog host address
logShowConfig
    Display the current log configuration

```

## KeyManagement

```

showKeys
    Display the list of installed license keys
addKey
    Install a license key
removeKey
    Remove a license key

```

## TimeManagement

```

time
    Configure the time on the device
timeZoneConf
    Configure the time zone setting
timeDSTConf
    Configure the daylight savings time settings

```

## SNMP

```

snmpCommunityConf
    Configure the SNMP community strings
snmpTargetAddr
    Configure the SNMP trap targets
snmpTargetParams

```

```

    Access the snmpTargetParamsTable
snmpNotifyProfile
    Access the snmpNotifyFilterProfileTable
snmpNotifyFilter
    Access the snmpNotifyFilterTable
snmpNotify
    Access the snmpNotifyTable

```

## Capture

```

capture
    A combination of all capture commands that follow
captureFw
    Capture firmware information
captureSm
    Capture subnet manager information
captureIsm
    Capture IB switch information
captureChassis
    Capture chassis information
captureLog
    Capture log information
captureMisc
    Capture miscellaneous information. This includes information such as license keys,
    memory test, time zone, and time Daylight Saving Time (DST)
captureSnmp
    Capture SNMP information
captureShell
    Capture shell command information
ismTune
    Use ismPortEnable, ismPortDisable

```

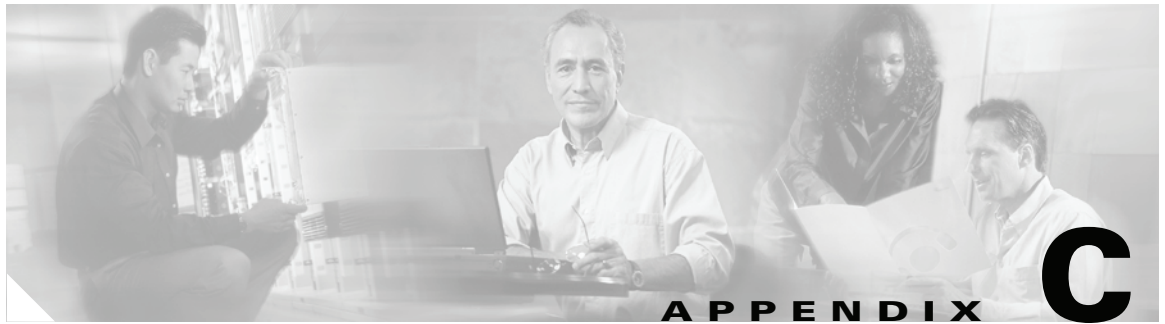
## Deprecated

```

smDisplayLids
    Use smShowLids
smGetPriority
    Use smShowPriority
smDumpGroups
    Use smShowGroups
smDumpServices
    Use smShowServices
smDumpSubscriptions
    Use smShowSubscriptions
smDisplayMaxHostsPerSwitch
    Use smShowMaxHosts
smDisplayNumStages
    Use smShowNumStages
smDisplayMasterLMC
    Use smShowMasterLMC
smDisplaySmMasterLid
    Use smShowMasterLid
smDumpLidMap
    Use smShowLidMap
smDisplayMaxLid
    Use smShowMaxLid
smDisplaySMParms
    Use smShowSMParms

```





# Troubleshooting

This appendix describes how to troubleshoot the Cisco SFS 7024™, and it includes the following information:

- [Hardware Checks, page C-85](#)
- [Troubleshooting Scenarios, page C-87](#)

## Hardware Checks

### Switch

| Problem                 | Fix                                                                                                                                      |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| The Switch has no power | Ensure that the power cord(s) is attached to the Switch and the power outlet.<br><br>Ensure that the power supply(s) is seated properly. |

### Power Supply

| Problem          | Fix                                                  |
|------------------|------------------------------------------------------|
| DC OK LED is off | Indicates DC power failure or no DC power is present |
| AC OK LED is off | Indicates AC power failure or no AC power is present |

## Fan

| Problem         | Fix                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|
| Red LED is lit  | Call Tech Support                                                                      |
| Fan not running | Ensure fan is seated properly.<br>If fan continues to be inoperable, call Tech Support |

## OoB Ethernet RJ45 Port

| Problem                                                                                                                                                             | Fix                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The SFS 7024 Ethernet Port(s) have a RJ45 Cable with a Noise Problem: This problem would occur if there is a RJ45 cable that has poor shielding or contact of pins. | Ensure that the cable is a straight-through Cat 5 cable (not a crossover cable).<br><br>If using a straight-through cable and still experiencing this problem:<br>Test with a known good cable. |
| Absence of Ethernet link and/or intermittent Ethernet connectivity.                                                                                                 | Ensure that the Ethernet cable is Cat 5E or Cat 6 certified.                                                                                                                                    |

## SFS 7024 Leaf Module IB Ports

| Problem      | Fix                                                                                |
|--------------|------------------------------------------------------------------------------------|
| No LED       | LED may be bad if IB Link (A and B) LEDs are lit, and the ATTN and/or STAT is not. |
| Bad IB Cable | If the QUAL LED is not lit:<br>Test with a known good IB cable.                    |

# Troubleshooting Scenarios

## InfiniBand

This section documents common problems seen with the SFS 7024 switch.

### Invalid IP Address entered for SWC via Console Port

#### Symptoms

Cannot access the Chassis Viewer browser window. The browser window times out and Chassis Viewer will not come up.

#### Resolution / Workaround

Invalid IP Address entered for switch card via the console port. Make sure configuration is using a valid IP address for the Switch (make sure initial configuration for switch is correct using the console port during the boot sequence).

### Bad IB Cable

#### Symptoms

When viewing the IB fabric with a subnet manager viewer, no nodes will be seen, or only the nodes that have a good IB connection will be seen.

#### Resolution / Workaround

Possibly a bad IB cable(s). Ensure that there is a Blue LED illuminated on the leaf module IB ports of the SFS 7024 switch. Make sure that all devices (nodes) can be seen in the subnet manager window.

### Improperly Seated IB Cable

#### Symptoms

When viewing the Subnet Manager no nodes will be seen, or only the nodes that have a good IB connection will be seen.

#### Resolution / Workaround

Possibly an improperly seated IB cable(s). Ensure that there is a Blue LED illuminated on the switch. Make sure that all devices (nodes) can be seen in your Subnet Manager window.

