

**Cisco SFS 7000 InfiniBand Server Switch
Quick Start Guide (Topspin 120 Quick Start Guide)
Release 2.2.0 Update 1**

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Regulatory Notices

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Safety Information

- [“Electrical Cautions” on page v](#)
- [“General Cautions” on page vii](#)

Electrical Cautions



CAUTION: Use only the power cable provided with your Topspin system. Inspect the power cord and determine if it provides the proper plug and is appropriately certified for use with your electrical system. Discard the cord if it is inappropriate for your country’s electrical system and obtain the proper cord, as required by your national electrical codes or ordinances.



CAUTION: Grounding is supplied by the ground-prong on the 3-prong power cable. Do not attach a separate ground cable. Do not use adapter plugs. Do not remove the ground prong from the cable. Ensure the ground connection on the power supply is correct and functioning before applying power to the Topspin system.



CAUTION: Always ground yourself before touching any internal Topspin system component to avoid damage from electrostatic discharge (ESD).



CAUTION: Remove power cables by grasping the cable connector and pulling straight out. If the chassis comes equipped with a power-plug retainer, move the bail wire used to retain the plug to the side before attempting to remove the power plug. The operator must disconnect all power cables before attempting to remove the system from the rack.



CAUTION: The Topspin system contains lithium batteries. Do not attempt to replace or discard these batteries. The batteries may only be serviced by Topspin service personnel.



CAUTION: Observe and follow service markings. Do not service the Topspin system, except as explained in the Topspin documentation supplied with your system. Opening the chassis or removing the enclosure cover exposes you to electrical shock and may damage system components.

If one or more of the following situations occurs, remove power to the Topspin system chassis, and contact your Topspin support representative:

- The power cable or power plug is damaged.
- The system has been exposed to water.
- The system has been dropped or damaged in any way.
- The system does not operate correctly after following the installation instructions.



CAUTION: You must ensure the operating environment has adequate air circulation. Keep the Topspin system in a cool, well-ventilated room. Do not block cooling vents. Install filler panels into all unused slots.



CAUTION: Never place your hand inside an empty card or module bay. You should never have cause to place a hand anywhere inside the Topspin chassis. Unused card and module bays should always have a Topspin cover over the bay to ensure proper safety, ventilation, and cooling.

General Cautions



CAUTION: No user is authorized to remove the Topspin system enclosure cover. The internal chassis contains no user-serviceable components. Removing the enclosure cover voids your warranty. See the warranty card for further details regarding the servicing of your chassis.



CAUTION: Opening and/or modifying expansion and system modules may void your warranty. Refer to your warranty to determine access restrictions.

In general

- Do not spill food or liquids on your system components.
- Protect your Topspin system from sudden power-surges and interruptions by using a surge suppressor, line conditioner, or uninterruptable power supply (UPS).
- Place cables appropriately so that they do not obstruct any egress within the data center and they do not block any ventilation inlets or outlets.
- Rack mount the Topspin chassis according to the rack manufacturer recommendations.

Contact Information

Table III-1: Customer Contact Information

Address	Topspin Communications, Inc. 515 Ellis St. Mountain View, CA 94043
Telephone, Corporate Headquarters	(866) TOPSPIN or (650) 316-3300
Fax	(650) 316-3269
Telephone, Technical Support	(800) 499-1473
Email, Technical Support	support@topspin.com
Web site, Support	http://support.topspin.com

Topspin 120 Contents List

The following contents are included with your Topspin 120 product:

___ Accessory Kit

___ Documentation & CD-ROM Assembly

- *Topspin 120 Quick Start Guide*
- Release Notes

___ Hardware Kit

- 2 Topspin 120 rack-mount brackets
- 12 screws

___ Bezel

___ Serial Cable Kit

___ Serial Cable

- Serial cable document
- DB-9 connector male to RJ-45
- DB-9 connector female to RJ-45
- MX-9-1 roll-over cable

___ Documents

- Located inside serial cable kit package

___ Power Cables

Located outside of accessory kit.

- two standard

___ Chassis

___ Power Supply/Cooling Units

- 1 unit (standard)

Product Registration

THANK YOU FOR PURCHASING YOUR TOPSPIN® PRODUCT

Topspin Communications is pleased that you have selected Topspin for your computing infrastructure. Topspin provides comprehensive customer support resources via telephone and Web access.

Topspin's Customer Support Website has the latest TopspinOS (IB Switch and I/O Chassis Operating System), Linux and Windows Host Side Drivers, Boot over Infiniband Firmware and technical documentation. Topspin recommends that you download the latest Topspin software and documentation from the Topspin support web site so that you can take full advantage of the latest capabilities.

Registration Benefits

Customers must register on-line to receive the following benefits:

- Software updates and downloads
- Product warranty support
- Customer service and support
- Product documentation

Registration Instructions

Please immediately follow the instructions below to register yourself as a Topspin user:

1. Go to <http://support.topspin.com>
2. Click the "**Register Now**" link below the customer login prompt
3. Enter at least one of your product serial numbers in the spaces provided. Each serial number must be entered exactly as it appears on the product label, including dashes.
4. Enter your contact information in the spaces provided.

User Name and Password

Once you register, Topspin will provide you with a user name and password to access the secure customer support Web site. You may also contact Topspin customer support at:

- Email: support@topspin.com
- Phone: (800) 499-1473
- Online Help Desk: <http://support.topspin.com>

Terms and Conditions of Sale for Topspin Communications, Inc.

PLEASE READ THESE TERMS AND CONDITIONS CAREFULLY BEFORE USING THE PRODUCTS THAT ARE PROVIDED WITH THIS AGREEMENT. BY USING ANY PRODUCTS, YOU ACKNOWLEDGE THAT YOU HAVE READ AND UNDERSTOOD ALL THESE TERMS AND CONDITIONS AND YOU WILL BE CONSENTING TO BE BOUND BY THEM. IF YOU DO NOT ACCEPT THESE TERMS AND CONDITIONS, DO NOT USE THE PRODUCTS AND RETURN PRODUCTS WITHIN 30 DAYS UNUSED IN THE ORIGINAL SHIPPING CONTAINER TO THE PLACE OF PURCHASE FOR A FULL REFUND.

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2. **Prices/Taxes.** All prices are exclusive of shipping, insurance and installation charges, all of which are Customer's sole responsibility. All prices are exclusive of all sales, use, excise, value added, withholding and other taxes, and all customs duties and tariffs now or hereafter claimed or imposed by any governmental authority upon the sale of Products. Any such charges will be added to the

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Topspin Limited End User Warranty

Topspin provides the following limited warranty (“Limited Warranty”) for Topspin products:

- For a period of (1) year from the date of shipment, the hardware components will be free from defects in materials and workmanship; and
- For a period of ninety (90) days from the date of shipment, the software components will substantially conform to Topspin’s then-current specifications.

Products may be registered at www.topspin.com/support to be eligible for warranty support.

If the product fails to meet the Limited Warranty above, Topspin, at its option, will:

- Repair the product by means of hardware and/or software, or
- Replace the product with an equivalent product.

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Extent of Limited Warranty

This limited warranty does not cover damages due to external causes, including accident, problems with electrical power, usage not in accordance with the product instructions, misuse, neglect, alteration, repair, improper installation, or improper testing.

topspin does not warrant that the functions of the hardware or software will meet your specific requirements or that the operation of the product will be uninterrupted or error free. You assume responsibility for proper selection of the product to achieve your intended results.

How to Obtain Warranty Service

To obtain warranty service, the product must first be registered with Topspin as outlined above. Topspin must be notified during the applicable warranty period in order to have any obligation under the Limited Warranty.

To request warranty service, you must contact Topspin's service department. Contact information can be obtained from Topspin's Web site at www.topspin.com/support.

If warranty service is required, Topspin will issue a Return Material Authorization Number ("RMA"). you must ship the product back to Topspin in its original or equivalent packaging, prepay shipping charges, and insure the shipment or accept the risk of loss or damage during shipment. Topspin will ship the repaired or replacement product to you, freight prepaid, if you use an address in the continental U.S., where applicable. Shipments to other locations will be made freight collect.

Note that advance replacement and other premium service products may be available at an additional cost from Topspin.

All replaced product will become the property of Topspin. Replaced or repaired product may be new, reconditions or contain refurbished materials. In connection with warranty service, Topspin may, in its sole discretion, modify the product at no cost to you to improve its functionality or reliability.

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Declaration of Conformity

Topspin Communications, Inc.
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<http://www.topspin.com>

We

Topspin Communications
 515 Ellis Street
 Mountain View, CA 94043
 USA

Declare under our sole responsibility that the product

- Product Name: Topspin 120
- Model Number: Topspin 120

To which this declaration relates is in conformity with the following standard(s) or other normative document(s) ([Table VIII-1](#))

Table VIII-1: Standards

Safety:	EN60950:	2000
EMC:	EN55022:	1998, Class A
	EN61000-3-2	1995
	EN6100-3-3:	1995
	EN55024	1998

Following the provisions of the Radio & telecommunications Terminal equipment Directive 99/5/EEC, the EMC Directive 89/336/EEC and of the Low Voltage Directive 73/23/EEC.

Place of Issue: Mountain View, CA, USA

Date of Issue: 4 March, 2004



William P. Cerreta
 Systems Director

Topspin 120 Quick Start

The following sections appear in this chapter:

- “[Prepare the Site](#)” on page 1
- “[Mount the Chassis in a Rack](#)” on page 1
- “[Configure Basic Connectivity](#)” on page 6
- “[Configure and Connect InfiniBand Hosts](#)” on page 7

Prepare the Site

Read the cautionary statements in “[Safety Information](#)” on page v.

Register the InfiniBand system online. Go to <http://topspin.com/support/>.

Ground yourself using an approved ground wrist-strap.

Make sure you have the right cables and sufficient ventilation.

Unpack the Topspin 120 package.

Prepare a management workstation, such as a PC running a terminal program, and a straight-through M/F DB-9 serial cable (included).

Mount the Chassis in a Rack

This section describes how to install the Topspin 120 chassis in an equipment rack.

Requirements

In addition to the accessories provided with the switch, you should have the following:

- A #1 Phillips screw driver
- 12 screws (provided)

- Any associated mounting clips to secure the brackets to your rack (2 for each rail of the rack)
- A rack with enough clearance for the Topspin 120 switch and cables.
- Two people are recommended to perform the installation

Rack Mount Installation

To mount the Topspin 120 chassis in a rack, perform the following steps:

1. Open the Topspin 120 box.
2. Remove the chassis, rack brackets, CD-ROM, parts bag, and documentation.
3. Place the chassis on a secure, clean surface.
4. Open the plastic bag containing mounting parts.
5. Check the slot in your rack for sufficient clearance.
6. Determine the desired method of installation:
 - [“Installing the Switch with One Person” on page 2](#)
 - [“Installing the Switch with Two People” on page 5](#)

Installing the Switch with One Person

The following method of installation is easier with two people, but can be accomplished with one person. It can be difficult to align the switch correctly along the rack rails with only one person.

1. Take one set of rack brackets and separate them. Each side arrives assembled to its counterpart, but should be separated before attaching to the switch when using this method of installation.

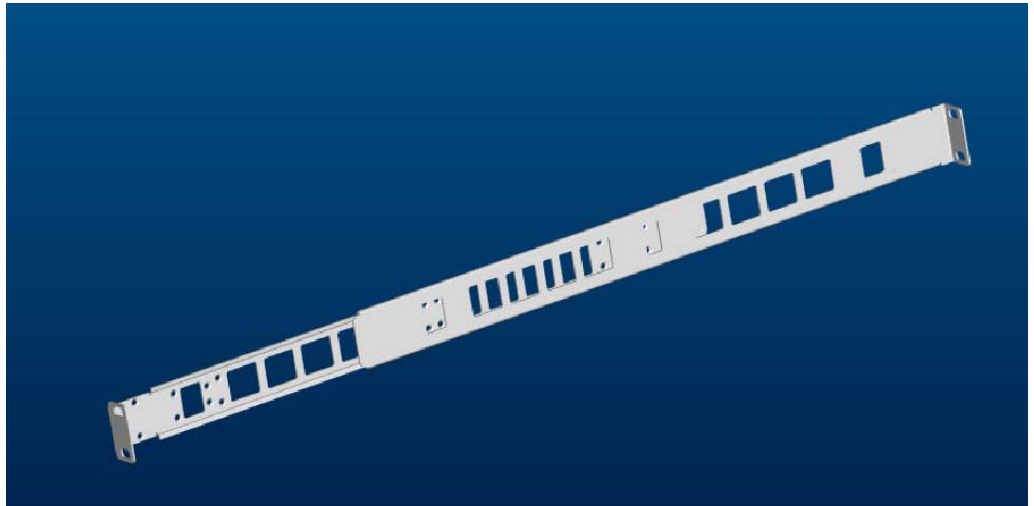


Figure 1-1: Assembled Rack Brackets

2. Attach the rack bracket that has screw holes to the side of the chassis with the flange facing away from the switch, as shown in [Figure 1-2](#).

The standard method is to face the flange toward the front of the chassis. However, you can also mount the flange toward the back if you want to mount the switch backward in the chassis (service-side forward).

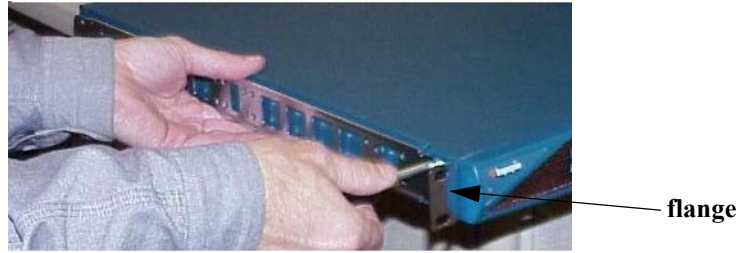


Figure 1-2: Attaching One Rail to Switch Chassis

3. Repeat [Step 1.](#) and [Step 2.](#) on the opposite side of the switch chassis.
The two counterparts to these sliding rails (without screw holes) should still be unattached.
4. Check your rack for clearance for the switch. The switch can be installed either directly on top of another device (using the rubber feet, which are provided), or be suspended from the rack brackets.

5. Attach the remaining 2 rail brackets to your rack.
 - a. Orient a rack bracket toward the back of the rack bracket with the flange facing away from the rack. The flange should go around the outside of your rack post, as shown in [Figure 1-3](#).



NOTE: (Note: If you are mounting the switch backward, the rack bracket should be installed to the front of the rack).

- b. Secure the rack brackets with your screws through the back of the rack, as shown in [Figure 1-4](#).
 - c. Repeat on both sides of the rack.



Figure 1-3: Holding Rack Bracket Against Inside of Rack



Figure 1-4: Secure Rack Brackets to Rack with Screws

6. Lift the switch unit and align the rack bracket on the switch with the rack bracket on the rack before sliding the two sets of rack brackets together.
7. Carefully push the switch unit into the rack.
If the rack brackets do not slide easily, the alignment may be off. Pull the switch back toward you and realign the brackets.



Figure 1-5: Sliding the Switch Into the Rack

8. Secure the switch with your screws through the front of the rack, as show in [Figure 1-6](#).



Figure 1-6: Secure switch with screws through the front of the rack

Installing the Switch with Two People

The following method of installation requires two people to mount the chassis into the rack. One person holds the switch while another person secures it to the rack.

1. Separate the assembled rack brackets.

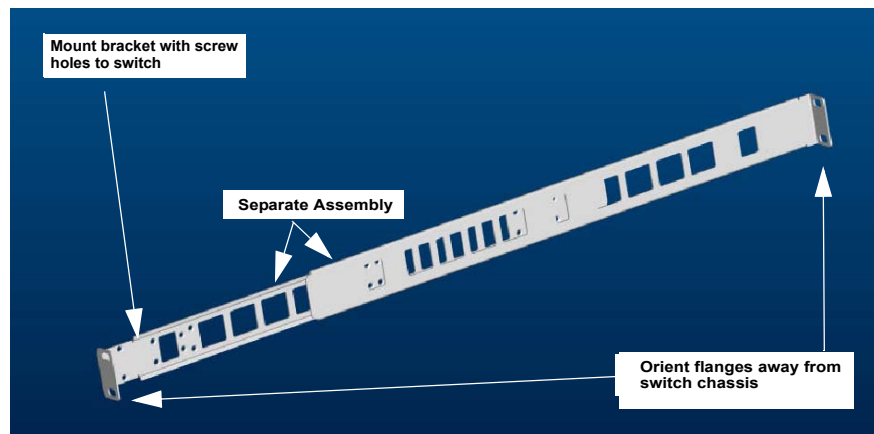


Figure 1-7: Separate Assembled Brackets before Mounting onto Switch

2. Attach the rack bracket that has the screw holes to the sides of the switch chassis with the screws provided.

When attaching the rack brackets to the switch, the flanges of the brackets should be facing away from the switch chassis, as shown in [Figure 1-8](#).



Figure 1-8: Fasten Rack Bracket to Switch Chassis

3. Assemble rack brackets to their counterparts before inserting the switch into the rack.

4. Insert the switch into the rack with the rack brackets attached. You will have to tilt the switch unit to one side to avoid hitting the sides of the rack with the brackets as the pass around the back posts. Return the switch unit to a horizontal position once the switch is inside the rack. The rear rack brackets flanges should wrap around the outside of the back rack posts.
5. Have one person hold the switch while another person secures the switch to the rack.
6. Attach the back rack brackets to the back of the posts with screws that fit your rack.
7. Attach the front rail brackets to the front of the rack posts with screws that fit your rack, as shown in [Figure 1-9](#).



Figure 1-9: Secure the Switch Through the Front Posts

Configure Basic Connectivity

1. Attach an RJ-45 console cable
 - a. Connect the cable from the InfiniBand chassis serial console to your terminal or management workstation; use the cable kit that is provided in the package.
For detailed information on how to connect the serial console cable, please see the documentation included with the serial cable kit.
 - b. Open a terminal emulation window using a program such as HyperTerminal for Windows. Set your terminal parameters to the following:
 - Baud: 9600 bps
 - Data Bits: 8
 - Parity: None
 - Stop Bits: 1
 - Flow control: None
2. Attach the power cables and power on the chassis
For more information, see the *Topspin 120 Hardware Guide*.
 - c. Insert the power cords. The Topspin 120 system will automatically boot up. You can watch the running status via the serial console.
3. Configure an IP address for the Ethernet management port
It is necessary to configure connectivity to the out-of-box Ethernet management port in order to use Telnet or the GUI. The system is not pre-configured when it ships from the factory.
 - d. When the system has completed booting, press **Enter** several times to display the CLI prompt.

Login:

- e. Enter the user name and password. The default user name is **super**, and the default password is **super**.

```
Login: super
Password: super
Topspin-120>
```

- f. Enter the **enable** command.

```
Topspin-120> enable
Topspin-120 #
```

- g. Enter the **configure** command.

```
Topspin-120 # configure
Topspin-120 (config) #
```

- h. Enter the interface **mgmt-ethernet** command to enter config-if-mgmt-ethernet mode..

```
Topspin-120 (config) # interface mgmt-ethernet
Topspin-120 (config-if-mgmt-ethernet) #
```

- i. Enter the IP address of the management port followed by the netmask.

```
Topspin-120 (config-if-mgmt-ethernet) # ip address 10.10.0.22 255.255.255.0
```

- j. Set the default gateway for the management port. See your system administrator for a gateway address. For example:

```
Topspin-120 (config-if-mgmt-ethernet) # gateway 10.10.0.1
```

- k. Enable the management port by entering the no shutdown command.

```
Topspin-120 (config-if-mgmt-ethernet) # no shutdown
```

- l. Save the configuration to preserve it between reboots..

```
Topspin-120 (config-if-mgmt-ethernet) # exit
Topspin-120 (config) # exit
Topspin-120# copy running-config startup-config
```

Configure and Connect InfiniBand Hosts

This section describes a brief overview for configuring your InfiniBand hosts to use the drivers for Linux.

For more detailed instructions, please see the HCA/Host-Side Driver User Guide for Linux or Windows, which is included with your HCA(s).

1. Install the HCA(s).
 - a. Power down the host system following proper grounding procedures.
 - b. Unpack the HCA card and insert it into an open 64-bit PCI, PCI-X or PCI-E slot.
2. Power on the host system.
3. Install the HCA driver(s).

An integrated suite of drivers is provided, including IPoIB, SRP, SDP, uDAPL and MPI .

- a. Make sure your Linux kernel is supported. Contact the Technical Support website at <http://www.topspin.com/support/>
- b. Insert the supplied CD-ROM into the CD-ROM drive. The CD-ROM is provided in the box with the Switched Computing system.
- c. (Optional) Mount the file-system for the CD-ROM drive if your platform does not auto-mount devices.

```
# mount /mnt/cdrom
```

- d. Open a terminal or graphic window and access the top-level directory on the CD-ROM
- e. Execute the command `./tsinstall` in a terminal window. This program automatically detects the available kernel and installs the appropriate drivers as RPM packages. By default, topspin files are saved in the `/usr/local/topspin` directory.

```
# ./tsinstall
```

4. Configure the HCA drivers.
 - a. Configure the IPoIB driver by assigning an IP address to interface `ib0` and/or `ib1`, which corresponds to the two HCA ports. IPoIB drivers load when the interfaces are used for the first time.

To assign `ib` interfaces, enter `ifconfig ib# ip address netmask netmask`:

Example of One HCA

```
# ifconfig ib0 192.168.0.0 netmask 255.255.255.0
#
# ifconfig ib1 192.168.0.1 netmask 255.255.255.0
#
```

Example of Two HCAs

```
# ifconfig ib0 192.168.0.0 netmask 255.255.255.0
#
# ifconfig ib1 192.168.0.1 netmask 255.255.255.0
#
# ifconfig ib2 192.168.0.2 netmask 255.255.255.0
#
# ifconfig ib3 192.168.0.3 netmask 255.255.255.0
#
```

- a. (Optional) Configure MPI.
 - Setup `rsh` or `ssh` on two nodes so that you can run commands between a remote and local node without entering a login or password. This is required to use the MPI protocol.
 - Add paths to your environment `PATH`:
`/usr/local/topspin/mpi/mpich/bin`
`/usr/local/topspin/bin`
 or
 - Add the paths for all users by adding the following line to your `/etc/profile.d` script:
`export PATH=$PATH:/usr/local/topspin/mpi/mpich/bin:/usr/local/topspin/bin`
- b. Configure all other drivers, including SDP.
 Refer to the *Host Channel Adapter Installation Guide* for instructions.

5. Plug InfiniBand cables from the host to the InfiniBand switch.
 - a. To plug in an InfiniBand cable, push the connector into the interface until you hear/feel a click.
 - b. Wiggle your connector back and forth and pull gently to be sure that both sides of the connector have locked firmly into place.

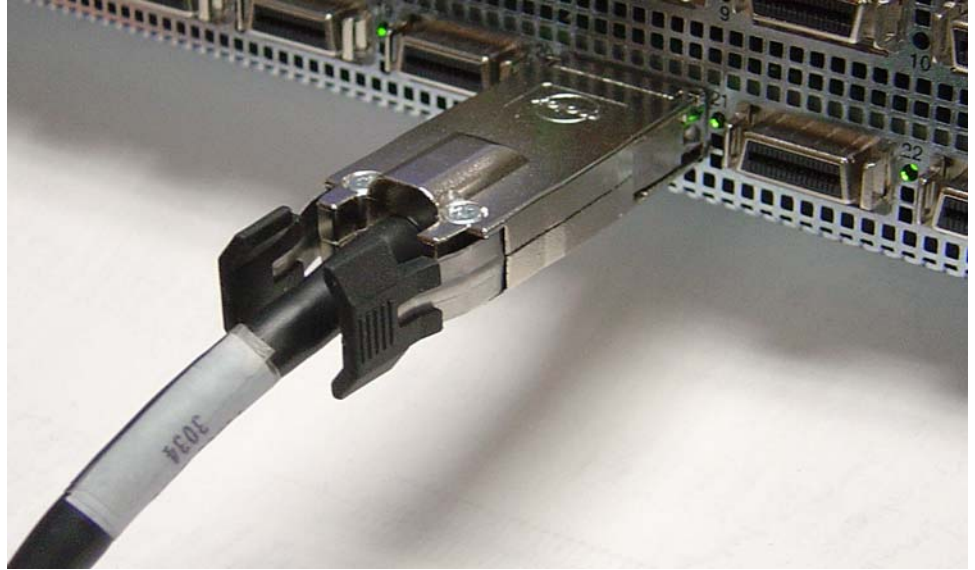


Figure 1-10: Fully Installed IB Cable with Pinch Connector



Figure 1-11: Fully Installed IB Cable with Pull Connector



NOTE: If your host does not provide an ample amount of free space around a given IB port, double-check that your IB cable connector engages fully. Wiggle your connector back and forth to be sure that both sides of the connector have locked firmly into place.

- c. To remove a cable with a pinch connector, pinch both sides of the back of the connector and pull the connector away from the port.

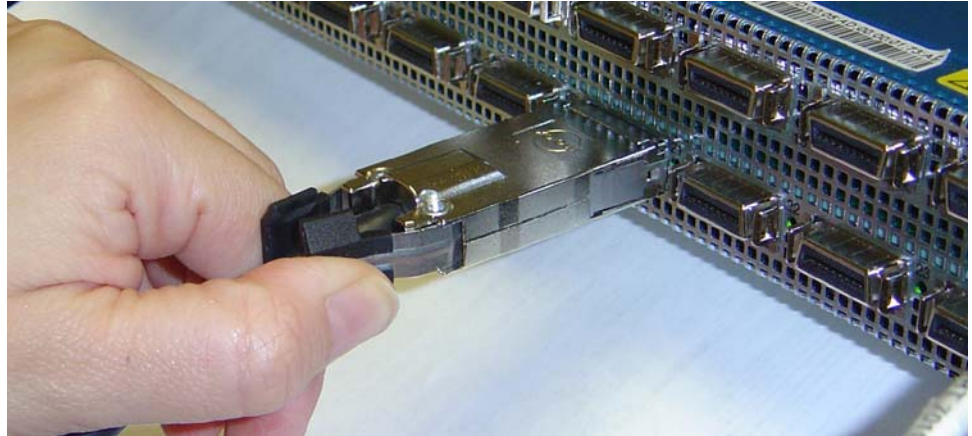


Figure 1-12: Removing a Pinch Connector

- d. To remove a cable with a pull connector, grasp the connector with one hand and push it toward the port, then pull the latch away from the port with your other hand and gently wiggle the connector away from the port.

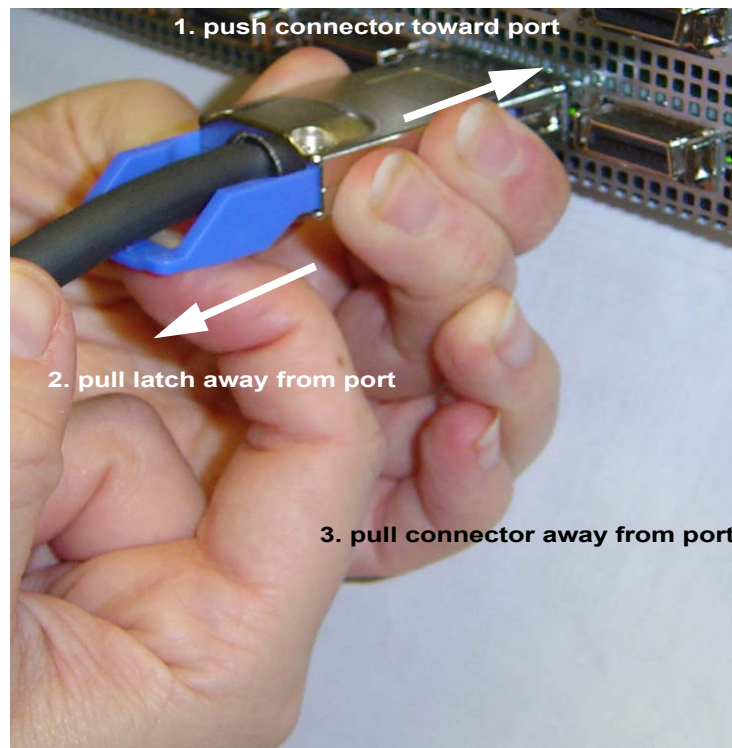


Figure 1-13: Removing a Pull Connector

(Optional) Launch the Chassis Manager

Chassis Manager is a web-based GUI that can be used to manage a single InfiniBand chassis.

Prepare Your Device

To launch Chassis Manager on your Topspin 270, you must:

- Configure an IP address on the Ethernet management port, if you have not already done so.
- Configure an IP gateway on the Ethernet management port, if you have not already done so.
- Optional. Enable Telnet services (Telnet services should be enabled by default).
- Enable HTTP and/or HTTPs services (HTTP services should be enabled by default).

If you followed the previous steps, you should already have these items configured. If your device meets these requirements, proceed to [“Launch Chassis Manager” on page 11](#). Otherwise, to prepare your device, perform the following steps:



NOTE: Consult your network administrator for an IP address, subnet mask, and gateway address before you begin this process.

1. If you have not yet configured an IP address for the Management port, refer to [“Configure Basic Connectivity” on page 6](#).
2. Enter the **telnet enable** command in global config mode to start telnet services on your device. You may need to use the **exit** command to return to global config mode.

Example

```
Topspin-270> enable
Topspin-270# configure
Topspin-270 (config) # telnet enable
```

3. Enter the **ip http server** command to enable HTTP services on your device. HTTPs is also supported.

Example

```
Topspin-270 (config) # ip http server
```

Launch Chassis Manager

To launch Chassis Manager, perform the following steps:

Launch your Web browser. Chassis Manager supports the following browsers

- Microsoft Internet Explorer version 6
- Netscape Navigator version 6
- Mozilla version 1.4

4. Type the Management IP address of your Server Switch in the address field of your browser and press **Enter**.



Figure 1-14: Web Browser Window

A log-in window opens. [Figure 1-15](#) displays the log-in window.

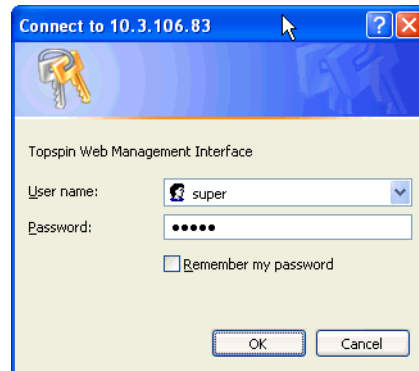


Figure 1-15: Chassis Manager Log-In Window

5. Enter your Server Switch user name and password in the log-in window and click the **OK** button. Chassis Manager loads in your browser window.

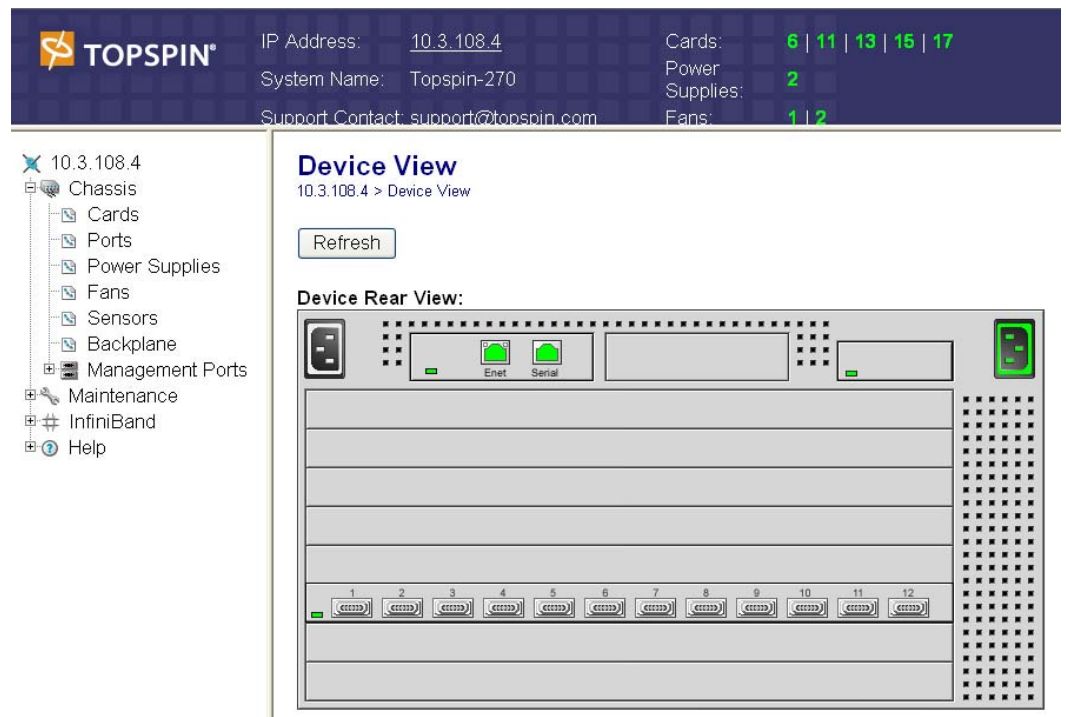


Figure 1-16: Chassis Manager Opening

(Optional) Install the Element Manager GUI

For more information regarding the Element Manager tasks, refer to the *InfiniBand User Guide*.

1. Check that you have sufficient system resources. You will need:
 - 32 MB free RAM
 - 50 MB disk space + 50MB additional temporary space during installation
 - 300 Mhz processor
 - 800x600 screen resolution, 16bit color depth
2. Insert the Topspin CD-ROM into the CD-ROM drive of a server that has network access to a Topspin management port.
3. The GUI can be found in the following location on the CD-ROM.
 - Linux/install_linux_ia64.bin
 - Linux/install_linux_x86.bin
 - Windows/install_x86.exe
 - Solaris/install_solaris_sparc.bin
4. Run the installation wizard:
 - a. On Windows, double-click install.exe.
 - b. On Solaris and Linux systems, enter `sh ./install_yourOS.bin`.
 - c. Follow the on-screen instructions.
 - d. Enter location and preference information as requested by the installation program.
6. Start the Element Manager.
 - a. On Linux platforms, change to the installation directory and run the Element Manager with **./TopspinEM**.
 - b. On Windows platforms, click **Programs -> Topspin Element Manager -> TopspinEM**.
 - c. When prompted to enter a device name, enter the DNS host name or IP address of the Topspin 270, and community string for the unrestricted user. The default community string for the unrestricted user is secret.

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