



## Installing the SN 5420 Storage Router

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This chapter describes how to prepare your site for installation, how to prepare and install the SN 5420 storage router chassis, how to connect network cables, how to connect power, and how to verify correct installation. For first-time installations, perform the procedures in the following sections in the order listed here:

- [Read Safety Notices, page 2-2](#)
- [Site Planning, page 2-4](#)
- [Installing Chassis Feet, page 2-5](#)
- [Rack-Mounting the SN 5420 Storage Router, page 2-7](#)
- [Connecting to the Gigabit Ethernet Port, page 2-9](#)
- [Connecting to the Fibre Channel Port, page 2-10](#)
- [Connecting to the 10/100 Ethernet Management and HA Ports, page 2-11](#)
- [Connecting to the RS-232 Management Port, page 2-12](#)
- [Checking and Selecting the Input Voltage, page 2-13](#)
- [Connecting Power, page 2-18](#)
- [Verifying Installation, page 2-19](#)
- [Where to Go Next, page 2-20](#)



**Warning**

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**Before you install, operate, or service the system, read the *Site Preparation and Safety Guide*. This guide contains important safety information you should know before working with the system.**

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# Read Safety Notices

Read the following safety notices before installing the SN 5420 storage router.



**Warning**

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**Ultimate disposal of this product should be handled according to all national laws and regulations**

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**Warning**

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**The device is designed to work with TN power systems.**

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**Warning**

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

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**Warning**

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**Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.**

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**Warning**

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**Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.**

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**Warning**

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**The plug-socket combination must be accessible at all times because it serves as the main disconnecting device.**

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**Warning**

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**This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).**

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**Warning**

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**When installing the unit, the ground connection must always be made first and disconnected last.**

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**Warning**

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**This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use.**

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**Warning**

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**Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.**

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**Warning**

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**During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.**

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**Warning**

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**The safety cover is an integral part of the product. Do not operate the unit without the safety cover installed. Operating the unit without the cover in place will invalidate the safety approvals and pose a risk of fire and electrical hazards.**

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**Warning**

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**Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.**

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**Warning**

Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.

**Warning**

A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, do not connect the chassis to that receptacle.

**Warning**

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

**Warning**

Class 1 laser product.

**Warning**

Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.

## Site Planning

Planning the proper location and layout of your equipment rack or wiring closet is essential for successful storage router operation. Equipment placed too close together or in an inadequately ventilated area can cause system overtemperature conditions. In addition, poor equipment placement can make system panels inaccessible and difficult to maintain.

To ensure normal operation and avoid unnecessary maintenance, plan your site configuration and prepare your site *before* installation.

Table A-1 on page A-2 lists the operating and nonoperating environmental site requirements for the storage router. Within specified environmental ranges the system can continue to operate; however, a measurement that approaches the minimum or maximum of a range indicates a potential problem. You can maintain normal operation by anticipating and correcting environmental conditions before they exceed the maximum operating range.

Verify the site power for the type of device you are installing. Power requirements are useful for planning the power distribution system needed to support the storage router. Heat dissipation is an important consideration for sizing the air-conditioning requirements for an installation. See Table A-1 on page A-2 for power and heat ratings for the storage router.

**Caution**

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To prevent a loss of input power, verify that the total maximum load on the circuit supplying power to the power supply is within the current ratings of the wiring and breakers.

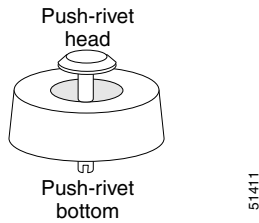
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## Installing Chassis Feet

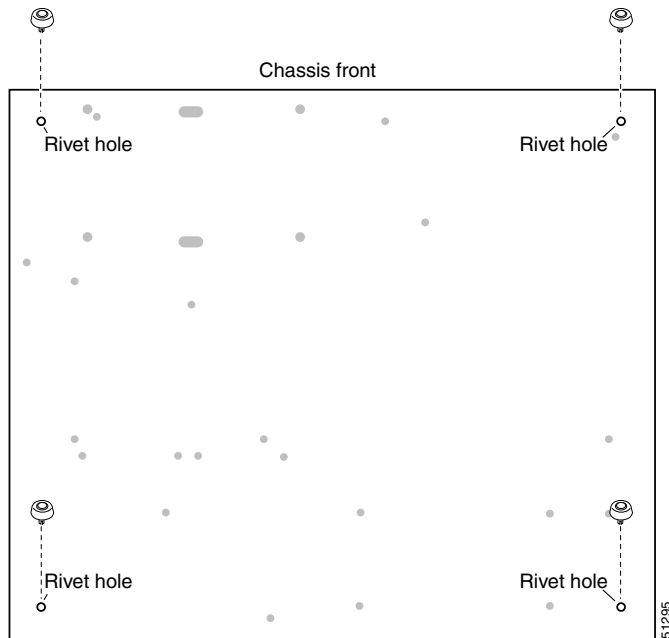
This section explains how to install the chassis feet. The chassis feet are rubber push-rievet feet that are pressed into rivet holes on the bottom of the storage router chassis. If you want to rack-mount the chassis, skip this section and proceed to the next section, “[Rack-Mounting the SN 5420 Storage Router](#)”.

Before placing the storage router on a desktop, shelf, or other flat, secure surface, follow these steps to install the rubber feet:

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- Step 1** Locate the four push-rievet rubber feet that were shipped with the chassis. (See [Figure 2-1](#).)

**Figure 2-1** Identifying Push-Rivet Rubber Feet

- Step 2** Place the storage router upside down on a smooth, flat surface.
- Step 3** Position a push-rivet rubber foot over one of the rivet holes and insert the rivet bottom into the hole. (See [Figure 2-2](#)). Press down on the rivet head until the rivet snaps into the hole. Repeat this step to install the remaining three feet.

**Figure 2-2** Installing the Push-Rivet Rubber Feet

# Rack-Mounting the SN 5420 Storage Router

The SN 5420 storage router chassis can be mounted in a 19-inch rack with the front panel forward.

Before installing the storage router in a rack, read the *Site Preparation and Safety Guide* to familiarize yourself with proper site and environmental conditions.

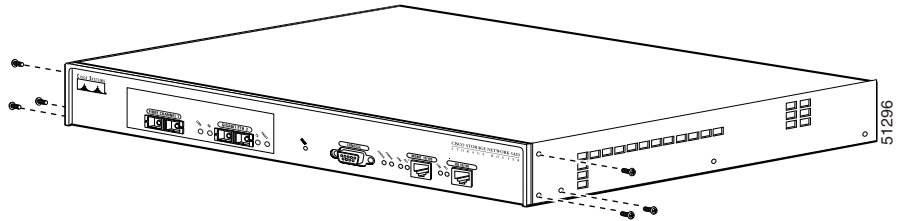
You need the following tools to install the storage router in a rack:

- A 3/16-inch flat-blade screwdriver
- A small Phillips screwdriver suitable for L-bracket screws
- Four rack-post screws (and clips if necessary) suitable for the equipment rack
- A screwdriver suitable for the rack-post screws
- A tape measure

A rack-mount kit containing two L-brackets is included in the accessory kit that ships with the storage router.

To install the storage router in a rack, follow these steps:

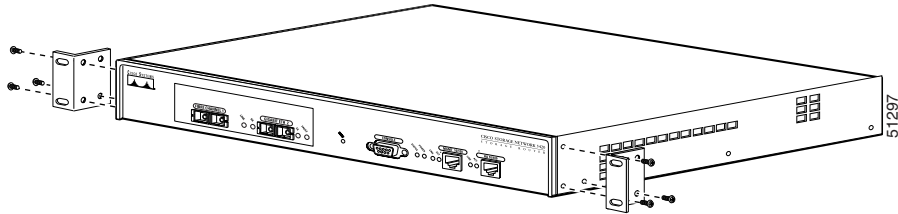
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- Step 1** Prepare for installation as follows:
- a. Place the storage router on the floor or on a sturdy table as close as possible to the rack. Leave enough clearance so that you can move around the storage router.
  - b. Use a tape measure to measure the depth of the rack. Measure from the outside of the front mounting posts to the outside of the rear mounting strip. The depth must be at least 19 inches (48.26 cm) but not more than 32 inches (81.3 cm).
  - c. Measure the space between the inner edges of the left-front and right-front mounting posts to ensure that the space is 17.75 inches (45.72 cm) wide.
- Step 2** Remove the six (three on each side) rack-mount screws from the chassis. (See [Figure 2-3](#).)

**Figure 2-3** Removing the Rack-Mount Screws

- Step 3** Attach the left and right L-brackets using screws removed in the previous step. (See [Figure 2-4](#).)

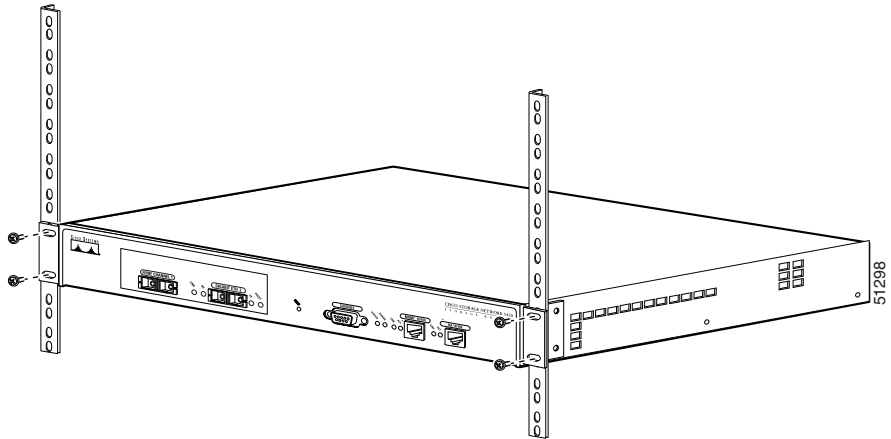


**Note** The L-brackets are shipped with mounting screws. You can use those screws if the screws removed during the previous step have been misplaced or damaged.

**Figure 2-4** Attaching the L-Brackets

- Step 4** Using screws that you provide, install the storage router in the rack as follows:
- a. Insert the rear of the storage router between the mounting posts.
  - b. Align the mounting holes in the L-brackets with the mounting holes in the equipment rack.
  - c. Secure the storage router by screwing four (two on each side) screws through the elongated holes in the L-brackets and into the threaded holes in the mounting post. (See [Figure 2-5](#).)

**Figure 2-5** *Installing the Chassis in the Rack*



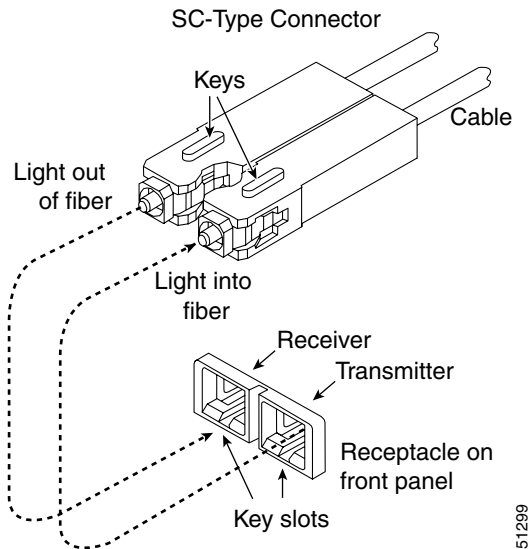
## Connecting to the Gigabit Ethernet Port

To connect to the Gigabit Ethernet port, follow these steps:

- Step 1** Remove the plug from the Gigabit Ethernet port connector; store the plug for future use.
- Step 2** Remove the plug from the SC-type connector on the fiber-optic cable. Insert the connector into the Gigabit Ethernet port connector. (See [Figure 2-6.](#))



**Note** When you plug the SC-type connector into the Gigabit Ethernet port connector, make sure that both the Tx and Rx fiber-optic cables are fully inserted into the SC-type connector.

**Figure 2-6** Connecting the SC-Type Cable to Gigabit Ethernet Port

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- Step 3** Connect the other end of the cable to the external end system, switch, or router.

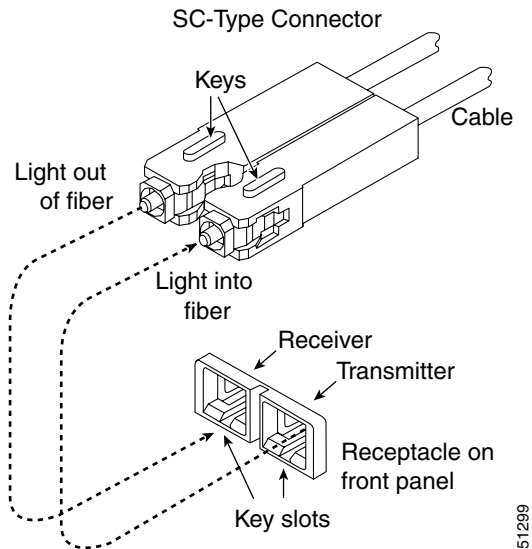
## Connecting to the Fibre Channel Port

To connect to the Fibre Channel port, follow these steps:

- Step 1** Remove the plug from the Fibre Channel port connector; store the plug for future use.
- Step 2** Remove the plug from the SC-type connector on the fiber-optic cable. Insert the connector into the Fibre Channel port connector. (See [Figure 2-7](#).)



**Note** When you plug the SC-type connector into the Fibre Channel port connector, make sure that both the Tx and Rx fiber-optic cables are fully inserted into the SC-type connector.

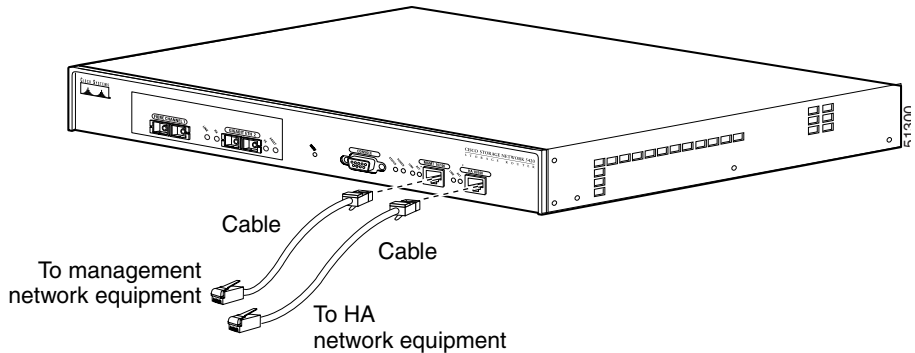
**Figure 2-7** Connecting the SC-Type Cable to Fibre Channel Port

**Step 3** Connect the other end of the cable to the external end system or switch.

## Connecting to the 10/100 Ethernet Management and HA Ports

To connect to the 10/100 management and HA ports, follow these steps:

- Step 1** Use modular, RJ-45, straight-through UTP cables to connect the 10/100 management and HA ports to end systems. Use modular, RJ-45 cross-connect cables to connect to external switches and routers.
- Step 2** Connect the appropriate modular cables to the 10/100 management and HA ports. (See [Figure 2-8](#).)

**Figure 2-8** Connecting to the 10/100 Management and HA Ports

**Step 3** Connect the other end of the cable to the external end system, switch, or router.

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## Connecting to the RS-232 Management Port

Connect a PC serial port to the RS-232 management port for local administrative access to the storage router. The PC must support VT100 terminal emulation. The terminal-emulation software—frequently a PC application such as HyperTerminal or Procomm Plus—makes communication between the storage router and your PC possible during setup and configuration.

Perform the following steps to connect to the RS-232 management port:

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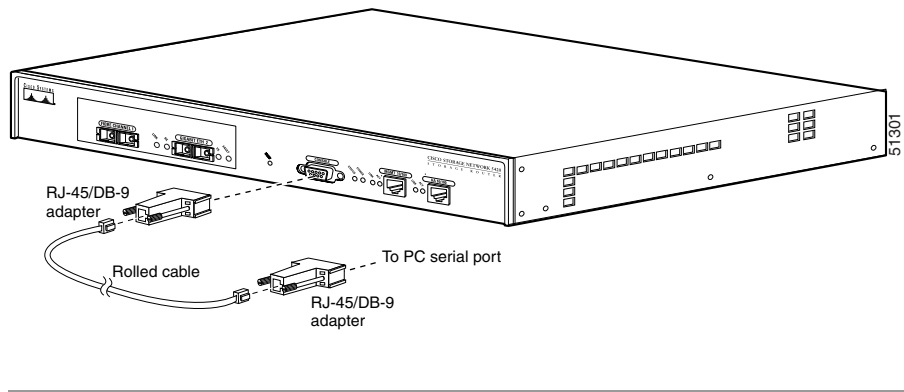
**Step 1** Make sure that your PC terminal emulation software is configured to communicate with the storage router via hardware flow control. Configure the baud rate and character format of the PC terminal emulation program to match these RS-232 management port default characteristics:

- 9600 baud
- Eight data bits
- One stop bit
- No parity

**Step 2** Connect one of the supplied RJ-45-to-DB-9 female adapters to the PC serial port.

- Step 3** Connect the other supplied RJ-45-to-DB-9 female adapter to the RS-232 management port (labeled CONSOLE) on the storage router.
- Step 4** Connect one end of the supplied console cable (a rolled RJ-45 cable) to the RJ-45-to-DB-9 adapter at the RS-232 management port. Connect the other end to the RJ-45-to-DB-9 adapter at the PC serial port. (See [Figure 2-9](#).)

**Figure 2-9** Connecting the Console Cable



## Checking and Selecting the Input Voltage

The SN 5420 storage router can be connected to either of two power sources: 115-120 VAC/60 Hz or 230-240 VAC/50 Hz, depending on the storage router input voltage setting. The factory setting of the storage router input voltage is 115-120 VAC/60 Hz.

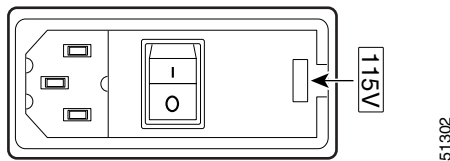
Before connecting power to the SN 5420 storage router, make sure that the storage router input voltage setting matches the site power for the storage router. If the input voltage setting does not match the site power, verify that the site power is correct. If the site power for the storage router is correct, then change the storage router input voltage setting to match the site power. This section describes how to check the input voltage setting and how to change it.

## Checking the Storage Router Input Voltage Setting

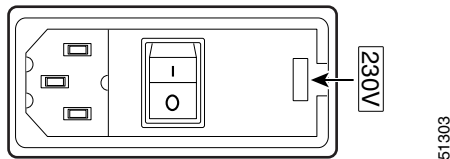
Check the storage router input voltage setting by following these steps:

- Step 1** At the rear panel of the storage router, check the voltage selector display on the power connector. For 115-120 VAC/60 Hz site input power, the voltage selector should be set to 115V. (The 115V setting is the factory setting). (See [Figure 2-10](#).) For 230-240 VAC/50 Hz site input power, the voltage selector should be set to 230V. (See [Figure 2-11](#).)

**Figure 2-10 115-120 VAC/60 Hz Voltage Selector Setting**



**Figure 2-11 230-240 VAC/50 Hz Voltage Selector Setting**



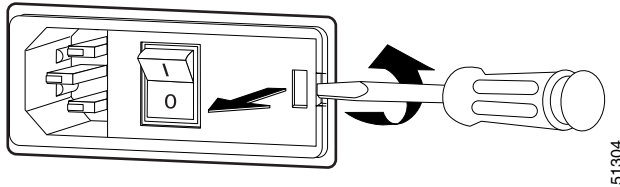
- Step 2** If the storage router input voltage setting needs to be changed to match the site input power, proceed to the next section, [“Changing the Voltage Setting”](#).
- Step 3** If the storage router input voltage setting is correct, proceed to the section titled, [“Connecting Power”](#).

## Changing the Voltage Setting

If the SN 5420 storage router input voltage setting does not match the site input power for the storage router, change the input voltage setting by following these steps:

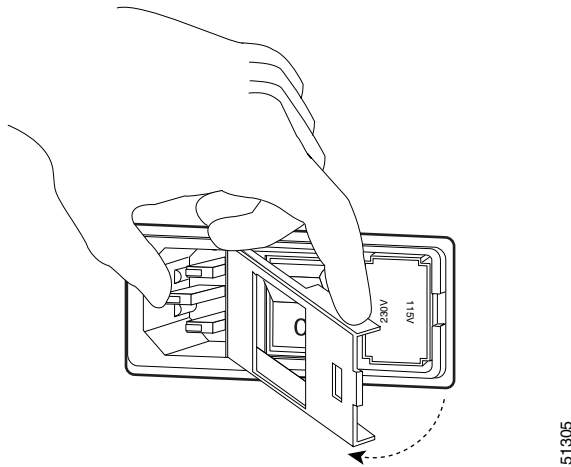
- Step 1** Open the storage router power connector cover.
- Insert the blade of a small screwdriver under the cover tab and turn the blade slightly until the cover starts to open. (See [Figure 2-12](#).)

**Figure 2-12** Inserting Screwdriver Blade and Slightly Turning It



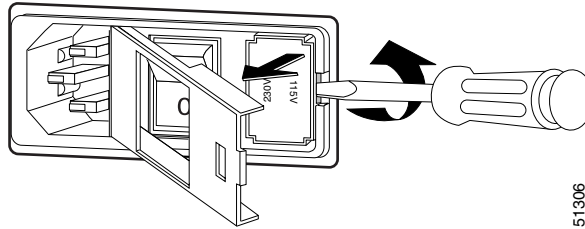
- Swing the cover open. (See [Figure 2-13](#).)

**Figure 2-13** Opening the Power Connector Cover



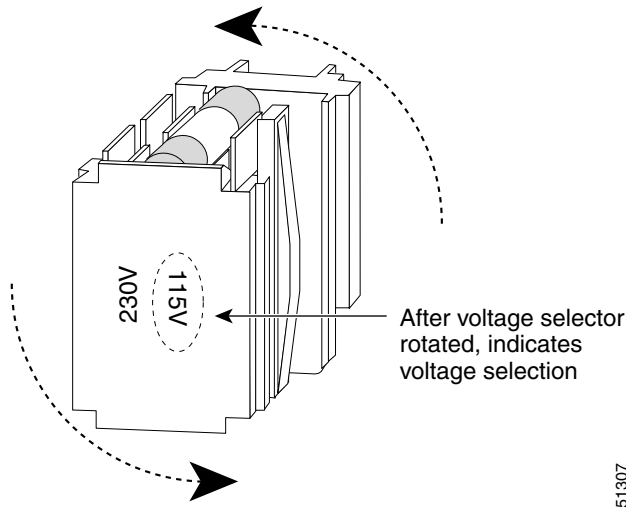
- Step 2** Remove and rotate the voltage selector.
- a. Insert the blade of a small screwdriver into the right slot of the voltage selector, between the voltage selector and the power connector case. Turn the screwdriver blade until the voltage selector is unseated. (See [Figure 2-14](#).)

**Figure 2-14 Unseating the Selector**



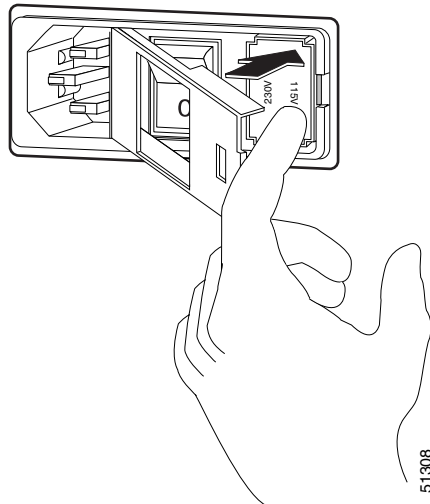
- b. Slide the voltage selector out of the power connector and rotate the selector 180 degrees. Make sure that the correct input voltage setting is on the right side of the selector. (See [Figure 2-15](#).)

**Figure 2-15 Rotating the Voltage Selector and Checking for the Correct Setting**



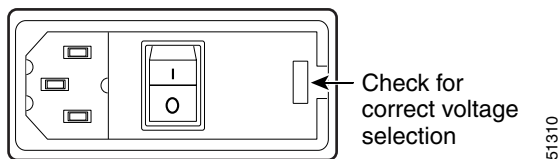
- c. Slide the voltage selector back into the power connector until it clicks into place and close the cover. (See [Figure 2-16](#).)

**Figure 2-16** Inserting Voltage Selector



- Step 3** Check the voltage selector display (visible through the cover cutout) to make sure it now matches the input voltage. (See [Figure 2-17](#).)

**Figure 2-17** Checking for the Correct Voltage Setting

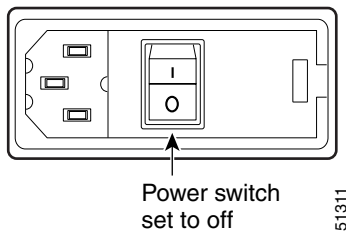


# Connecting Power

To connect power to the storage router, follow these steps:

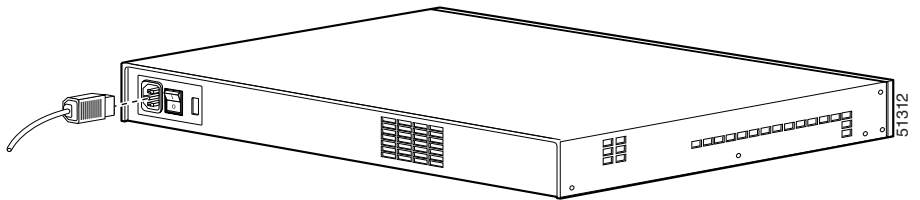
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- Step 1** Ensure that all site power and grounding requirements described in the *Site Preparation and Safety Guide* have been met before connecting the chassis to a power source.
  - Step 2** Make sure the power switch is set to off. (See [Figure 2-18](#).)

**Figure 2-18 Power Set to Off**



- Step 3** Plug the power cord into the power receptacle located on the rear panel on the chassis. (See [Figure 2-19](#))

**Figure 2-19 Connecting a Power Cord to the SN 5420 Power Connector**



- Step 4** Connect the other end of the power cord to the power source for the storage router.
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# Verifying Installation

Verifying installation of the SN 5420 storage router consists of making sure that it starts up properly and that the network connections are operational.

## Verifying Start-up Operations

To verify that the storage router starts up properly, perform the following steps:

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- Step 1** At the rear of the storage router, press the power switch to the on position.
  - Step 2** At the front of the storage router, observe the POWER LED to make sure power is on.
  - Step 3** Listen and check for air flow to make sure the fan assembly is operating.
  - Step 4** Observe console output to make sure the storage router software is booting properly. The boot process lasts for approximately three to five minutes and will display boot information and a banner. A successful boot-up is indicated by a CLI prompt followed by the message “Started CLI on console”. There may be other messages following that message. (See [Example 2-1](#).)

### **Example 2-1** CLI Prompt

```
[SN_5420-MG1]$ Dec 20 17:15:38:CLI:AS_NOTICE :Started CLI on console
```



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**Note** You may need to press ENTER to get a prompt to appear after messages are displayed.

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- Step 5** If any of these conditions are not met, reference [Chapter 3, “Troubleshooting,”](#) to isolate and, if possible, resolve the problem.
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## Verify That The Network Connections Are Operational

Verifying the network connections consists of making sure that the following network ports are operational: Gigabit Ethernet, Fibre Channel, 10/100 Ethernet management, and 10/100 HA. To verify that the network connections are operational, perform the following steps:

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- Step 1** Verify the Gigabit Ethernet port connection by checking the port link status LED. See [Table 1-1 on page 1-7](#) for LED descriptions.
  - Step 2** Verify the 10/100 Ethernet management port connection by checking the port link status LED. See [Table 1-1 on page 1-7](#) for LED descriptions.
  - Step 3** Verify the 10/100 HA port connection by checking the port link status LED. See [Table 1-1 on page 1-7](#) for LED descriptions.
  - Step 4** Verify the Fibre Channel port connection by checking Fibre Channel port status indicators on the equipment that the SN 5420 Fibre Channel port connects to.
  - Step 5** If any of these conditions are not met, reference [Chapter 3, “Troubleshooting,”](#) to isolate and, if possible, resolve the problem.
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## Where to Go Next

Once you have verified that the SN 5420 storage router hardware is properly installed, it is ready for software configuration. To configure the software, refer to the *Cisco SN 5420 Storage Router Software Configuration Guide*.