



# Cisco 7000 User Guide

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# About This Guide

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This section discusses the objectives, intended audience, and organization of this user guide, and defines the conventions used to convey instructions and noteworthy information.

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## Document Objectives

This publication contains specific procedures for the initial hardware installation of the Cisco 7000 router, and procedures for performing the basic configuration of your system. It will guide you through the initial hardware installation and startup of your new router. After you install the hardware, you will then use the appropriate companion publications to more completely configure your system.

## Audience

Setting up and maintaining a network requires the knowledge and expertise of people with a variety of skills. In many cases, the people responsible for installing hardware and wiring are not the ones who configure the software and administer the network. This publication provides information specific to installing the router hardware. To use this publication, you should be familiar with electronic circuitry and wiring practices, and preferably have experience as an electronic or electromechanical technician.

For comprehensive descriptions and examples of software configuration commands and the procedures for implementing them, refer to the related software configuration and reference documentation listed in the section “If You Need More Configuration Information,” in the chapter “Performing a Basic Configuration of the Cisco 7000.”

## Document Organization

The organization of this publication follows a recommended linear installation sequence: starting with the chapter “Product Overview,” and continuing through the chapter “Performing a Basic Configuration of the Cisco 7000.”

Following is a brief description of each chapter:

- Chapter 1, “Product Overview,” describes the physical properties of the Cisco 7000 chassis.
- Chapter 2, “Preparing for Installation,” describes safety considerations, tools required, an overview of the installation, and procedures you should perform *before* the actual installation.
- Chapter 3, “Installing the Cisco 7000,” provides reference information for installing the hardware and connecting the external network interface cables.
- Chapter 4, “Connecting the Cisco 7000 to Your Network,” provides cabling guidelines for the initial hardware installation, for all of the available processor modules in the router.
- Chapter 5, “Performing a Basic Configuration of the Cisco 7000,” provides simple procedures for completing a basic system configuration, and for checking and saving this configuration to system memory.
- Appendix A, “Translated Safety Warnings,” lists translations of the safety warnings that appear throughout this publication.

# Document Conventions

This publication uses the following conventions:

- The symbol ^ represents the key labeled *Control*.

For example, the key combination **^z** means hold down the **Control** key while you press the **z** key.

- Cross-references to additional or related information within this publication specify the title of the section that contains the information. For example, “Refer to the section ‘Document Conventions’.” These cross-references represent direct online links.

Command descriptions use these conventions:

- Examples that contain system prompts denote interactive sessions, indicating the commands that you should enter at the prompt. The system prompt indicates the current level of the EXEC command interpreter. For example, the prompt `router>` indicates that you should be at the *user* level, and the prompt `router#` indicates that you should be at the *privileged* level. Access to the privileged level usually requires a password. Refer to the related software configuration and reference documentation for additional information.
- Commands and keywords are in **boldface** font.
- Arguments for which you supply values are in *italic* font.
- Elements in square brackets ([ ]) are optional.
- Alternative but required keywords are grouped in braces ( { } ) and separated by vertical bars (|).

Examples use these conventions:

- Terminal sessions and sample console screen displays are in `screen` font.
- Information you enter is in **boldface screen** font.
- Nonprinting characters, such as passwords, are in angle brackets (< >).
- Default responses to system prompts are in square brackets ([ ]).
- Exclamation points (!) at the beginning of a line indicate a comment line.



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

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**Note** Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in this publication.

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**Timesaver** Means *the described action saves time*. You can save time by performing the action described in the paragraph.



**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. (For translated versions of this warning and other warnings in this guide, refer to the appendix “Translated Safety Warnings.”)

**Waarschuwing** Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijke letsels kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen. Het waarschuwingssymbool betekent ook dat u de waarschuwing in meerdere talen in "Translated Safety Warnings" kunt vinden.

**Varoitus** Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. Varoitusmerkki tarkoittaa myös sitä, että varoitus esiintyy useilla kielillä osassa "Translated Safety Warnings".

**Attention** Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Le symbole d'avertissement signifie également que cet avis se trouve traduit dans plusieurs langues dans la section «Translated Safety Warnings».

**Warnung** Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. Das Warnsymbol bedeutet auch, daß Sie die Warnung in verschiedenen Sprachen unter "Translated Safety Warnings" lesen können.

**Avvertenza** Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. Il simbolo di avvertenza indica inoltre che l'avvertenza viene presentata in diverse lingue in "Translated Safety Warnings".

**Advarsel** Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. Dette varselsymbolet betyr også at du kan lese advarselen på flere språk i «Translated Safety Warnings».

**Aviso** Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. Este símbolo serve também para indicar que poderá ler este tipo de aviso em várias línguas na secção: "Translated Safety Warnings."

**¡Advertencia!** Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. Este símbolo de aviso también significa que la misma advertencia aparece en varios idiomas bajo el título "Translated Safety Warnings".

**Varning!** Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador. Denna varningssymbol innebär också att du kan se varningsmeddelandet på flera språk i "Translated Safety Warnings".



# Product Overview

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The Cisco 7000 router is part of the Cisco 7000 series. The seven-slot Cisco 7000 supports multiprotocol, multimedia routing and bridging with a wide variety of protocols and combinations of Asynchronous Transfer Mode (ATM), Ethernet, Fast Ethernet, Token Ring, Fiber Distributed Data Interface (FDDI), serial, High-Speed Serial Interface (HSSI), channel attachment, and multichannel media.

The Cisco 7000 has seven slots: five interface processor slots (0 through 4), one slot for the Switch Processor (SP) or Silicon Switch Processor (SSP), and one slot for the Route Processor (RP). There are bays for up to two AC-input or DC-input power supplies. Network interfaces reside on interface processors that provide a direct connection between the two Cisco Extended Buses (CyBuses) and your external networks.



**Caution** Due to agency compliance and safety issues, mixing AC-input and DC-input power supplies in the same Cisco 7000 is not recommended.

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**Note** Your Cisco 7000 can also be optionally configured with a 7000 Series Route Switch Processor (RSP7000), which combines the routing and switching functions of the separate RP and SP. This new processor module requires that your Cisco 7000 also be configured with the 7000 Series Chassis Interface (RSP7000CI), which provides the environmental monitoring functions for the Cisco 7000. With this Cisco 7000 configuration, slot 5 (the 7000 RSP slot) is reserved for the RSP7000, and slot 6 (the 7000 CI slot) is reserved for the RSP7000CI. The remaining five slots (0 through 4) are reserved for interface processors. If your chassis was ordered with the RSP7000 option, both RSP7000-related components are installed when the Cisco 7000 ships. The RSP7000 functionality requires Cisco Internetwork Operating System (Cisco IOS) Release 10.3(9) or later.

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Following is a list of acronyms that identify the system components and features:

- CxBus—Cisco Extended Bus. A 533-megabits-per-second (Mbps) data bus for interface processors.
- AIP—Asynchronous Transfer Mode (ATM) Interface Processor.
- CIP—Channel Interface Processor.
- EIP—Ethernet Interface Processor.
- FEIP—Fast Ethernet Interface Processor.
- FIP—FDDI (Fiber Distributed Data Interface) Interface Processor.
- FRU—Field-replaceable unit (as opposed to a spare part). A FRU can only be replaced by a Cisco certified technician. The arbiter board is categorized as an FRU; interface processors are categorized as spare parts.
- FSIP—Fast Serial Interface Processor.
- HIP—High-Speed Serial Interface (HSSI) Interface Processor.
- MIP—MultiChannel Interface Processor.
- OIR—Online insertion and removal. This feature allows you to replace interface processors and redundant power supplies without interrupting system power.
- PA—Port adapter. For example, the FSIP or MIP daughter card.
- RP—Route Processor. The system processor board.
- RSP7000—7000 Series Route Switch Processor.
- RSP7000CI—7000 Series Chassis Interface.
- SP—Switch Processor. The CxBus traffic controller.
- SSP—Silicon Switch Processor. The CxBus traffic controller.
- TRIP—Token Ring Interface Processor.

Figure 1-1 shows a view of the interface-processor end (rear) of the Cisco 7000 with AC-input power supplies, RP, and SP (or SSP) installed.

**Figure 1-1 Cisco 7000 with RP and SP (or SSP), Rear View**

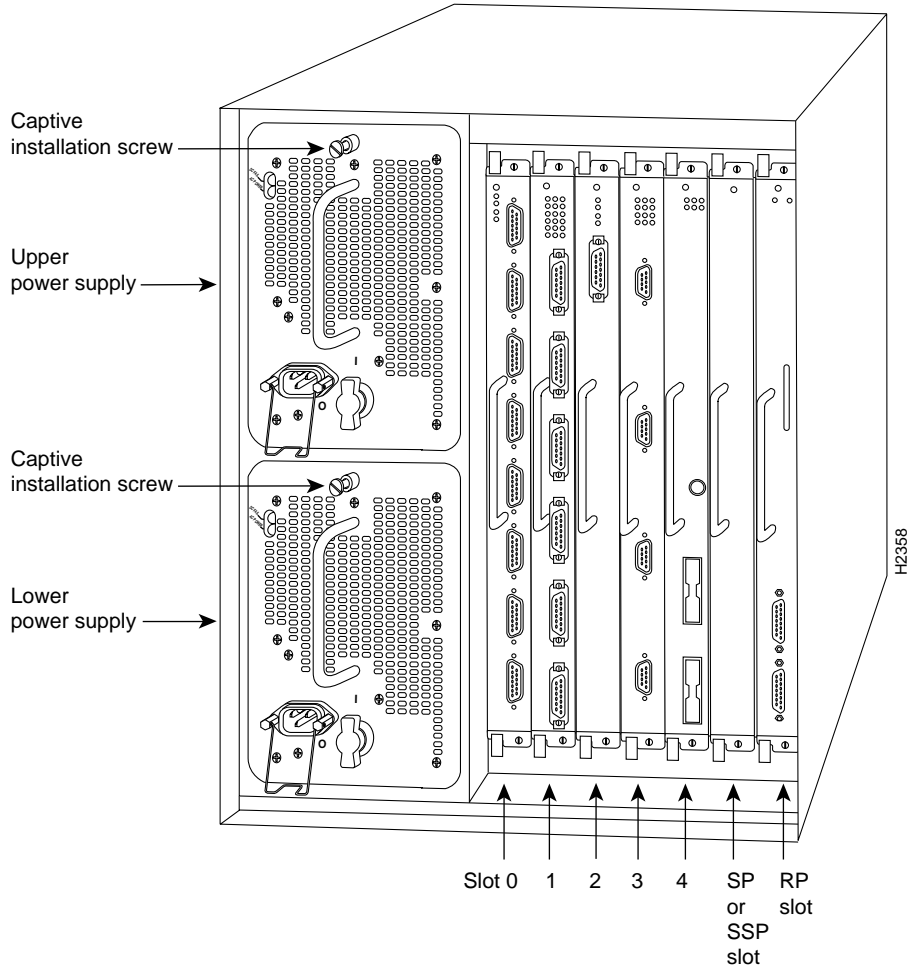
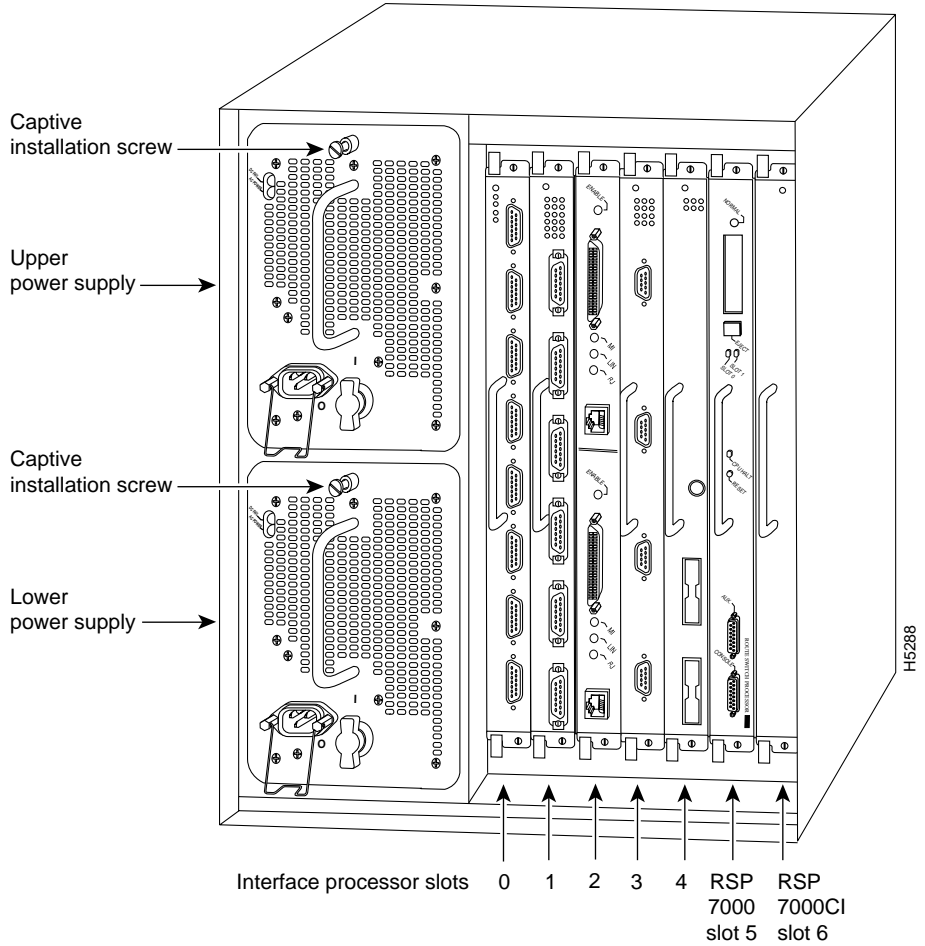


Figure 1-2 shows a view of the interface-processor end (rear) of the Cisco 7000 with AC-input power supplies, RSP7000, and RSP7000CI installed.

**Figure 1-2 Cisco 7000 with RSP7000 and RSP7000CI, Rear View**



# System Specifications

Table 1-1 lists the specifications for the Cisco 7000 system.

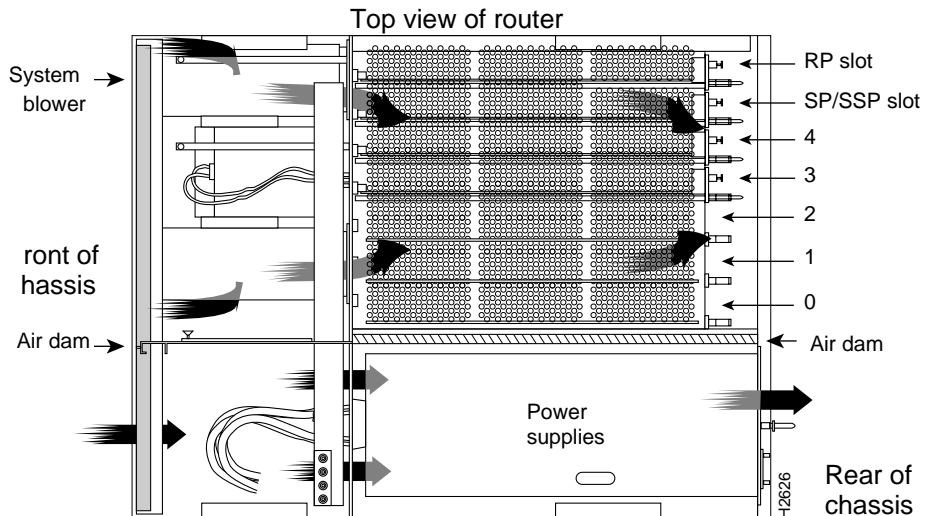
**Table 1-1 Cisco 7000 Specifications**

Description	Specifications
High-speed backplane	533-Mbps CxBus, 5 interface processor slots, 1 RP slot, and 1 SP (or SSP) slot
Dimensions (H x W x D)	19.25 x 17.5 x 25.1" (48.90 x 44.45 x 63.75 cm) Chassis depth including power cord is 28" (71.12 cm)
Weight	Chassis only: 76 lb (34.47 kg) Chassis fully configured with 1 RP and 1 SP (or 1 SSP), 5 interface processors, and 2 power supplies: 145 lb (65.76 kg)
Power supply	700 watts (W) maximum (for AC-input and DC-input power supplies)
Power dissipation	626W, maximum configuration 530W typical with maximum configuration
Heat dissipation	1200W (4100 British thermal units [Btus]/hr) with AC-input 300W (1024 Btus/hr) with DC-input
Input voltage	100 to 240 volts alternating current (VAC) wide input with power factor corrector (PFC)
Frequency	50 to 60 Hz autoranging
AC-input ratings	12A maximum @ 100 VAC, 6A maximum @ 240 VAC, chassis fully configured
DC-input ratings	-40 volts DC (VDC) minimum -48 VDC nominal -72 VDC maximum
Airflow	140 cubic feet per minute (cfm) through the system blower
Operating temperature	32 to 104°F (0 to 40°C)
Nonoperating temperature	-4 to 149°F (-20 to 65°C)
Humidity	10 to 90%, noncondensing
Agency approvals	Safety: UL 1950, CSA 22.2-950, EN60950, EN41003, AUSTEL TS001, AS/NZS 3260 EMI: FCC Class A, EN55022 Class B, VCCI Class 2

## Airflow Considerations

The system blower on the Cisco 7000 provides cooling air for the processor modules. The blower is located inside the front chassis compartment, shown in Figure 1-3.

**Figure 1-3 Cisco 7000 Blower and Airflow**



The system blower draws air in through the air filter in the front chassis panel and directs it up through the floor of the internal slot compartment and over the cards. The exhaust air is forced out the rear of the chassis above and to each side of the processor slots. The blower needs a clean air filter in order to draw in sufficient amounts of cooling air; excessive dust in the filter will restrict the airflow.

Keep the air filter clean and replace it when necessary.

Sensors on the RP (or 7000 RSP) monitor the inlet and internal chassis air temperatures. If the air temperature at either of the sensors exceeds a desired threshold, an environmental monitor displays warning messages and can interrupt system operation to protect the system components from possible damage from excessive heat or electrical current.

The power supplies have their own fans. An air dam between the power supply bays and the processor module compartment keeps the airflow constant.

For complete information on fan and environmental considerations, refer to the *Cisco 7000 Hardware Installation and Maintenance* publication, which is available on UniverCD or can be ordered separately. For information on ordering UniverCD, see the section “If You Need More Configuration Information” in the chapter “Performing a Basic Configuration of the Cisco 7000.”





# Preparing for Installation

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This chapter includes specific information about required tools and parts, safety guidelines, and specific preparatory information required to assure a successful installation.

Do not unpack the Cisco 7000 until you are ready to install it. Keep the chassis in the shipping container to prevent accidental damage until you have determined where you want it installed. Use the document *Cisco 7000 and Cisco 7507 Unpacking Instructions*, which is available on UniverCD or as a printed copy (Document Number 78-1067-xx, where xx is the latest version of the document).

The *Cisco Information Packet* is included in the shipping container, together with any companion publications you specified on your order. Inspect all items for shipping damage. If anything appears to be damaged, immediately contact a customer service representative.

## Tools and Parts You Need

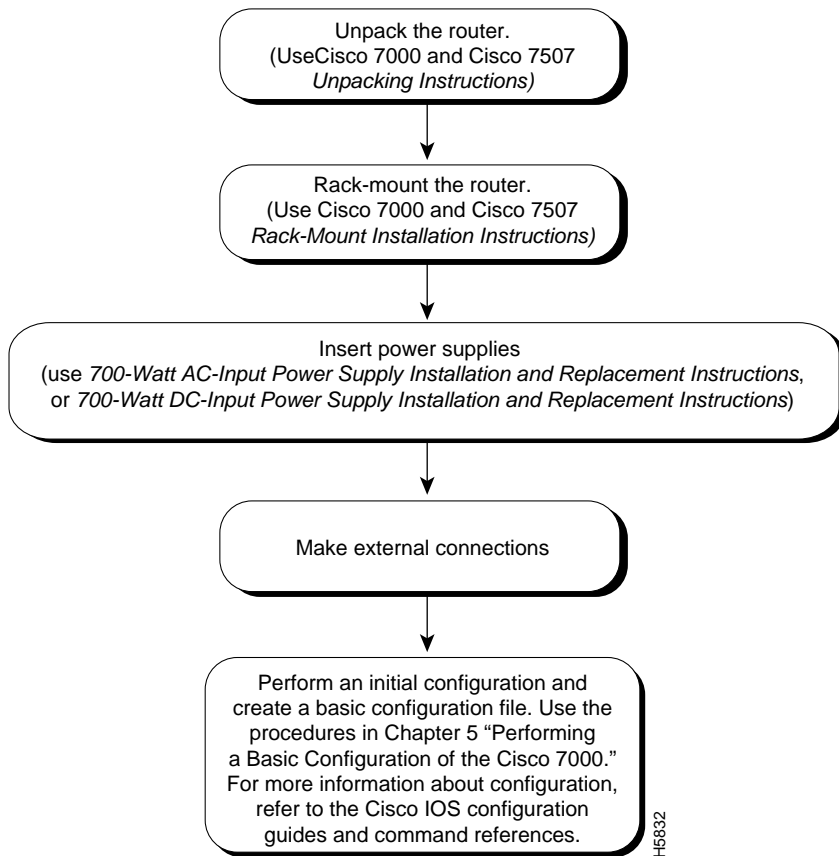
Following are the tools and parts generally required to install your Cisco 7000:

- Number 1 Phillips and 3/16-inch (0.476 cm) flat-blade screwdrivers
- Rack-mount kit (hardware and documentation)
- One interface cable for each physical interface required
- A channel service unit/digital service unit (CSU/DSU) for each data terminal equipment (DTE) serial interface
- Ethernet and Fast Ethernet transceivers (if required for the EIP and FEIP interfaces)
- Modem for remote configuration (if required)
- Additional tools, parts, and procedures listed and discussed in companion documentation, and which are not discussed in this publication

## How to Install the Cisco 7000

Figure 2-1 shows a flowchart that illustrates the order of procedures required to install the Cisco 7000 router and connect cables. The flowchart also indicates other Cisco publications you should refer to for information.

**Figure 2-1**      **Installation Flowchart**



## Safety Recommendations

Because any device that uses electricity must be treated with respect, follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Keep tools away from walk areas where you and others could trip over them.
- Wear safety glasses when exposed to conditions that might be hazardous to your eyes.
- Locate the emergency power-off switch for the room in which you are working. Then, if an electrical accident occurs, you can act quickly to shut off power.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- If ESD grounding is required, ground the chassis.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.



**Warning** Before working on a chassis or working near power supplies, unplug the power cord on AC units or disconnect the power at the circuit breaker on DC units. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)



**Warning** 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. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- 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.

## Preventing Electrostatic Discharge Damage

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- If an electrical accident occurs, proceed as follows:
  - Use caution; do not become a victim yourself. Disconnect power to the system.
  - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
  - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

## Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic components are improperly handled and can result in intermittent or complete failures. Always follow ESD-prevention procedures when removing and replacing components. Ensure that the chassis is electrically connected to earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. To safely channel unwanted ESD voltages to ground, connect the clip to an unpainted surface of the chassis frame. If no wrist strap is available, ground yourself to the metal chassis.



**Caution** For safety, periodically check the resistance value of the ESD-preventive wrist strap, which should be between 1 and 10 megohms.

## Removing and Installing Processor Modules

Depending on your configuration, you might need to insert additional or new processor modules in your Cisco 7000. To insert or remove interface processors, you do not need to turn off power to the system; they support online insertion and removal (OIR). Interface processors include AIP, CIP, EIP, FEIP, FIP, FSIP, HIP, MIP, and TRIP. However, you *must* turn off the system power before you insert or remove the RP, SP, or SSP, RSP7000, or RSP7000CI processor modules.

You need a number 1 Phillips or 3/16-inch flat-blade screwdriver to remove any fillers (blank processor module carriers) and to tighten the captive installation screws that secure the processor module in its slot. Whenever you handle modules, you should use an ESD-preventive wrist strap or other grounding device to prevent ESD damage.

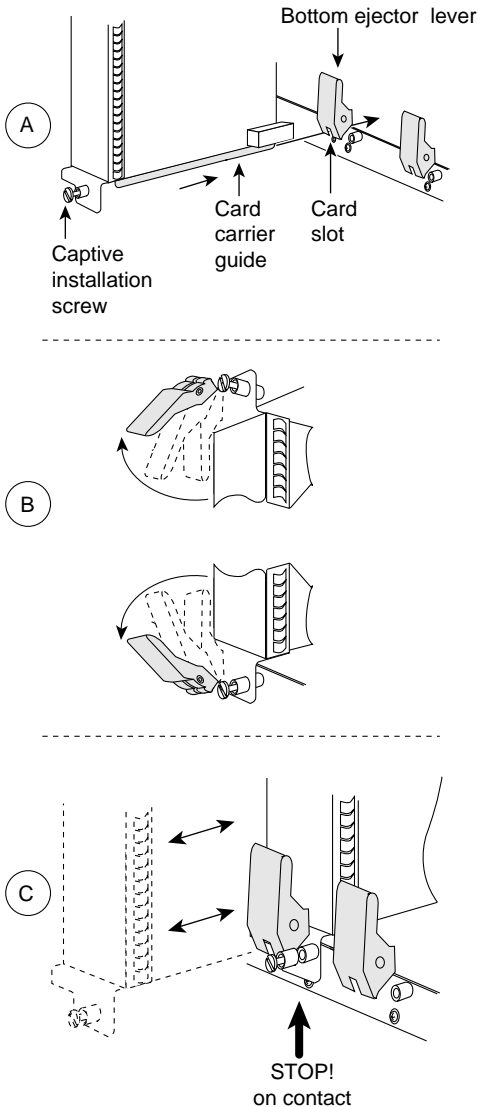
You can install interface processors (as shown in Figure 2-2) in any of the five interface processor slots, numbered 0 through 4 from left to right when viewing the chassis from the rear. (Also refer to the illustration of the Cisco 7000 in Figure 1-1.) The two far-right slots contain the SP (or SSP) and RP, or the optional 7000 RSP and 7000 RSP CI, which are required system components.



**Caution** To prevent the overheating of internal components, always install fillers in empty slots to maintain the proper flow of cooling air across the processor modules. To prevent ESD damage, handle processor modules by the handles and carrier edges only.

Figure 2-2 illustrates how to remove and replace processor modules.

**Figure 2-2 Removing and Replacing Processor Modules**



Remove a module as follows:

1. Use a screwdriver to loosen the captive installation screws (shown in A).
2. Pull the ejector levers out to release the module from the backplane connector (shown in B). The levers should snap into their spring retainers.
3. Grasp the module handle with one hand and place your other hand under the carrier to support and guide the module as you pull it out of the slot. Avoid touching the card.
4. Place the removed module in the board racks that were provided with your packing material.
5. Install a new module or a filler (MAS-7KBLANK or MAS-RSPBLANK) to keep dust out of the chassis and to maintain proper airflow through the chassis.

Install a module as follows:

1. Choose a slot for the new module and ensure that there is enough clearance to accommodate any interface equipment that you will connect directly to its ports.
2. Use a screwdriver to loosen the captive installation screws (shown in A) and remove the filler (or the existing module) from the slot to be filled.
3. Hold the module handle with one hand, and place your other hand under the carrier to support the module and guide it into the slot. Avoid touching the card.
4. Place the back of the module in the slot and align the guide on the carrier with the groove in the slot (shown in A).
5. Carefully slide the module into the slot until the faceplate makes contact with the ejector levers (shown in C).
6. Use the thumb and forefinger of each hand to push the top lever down and the bottom lever up to fully seat the module in the backplane connector (shown in B).
7. Use a screwdriver to tighten the captive installation screws.

# Installing the Cisco 7000

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This chapter includes procedures for rack-mounting and installing the Cisco 7000.

## Rack-Mounting the Chassis

To rack-mount the Cisco 7000, which is an option, refer to the configuration note *Cisco 7000 and Cisco 7507 Rack-Mount Kit Installation Instructions* (Document Number 78-1058-xx, where xx is the latest version of the document), which accompanied the rack-mount kit, and which is available on UniverCD or as a printed copy.

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**Note** If you choose *not* to rack-mount the Cisco 7000, continue to the following section “General Installation.”

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**Warning** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”

# General Installation

The chassis should already be in the area where you will install it, and your installation location should already be determined.

When installing the chassis on a table or the floor, ensure that you have planned a clean, safe location for the router and have considered the following:

- The location does not block the chassis intake (front) and exhaust (rear panel) vents.
- Multiple chassis can be placed side by side, but do not stack them.
- Dust accumulates on floors. If you are placing the chassis on the floor, try to find a location with a minimum of dust. Excessive amounts of dust drawn in by the blower will require frequent filter cleaning or replacement.
- A raised platform or sturdy table is a cleaner environment than the floor.
- When you are deciding where to install any equipment, consider future maintenance requirements. Allow at least three or four feet of clearance behind the power supplies for maintenance (installing or replacing power supplies or interface processors).



**Warning** Two people are required to lift the chassis. Grasp the chassis underneath the lower edge and lift with both hands. To prevent injury, keep your back straight and lift with your legs, not your back. To prevent damage to the chassis and components, never attempt to lift the chassis with the handles on the power supplies or on the interface processors, or by the plastic panels on the front of the chassis. These handles were not designed to support the weight of the chassis. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

Make sure the area in which you will install the chassis is free of debris and dust. Also make sure your path to the area is unobstructed.

On the rear of the chassis, do the following:

- Step 1** Check the ejector levers and ensure that the RP, SP (or SSP), and all interface processors are securely installed.
- Step 2** Check the captive installation screws on the RP, SP (or SSP), and each interface processor, and tighten any that are loose.



- Step 3** Ensure that both power supply bays are empty.
- Step 4** *Two people are required to perform this step.* With a person positioned at either side of the chassis, grasp the bottom edge of the chassis with one hand near the front and the other near the back. Slowly lift the chassis in unison. Avoid sudden twists or moves to prevent injury.
- Step 5** Place the chassis in a location where the air intake vent on the front of the chassis (the bottom front panel) is not drawing in exhaust air from other equipment.
- Step 6** Ensure that you have at least three or four feet of clearance around the rear of the chassis. You will need this space to install the power supplies, perform maintenance on the chassis, and observe LED indications.
- Step 7** After you correctly position the chassis, proceed to the next section “Installing the Power Supplies.”

## Installing the Power Supplies

To install the power supplies, refer to the following documentation:

- For the AC-input power supplies, refer to the configuration note *700-Watt AC-Input Power Supply Installation and Replacement Instructions*, which is available on UniverCD or as a printed copy (Document Number 78-1055-xx, where xx is the latest version of the document).
- For the DC-input power supplies, refer to the configuration note *700-Watt DC-Input Power Supply Installation and Replacement Instructions*, which is available on UniverCD or as a printed copy (Document Number 78-1445-xx, where xx is the latest version of the document).

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**Note** Because of agency compliance and safety issues, mixing AC-input and DC-input power supplies in the same Cisco 7000 is not recommended.

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After you install the power supplies, refer to the section “Setting the Boot Jumper on the RP.”

## Setting the Boot Jumper on the RP

On the RP (running Cisco IOS releases earlier than Release 10.0), pins (also called *bits*) 0 through 3 on the hardware configuration register form the *boot field*. The boot field specifies a number in binary. When the boot field is set to either 0 or 1 (0-0-0-0 or 0-0-0-1), the system ignores any boot instructions in the configuration file.

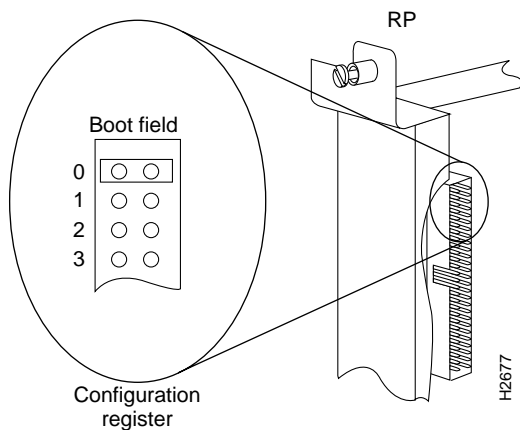
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**Note** If your RP is running Release 10.0 or later, or you have an RSP7000 in your Cisco 7000, refer to the section “Software Configuration Register Settings at Startup,” in the chapter “Performing a Basic Configuration of the Cisco 7000.”

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The RP hardware configuration register boot field is shown in Figure 3-1.

**Figure 3-1 Configuration Register Boot Field on the RP**



When the boot field is set to 0, you must boot the operating system manually by giving a **b** (or **boot**) command to the system bootstrap program or ROM monitor. You can enter the **boot** command only, or include additional boot instructions with the command such as the name of a file stored in Flash memory or a file that you specify for booting from a network server.

If you use the **boot** command without specifying a file or any other boot instructions, the system boots from the read-only memory (ROM) image. Otherwise, you can instruct the system to boot from a specific image such as a Flash file (using the **boot system flash filename** command), or boot from a network server by sending broadcast TFTP requests (using the **boot system filename** command), or send a direct TFTP request to a specific server (using the **boot system filename address** command).

When the boot field is set to 1 (the factory default), the system boots from ROM. Boot field settings of 0 and 1 both override any boot instructions in the system configuration file. If you set the boot field to any bit pattern other than 0 or 1, the system uses the resulting number to form a filename for booting from a network server.

To form the filename, the system starts with *cisco* and links the octal equivalent of the boot field value (jumper setting) and the processor type in the following format: *cisco<jumpervalue>-<processorname>*. The system uses that filename to invoke the system image from ROM or by booting from a network server.

However, if the configuration file contains any boot instructions, the system uses those boot instructions instead of the filename it computed from the jumper settings. You must set the boot field on your RP for the boot functions you require.

For more detailed information on the hardware configuration register or the software configuration register feature, which is available in Cisco Internetwork Operating System (Cisco IOS) Release 10.0 or later, refer to the section “Software Configuration Register Settings at Startup,” in the chapter “Performing a Basic Configuration of the Cisco 7000,” or to the *Cisco 7000 Hardware Installation and Maintenance* publication, which is available on UniverCD or as a printed copy.



# Connecting the Cisco 7000 to Your Network

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After you have installed your Cisco 7000, you need to connect it to the network. This chapter discusses how to connect each interface type to your network and how to connect the console and auxiliary cables to your console terminal and auxiliary equipment.

## Cabling Guidelines

Following are guidelines to assist you in properly connecting the external network cables.

- Make certain that you connect the correct interface types.

All FSIP serial ports use a high-density, 60-pin receptacle. Each port requires a serial cable to connect to the network. The cable determines the electrical interface type and mode of the port to which it is connected. The network end of each cable type is the industry-standard connector normally used for the interface type. (For example, the EIA/TIA-232 port adapter cable has a standard DB-25 connector at the network end.)

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**Note** EIA/TIA-232 and EIA/TIA-449 were known as recommended standards RS-232 and RS-449 before their acceptance as standards by the Electronic Industries Association (EIA) and Telecommunications Industry Association (TIA).

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Each FSIP cable has a label molded into the connectors that identifies the electrical interface type and mode. EIA/TIA-232 and EIA-530 are the only interface types that use the same type of connector, a DB-25. If you are using EIA/TIA-232 DTE mode *and* EIA-530, check the labels carefully.

Generally, cables for DTE mode use a plug at the network end, and cables for data communications equipment (DCE) mode use a receptacle at the network end. An exception is the V.35 cable, which is available with either a plug or receptacle in either mode.

- You must provide cables and equipment for the following interfaces:
  - Console and auxiliary port. EIA/TIA-232, DB-25 male-to-female cable.
  - EIP. Ethernet IEEE 802.3 media attachment unit (MAU) and attachment unit interface (AUI).
  - FEIP. Fast Ethernet IEEE 802.3u 100BaseT MAU, transceivers, and RJ-45 or Media Independent Interface (MII) cables.
  - FIP. FDDI, 62.5/125-micron, multimode fiber-optic cable FDDI, 8.7 to 10/125-micron, single-mode fiber-optic cable, FDDI optical bypass switching equipment, and FDDI optical bypass switch cable (for CX-FIP-MM and CX-FIP-SS only).
  - HIP. High-Speed Serial Interface (HSSI) cable.
  - TRIP. Token Ring 802.5, MAU and Type 1 and Type 3 lobe cable.

The following cables are available from Cisco Systems: interface cables for the CIP, FSIP, HIP, and MIP, as spares only. For detailed cable considerations, refer to the *Cisco 7000 Hardware Installation and Maintenance* publication, which is available on UniverCD or as a printed copy.

- Verify the interface numbers (also called *port addresses*) on the rear of the chassis and the specific cables you will connect to each. Each port has a unique address composed of the interface processor slot number and the port number on the interface processor.
- Avoid crossing high-power cables with interface cables. Crossing high-power cables with interface cables can cause interference in some interface types; however, it will not always be possible to avoid this.
- If possible, do not remove cable strain-relief systems. Most interfaces provide some type of strain relief to prevent the cables from being accidentally disconnected. Among these types of strain relief are the slide fasteners on Ethernet cables, the cable retention clip on the power supply cord, and the screw-type fasteners on serial cables. Use all strain-relief devices provided to prevent potential problems caused by inadvertent cable disconnection.

- Verify proper interface cabling before applying power to the system to prevent unnecessary problems or component damage.
- Verify all cabling limitations before applying power to the system. When setting up your system, you must consider a number of factors related to the cabling required for your connections. For example, when using EIA/TIA-232 connections, be aware of the distance and electromagnetic interference limitations. For detailed cable considerations, refer to the *Cisco 7000 Hardware Installation and Maintenance* publication, which is available on UniverCD or as a printed copy.
- Verify that you have not mixed AC-input and DC-input power supplies.
- Check the power cable and power supply for compatibility with your power service. Check the labels on the equipment and ensure that the power service at your site is suitable for the chassis you are connecting.



Before working on a chassis or working near power supplies, unplug the power cord on AC units or disconnect the power at the circuit breaker on DC units. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

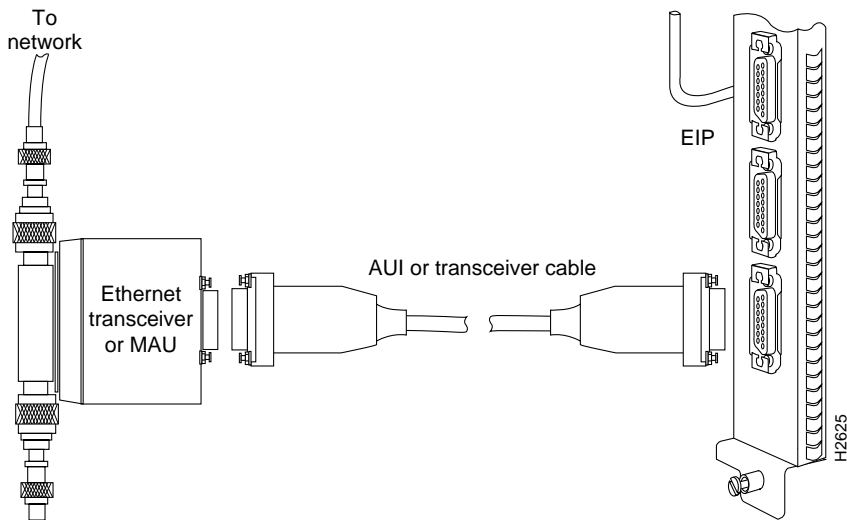
## Connecting Interface Cables

The following sections discuss how to connect cables to all of the available interfaces on the Cisco 7000 interface processors and the main system processors.

### Ethernet Interface Processor (EIP) Connections

An Ethernet transceiver or MAU should already be connected to your network. Connect each Ethernet port on the EIP to an Ethernet transceiver with a transceiver cable, or to an attachment unit with an AUI, as shown in Figure 4-1.

**Figure 4-1 Connecting Cables to the EIP**



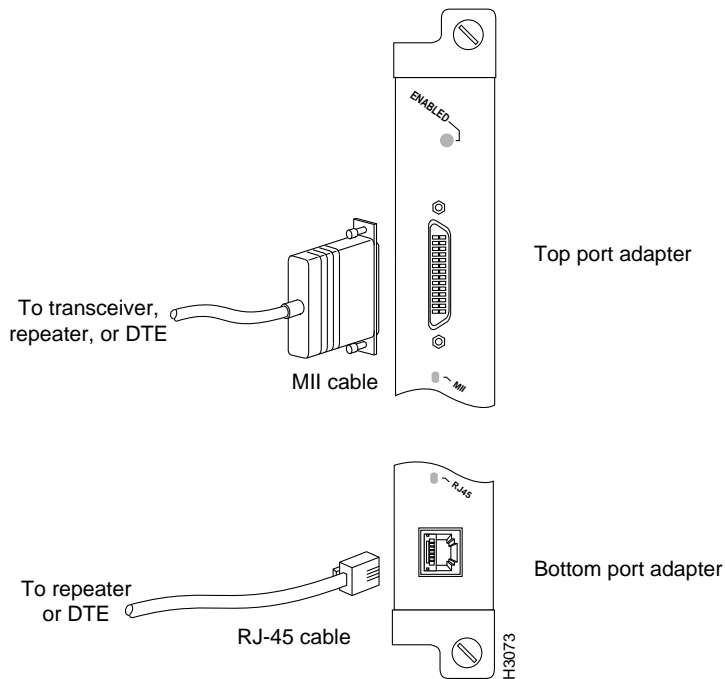
On each EIP port, slide the metal bracket up over two posts on the cable connector, or tighten the thumbscrews to secure the cable in the port and provide strain relief. Some miniature transceivers (usually the 10BaseT type) connect directly to the Ethernet port on the EIP and do not require an interface cable.



## Fast Ethernet Interface Processor (FEIP) Connections

For an MII connection, a 100BaseT transceiver or MAU should already be connected to your network. An RJ-45 connection does not require an external transceiver. On a single 100BaseT port adapter, you can use *either* the RJ-45 connection *or* the MII connection. If you have two port adapters on your FEIP, you can use the RJ-45 connection on one and the MII connection on the other, as shown in Figure 4-2.

**Figure 4-2** Connecting Cables to the FEIP



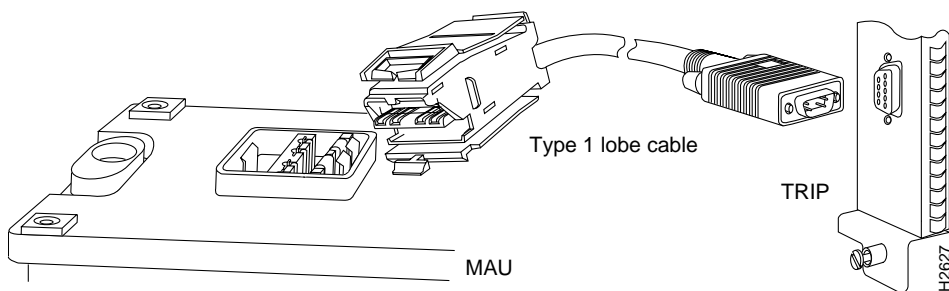
If you have RJ-45 connections, attach the Category 5 UTP cable directly to the RJ-45 port on the FEIP. If you have MII connections, attach an MII cable directly to the MII port on the FEIP, or attach a 100BaseT or 100BaseF transceiver, with the media appropriate to your application, to the MII port on the FEIP. RJ-45 and MII cables are not available from Cisco Systems, but are available from other cable vendors.

Attach the network end of your RJ-45 or MII cable to your 100BaseT or 100BaseF transceiver, switch, hub, repeater, DTE, or similar external 100BaseT equipment.

### Token Ring Interface Processor (TRIP) Connections

Token Ring MAU connectors provide a direct connection between the TRIP and the ring, as shown in Figure 4-3.

**Figure 4-3** Connecting Cables to the TRIP



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**Note** Depending on your Token Ring network, it might be necessary to make Token Ring connections to the TRIP *after* you turn on the Cisco 7000 and configure the system.

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### Channel Interface Processor (CIP) Connections

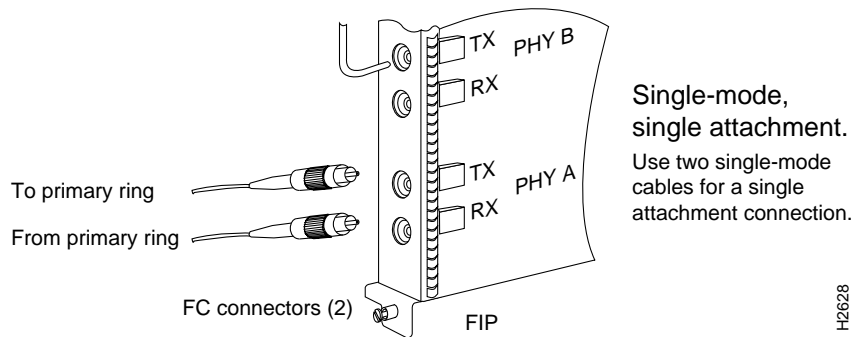
Specific CIP connection requirements for bus and tag or Enterprise System Connection (ESCON) cables are discussed in detail in the configuration note *Channel Interface Processor (CIP) Installation and Configuration*, which is available on UniverCD or as a printed copy (Document Number 78-1342-xx, where xx is the latest version of the document). This configuration note also ships with CIP-related spare parts.

## FDDI Interface Processor (FIP) Connections

Both single-mode and multimode, single and dual attachment connections are available and can be combined on one FIP. Fiber-optic cable connects directly to FIP ports. Single-mode uses separate transmit and receive cables. All single-mode products meet the Class 1 Laser Emission Requirement from the Center for Devices and Radiological Health (CDRH) FDDI. Multimode uses one transmit/receive cable for each physical sublayer (PHY) interface.

Connect single-mode, single attachment as shown in Figure 4-4.

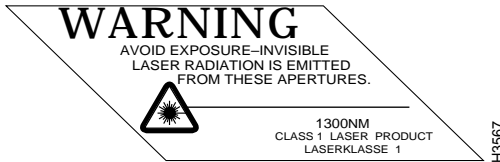
**Figure 4-4 Connecting FIP Cables for Single-Mode, Single Attachment**



**Warning** Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI products when no fiber cable is connected. *Avoid exposure and do not stare into open apertures.* (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

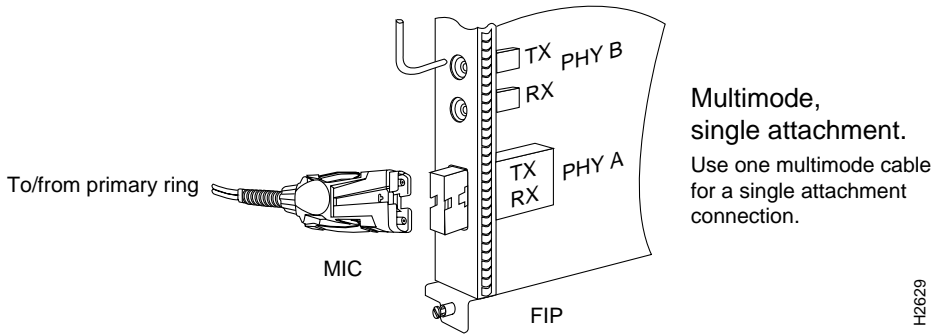
The aperture port contains an FDDI warning label, as shown in Figure 4-5.

**Figure 4-5 Warning Label on the FIP**



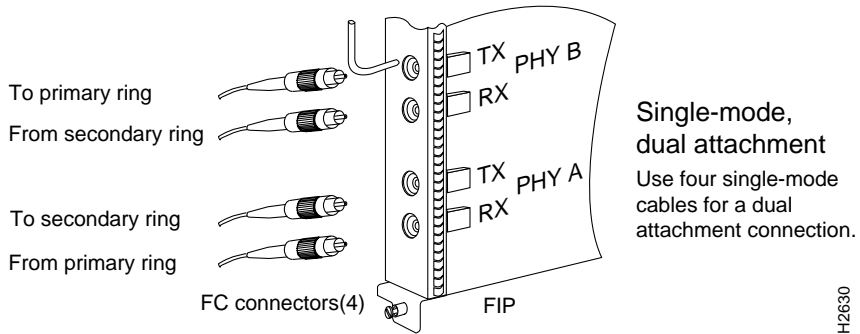
Connect multimode, single attachment as shown in Figure 4-6.

**Figure 4-6 Connecting FIP Cables for Multimode, Single Attachment**



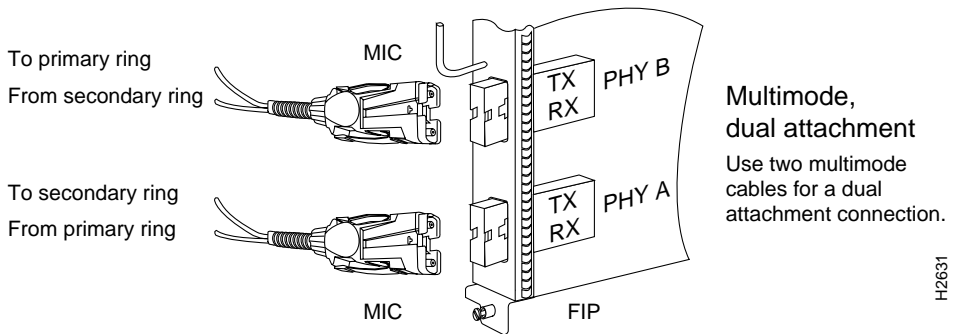
Connect single-mode, dual attachment as shown in Figure 4-7.

**Figure 4-7 Connecting FIP Cables for Single-Mode, Dual Attachment**



Connect multimode, dual attachment as shown in Figure 4-8.

**Figure 4-8 Connecting FIP Cables for Multimode, Dual Attachment**



For mixed-mode configurations, the primary ring signal is received on the multimode PHY A receive port and transmitted from the single-mode PHY B transmit port.

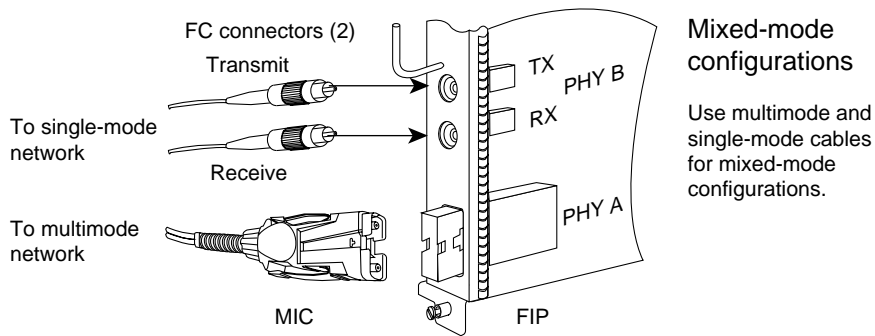
For mixed-mode configurations, connect the cables to the FIP ports as follows:

- Connect the cable coming in from the primary ring to the PHY A receive port, and connect the signal going out to the secondary ring to the PHY A transmit port.
- Connect the cable coming in from the secondary ring to the PHY B receive port. This also connects the signal going out to the primary ring to the PHY B transmit port.

Your configuration may be opposite, with multimode connections on PHY B and single-mode connections on PHY A.

Connect mixed-mode configurations as shown in Figure 4-9.

**Figure 4-9** Connecting FIP Cables for Mixed-Mode Configurations



**Warning** Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI products when no fiber cable is connected. *Avoid exposure and do not stare into open apertures.* (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

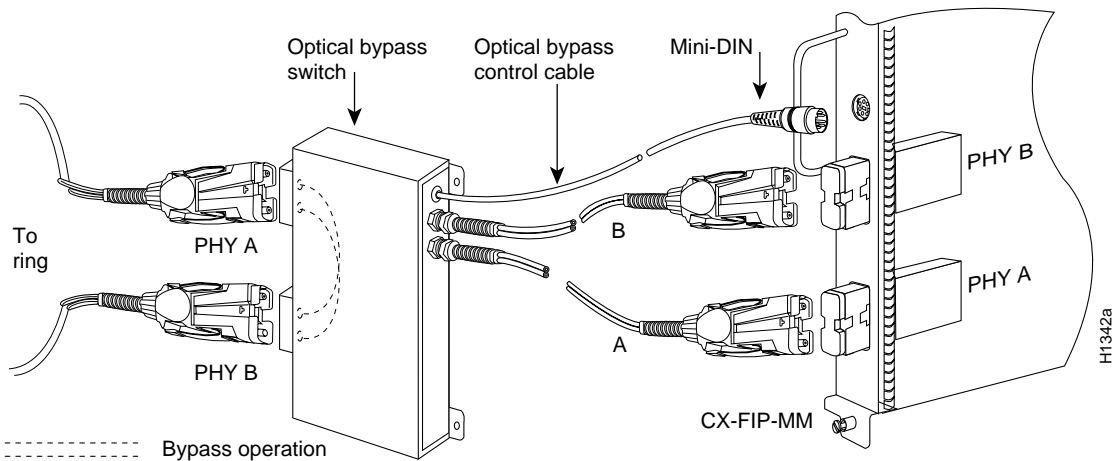
## Optical Bypass Switch Connections

Connect the optical bypass switch as follows:

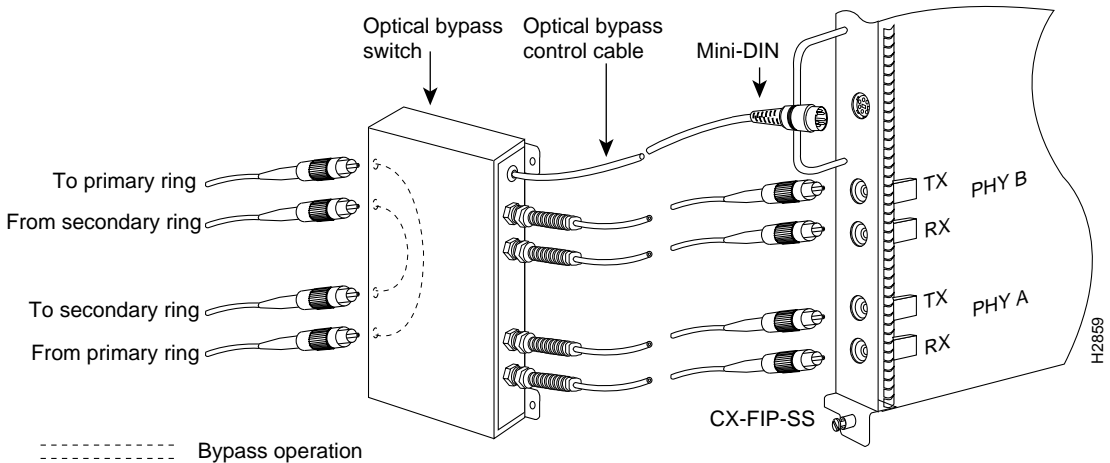
**Step 1** Connect the cable coming in from the primary ring (*from PHY B at the preceding station*) to the PHY A receive port on the network (ring) side of the optical bypass switch.

**Note** Refer to Figure 4-10 if you are connecting to the multimode/multimode FIP (CX-FIP-MM), and to Figure 4-11 if you are connecting to a single-mode/single-mode FIP (CX-FIP-SS).

**Figure 4-10** Connecting Optical Bypass for CX-FIP-MM



**Figure 4-11 Connecting Optical Bypass for CX-FIP-SS**



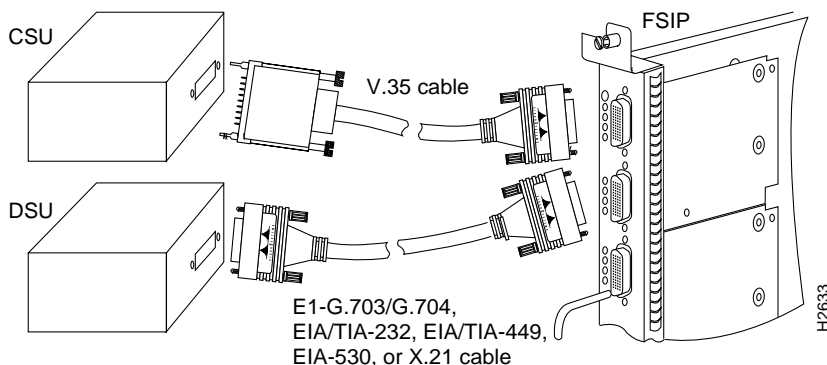
- Step 2** Connect the cable coming in from the secondary ring (*from PHY A at the preceding station*) to the PHY B receive port on the network (ring) side of the bypass switch.
- Step 3** Unless the documentation that accompanies the bypass switch instructs otherwise, consider the bypass switch an extension of the FIP ports and connect the switch cables from A to A and B to B. The network cables are already connected to the bypass switch following the standard B-to-A/A-to-B scheme.
- Step 4** Connect the optical bypass switch control cable. If the control cable on your optical bypass switch uses a mini-DIN connector, connect the cable directly to the mini-DIN optical bypass port on the FIP. If the switch uses a standard DIN connector, use the optical bypass adapter cable supplied with each FIP.



## Fast Serial Interface Processor (FSIP) Connections

All FSIP ports support any available interface type and mode. The serial adapter cable determines the electrical interface type and mode of the port to which it is connected. E1-G.703/G.704, EIA/TIA-232, EIA/TIA-449, V.35, and X.21 interfaces are available in DTE mode with a plug at the network end and in DCE mode with a receptacle at the network end. EIA-530 is available only in DTE mode with a plug. Connect the FSIP serial cables as shown in Figure 4-12.

**Figure 4-12** Connecting Cables to the FSIP



When you connect serial devices, consider the adapter cables as an extension of the router for external connections. Therefore, use DTE cables to connect the router to remote DCE devices such as modems or DSUs, and use DCE cables to connect the router to remote DTE devices such as a host, PC, or another router.

---

**Note** The serial port adapter cable determines the electrical interface type and mode of the FSIP port. When you connect a remote DTE device (which means that the FSIP port is a DCE interface), you must set the clock rate with the **clockrate** command. For a complete description of this command, refer to the appropriate configuration publications, which are listed in the section “If You Need More Configuration Information,” in the chapter “Performing a Basic Configuration of the Cisco 7000.”

---

A pair of metric thumbscrews is included with each port adapter cable. If you plan to connect to a remote device that uses metric hardware, replace the standard 4-40 thumbscrews at the network end of the port adapter cable with the M3 metric thumbscrews. Also, the backshell on the FSIP universal cable connector is not stiff enough to prevent you from inserting the interface cable connector into the FSIP port upside down.

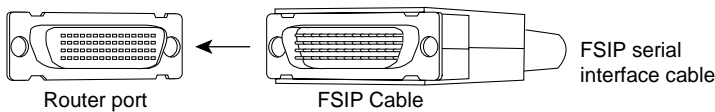


**Caution** Forcing a SIP cable into an FSIP port or forcing an FSIP cable into the port upside down can damage the FSIP. Before inserting the cable into the FSIP port receptacle, ensure that the connector is oriented correctly. (See Figure 4-13.)

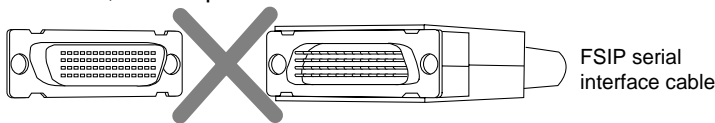
Figure 4-13 shows the correct and incorrect ways to attach serial interface cables to the FSIP.

**Figure 4-13** Correct and Incorrect Methods for Connecting FSIP Cables

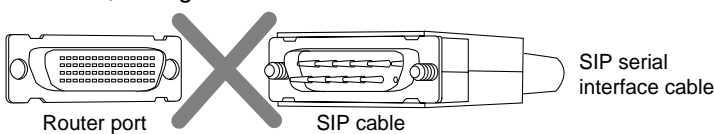
Correct



Incorrect, cable upside down



Incorrect, wrong cable

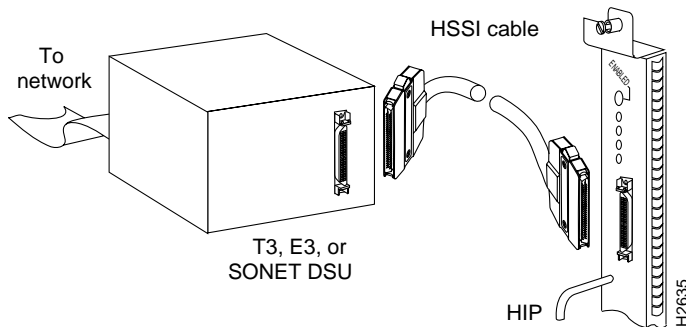


H2170

## HSSI Interface Processor (HIP) Connections

The HIP port functions as a DTE when it is connected to a DSU for a standard HSSI connection; it can also be connected to a collocated router with a null-modem cable. To connect the router to an HSSI network, use an HSSI interface cable between the HIP port and the DSU. HSSI cable ends are identical; connect them as shown in Figure 4-14.

**Figure 4-14** Connecting an HSSI Cable to the HIP



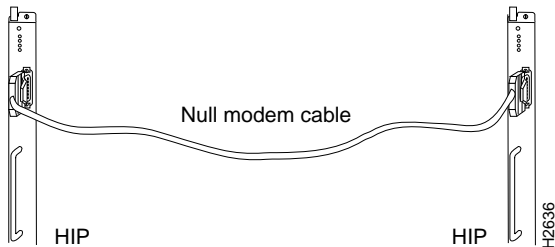
---

**Note** Use only the HSSI cable shipped with the HIP. Do *not* use a SCSI-II-type cable.

---

To verify the operation of the HSSI port or to build a larger node, use a null modem cable between two HSSI ports and connect two routers back to back, as shown in Figure 4-15.

**Figure 4-15** Connecting a Null-Modem Cable to the HIP



The two routers must be in the same location, and can be two Cisco 7513s or one Cisco 7513 and one Cisco 7000. When you configure the ports, you must enable the internal transmit clock on each HSSI interface with the **hssi internal-clock** command. When you disconnect the cable, use the **no hssi internal-clock** command. For complete descriptions of these commands, refer to the appropriate configuration publications, which are listed in the section “If You Need More Configuration Information,” in the chapter “Performing a Basic Configuration of the Cisco 7000.”

## ATM Interface Processor (AIP) Connections

All AIP Asynchronous Transfer Mode (ATM) interfaces are full duplex. You must use the appropriate ATM interface cable to connect the AIP to an external ATM network. The AIP provides an interface to ATM switching fabrics for transmitting and receiving data at up to 155 megabits per second (Mbps) bidirectionally. The actual data rate is determined by the physical layer interface module (PLIM).

---

**Note** For more complete AIP information, you can also refer to the *Asynchronous Transfer Mode Interface Processor (AIP) Installation and Configuration* publication (Document Number 78-1214-xx, where xx is the latest version of the document, which is available on UniverCD or as a printed copy).

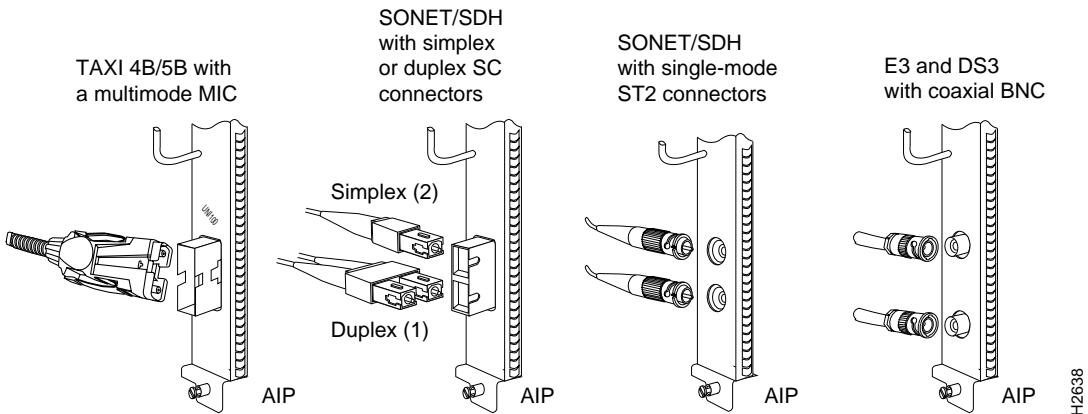
---

The AIP can support interfaces that connect to the following physical layers:

- Transparent Asynchronous Transmitter/Receiver Interface (TAXI) 4B/5B 100-Mbps multimode fiber-optic
- SONET/SDH 155-Mbps multimode fiber-optic—STS-3C or STM-1
- SONET/SDH 155-Mbps single-mode fiber-optic—STS-3C or STM-1
- E3 34-Mbps coaxial cable
- DS3 44.736-Mbps ( $\pm 20$  parts per million [ppm]) coaxial cable

Connect AIP cables as shown in Figure 4-16.

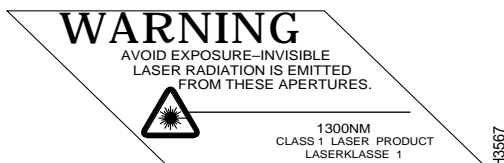
**Figure 4-16 Connecting Cables to the AIP**



**Warning** Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI products when no fiber cable is connected. *Avoid exposure and do not stare into open apertures.* (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

The aperture port contains a warning label, as shown in Figure 4-17.

**Figure 4-17** Warning Label on the AIP



---

**Note** The E3 and DS3 PLIMs require cable CAB-ATM-DS3/E3. If you have an E3 PLIM, you must install the CAB-ATM-DS3/E3 cable and EMI filter clip. If you do not have an E3 PLIM, proceed to the appropriate section for your configuration.

---



**Caution** To ensure compliance with EMI standards, the E3 PLIM connection requires an EMI filter clip (CLIP-E3-EMI) on the receive port (RCVR); the DS3 PLIM connection does not require this clip. The following procedure and figure discuss the EMI filter clip assembly that is required for the E3 PLIM. *Do not* operate the E3 PLIM without this assembly.

Following is the procedure for installing the CAB-ATM-DS3/E3 cable and the EMI filter clip:

**Step 1** Attach the CAB-ATM-DS3/E3 cable to the transmit (XMTR) and receive (RCVR) ports on the E3 PLIM, as shown in A in Figure 4-18.

One portion of the cable has a white insulator on both ends to ensure that the receive-to-transmit and transmit-to-receive relationship is maintained between the E3 PLIM and your ATM switch. The white banded portion of the cable should attach between receive and transmit *or* transmit and receive ports of the E3 PLIM and your ATM switch, respectively.

**Step 2** Hold the EMI filter clip as shown in B in Figure 4-18.

**Step 3** Attach the EMI filter clip to the receive cable, as shown in C in Figure 4-18.

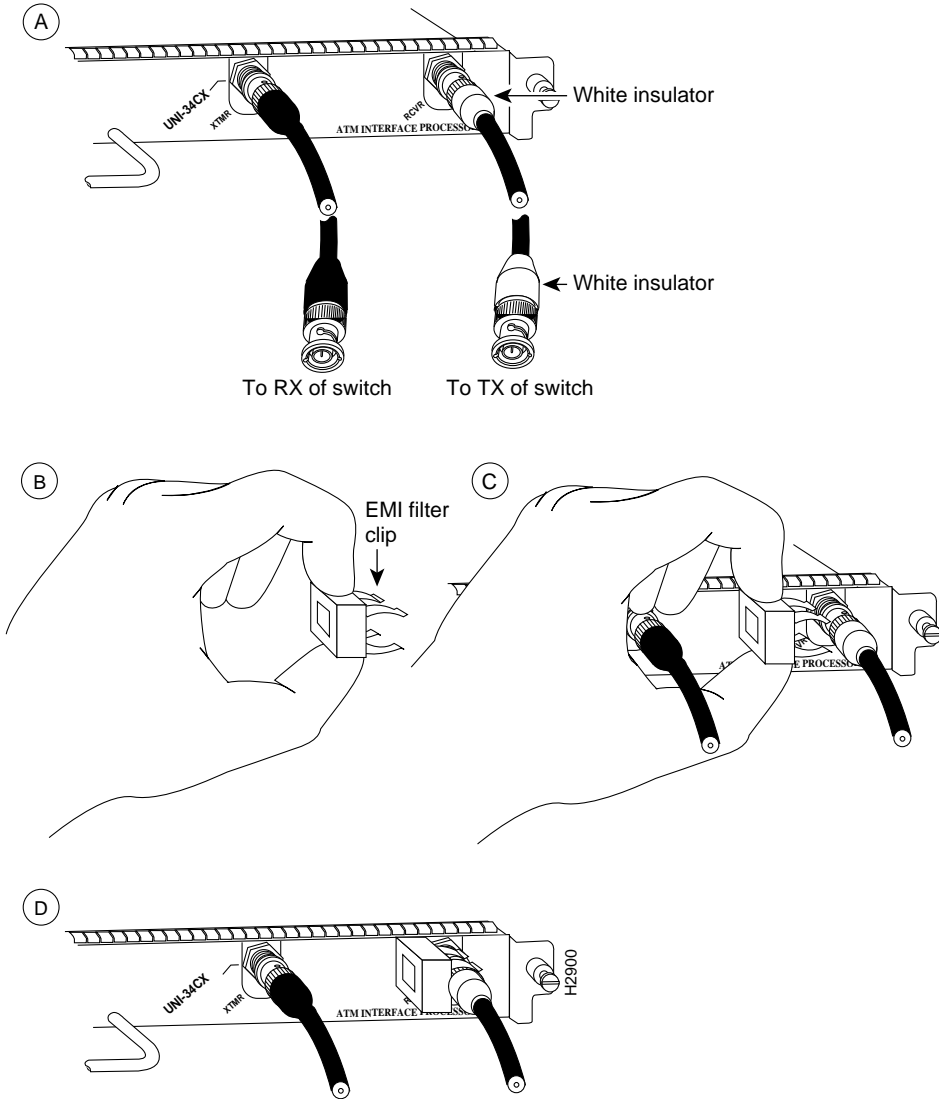
---

**Note** Make certain the EMI filter clip makes mechanical contact with the metal sleeve on the cable connector *and* the metal sleeve on the E3 PLIM connector.

---

**Step 4** To ensure that the clip is not pulled off when adjacent interface processors are removed, position the clip parallel to the orientation of the AIP, as shown in C and D in Figure 4-18.

Figure 4-18 Attaching the EMI Filter Clip





## MultiChannel Interface Processor (MIP) Connections

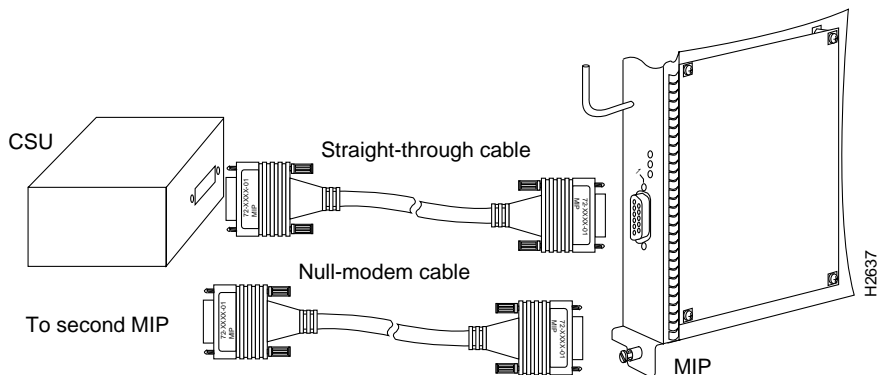
Two standard T1 serial cables are available from Cisco Systems and other vendors for use with the MIP: null-modem and straight-through. These interface cables are used to connect your MIPs to additional MIPs or external CSUs, respectively.

You must use null-modem cables for MIP-to-MIP connections and straight-through cables for MIP-to-CSU connections. The T1 cables used to connect the MIP with external T1 equipment have DB-15 male connectors on each end.

Four E1 cables are available from Cisco Systems and other vendors for use with the MIP: BNC, Twinax, DB-15, and RJ-45. The E1 cables used to connect the MIP with external E1 equipment have a DB-15 male connector on the MIP end.

Connect the MIP cables as shown in Figure 4-19.

**Figure 4-19 Connecting Cables to the MIP**



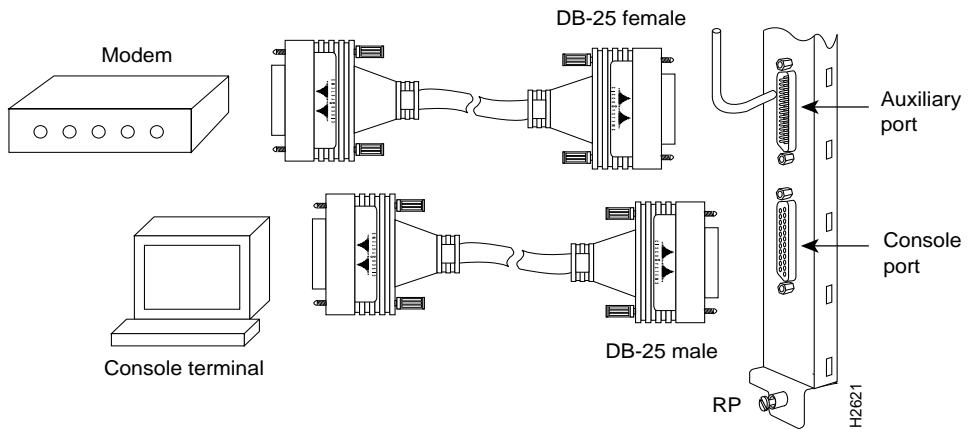
## Connecting the Console Terminal and Auxiliary Port

The console port on the RP (or RSP7000) is a DCE, DB-25 receptacle for connecting a data terminal, which you need to configure to communicate with your system. The auxiliary port is a DTE, DB-25 receptacle for connecting a modem or other DCE device (such as a CSU/DSU or other router) to the system.

Before connecting the console port, check your terminal's documentation to determine its baud rate, which must match the default baud rate (9600 baud) of the console port on the RP (or RSP7000). Set up the terminal as follows: 9600 baud, 8 data bits, no parity, 2 stop bits. On the RP (or RSP7000), the console port is located below the auxiliary port.

Connect the console and auxiliary ports as shown in Figure 4-20.

**Figure 4-20** Connecting Cables to the Console and Auxiliary Ports



---

**Note** Both the console and auxiliary ports are asynchronous serial ports; any devices connected to these ports must be capable of asynchronous transmission. (This is the most common type of serial device; for example, most modems are asynchronous devices.)

---

## Connecting Power

To connect a 700W AC-input power supply, simply connect the power cable between the AC-input power supply and the AC source, then secure the strain relief clip to the cable.

Following is the procedure for connecting a 700W DC-input power supply. You will need a medium flat-blade screwdriver, two nylon cable ties, and wire cutters for this procedure.



**Warning** Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

**Step 1** Ensure that the DC-input power cable is disconnected from the DC power source and that the power switch on the power supply is in the off (O) position.

**Step 2** Using a screwdriver, loosen the captive installation screws on the terminal block cover, then lift and remove the cover. (See Figure 4-21.)

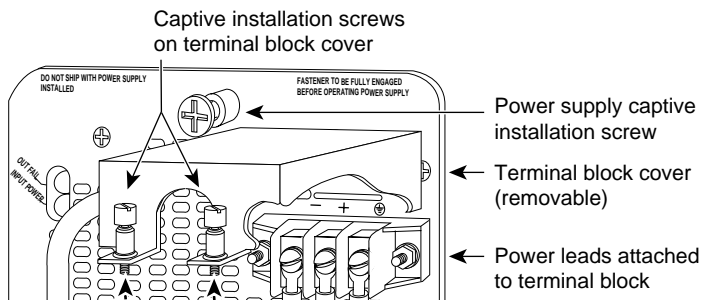


**Warning** When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)



**Warning** The illustration shows the DC power supply terminal block. Wire the DC power supply using the appropriate lugs at the wiring end, as illustrated. The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last. (For translated versions of this warning, refer to the appendix “Translated Safety Warnings.”)

**Figure 4-21** Installing the Power Cable Leads, Nylon Ties, and Cover



**Warning** Incorrectly wiring the terminal block could create a dangerous shock hazard and could damage the power supply, power source, and the chassis components.

**Step 3** To provide strain relief for the three DC-input cable, attach two nylon ties around the cable and the metal bracket. (See Figure 4-21.)

**Step 4** Install the terminal block cover over the terminal block and tighten the captive installation screws. (See Figure 4-21.) *Do not* overtighten the captive installation screws on the terminal block cover. The recommended torque is  $8.2 \pm 0.4$  inch-lb.



**Warning** To prevent a short-circuit or shock hazard after wiring the DC-input power supply, replace the terminal block cover.

**Step 5** Connect the opposite end of the DC-input cable to the DC power source.

---

**Note** Do not turn on any power supplies until you are ready to power up the system. The interlock switch that locks the power supply in the slot also turns on the system power.

---

**Step 6** If you are installing or replacing a second power supply, repeat Step 1 through Step 5 for the second power supply.

---

**Note** For a more complete discussion of the DC-input power supply, refer to the configuration note *700-Watt DC-Input Power Supply Installation and Replacement Instructions*, which is available on UniverCD or as a printed copy (Document Number 78-1445-xx, where xx is the latest version of the document).

---

# Checking Your Installation

After you have finished installing your Cisco 7000 hardware, and connecting all the cables, and *before* you turn on the power, verify the following:

- All cables are attached, and all cable strain relief is used correctly.
- All processor modules are installed correctly as follows:
  - All the ejector levers should be lying flat against the module faceplates.
  - All the captive installation screws should be securely tightened.
- Any installed Flash memory (PCMCIA) card is inserted all the way into its slot.
- The power supplies are fully inserted in the power supply bays, and the power connections are securely attached. If you need more specific information on power attachments, refer to the documentation that accompanied the power supplies.

---

**Note** For complete hardware and network troubleshooting information, refer to the *Cisco 7000 Hardware Installation and Maintenance* and *Troubleshooting Internetworking Systems* publications, which are available on UniverCD or as printed copies.

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**Caution** To prevent damage to the chassis, processor modules, or power supplies, and to prevent short circuit and shock hazards, verify that your input power cabling is attached correctly. *Do not turn on power until you are ready to configure the system.*

## What Do I Do Next?

After your hardware installation is complete, and all required cables are connected, proceed to the chapter “Performing a Basic Configuration of the Cisco 7000.”

# Performing a Basic Configuration of the Cisco 7000

---

This chapter describes the procedures for performing a basic configuration your router, and contains the following sections:

- Starting the System and Observing Initial Conditions
- Software Configuration Register Settings at Startup
- Booting the Cisco 7000 for the First Time
- Using the Enable Secret and the Enable Password
- Configuring the Cisco 7000

To configure the Cisco 7000 from a console, you need to connect a terminal to the router's console port. Configuration requires access to the console port on the Route Processor (RP) or the 7000 Series Route Switch Processor (RSP7000) in your router.

This chapter guides you through a basic router configuration, which is sufficient for you to access your network. Complex configuration information is beyond the scope of this text, and can be found in the configuration publications listed in the section “If You Need More Configuration Information.”

## If You Need More Configuration Information

The Cisco Internetwork Operating System (Cisco IOS) software running the router contains extensive features and functionality. The effective use of many of many of these features is easier if you have more information at hand. To obtain general information about documentation, call Customer Service at 800 553-6387 or 408 526-7208. Customer Service hours are 5:00 a.m. to 6:00 p.m. Pacific time, Monday through Friday (excluding company holidays). You can also send e-mail to [cs-rep@cisco.com](mailto:cs-rep@cisco.com). You can also refer to the *Cisco Information Packet* that shipped with your router.

## If You Need More Configuration Information

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For additional information on configuring the Cisco 7000 router, the following documentation resources are available to you:

- UniverCD

This user guide and all other Cisco Systems publications are available on UniverCD, which is Cisco's online library of product information. UniverCD is updated and shipped monthly, so it might be more up to date than printed documentation. To order UniverCD, contact a Cisco Sales or Customer Service representative.
- For systems with Cisco IOS Release 10.0 (1) or later, refer to the following publications:
  - *Router Products Configuration Guide*
  - *Router Products Command Reference*
  - *Troubleshooting Internetworking Systems*
- For systems with Cisco IOS Release 11.1(1) or later, refer to the following modular configuration and modular command reference publications, as appropriate for your configuration:
  - *Configuration Fundamentals Configuration Guide* (Module I)
  - *Configuration Fundamentals Command Reference* (Module I)
  - *Wide-Area Networking Configuration Guide* (Module III)
  - *Wide-Area Networking Command Reference* (Module III)
  - *Standard Network Protocols Configuration Guide* (Module IV)
  - *Standard Network Protocols Command Reference* (Module IV)
  - *Network Protocols Configuration Guide* (Module V)
  - *Network Protocols Command Reference* (Module V)
  - *Bridging and IBM Networking Configuration Guide* (Module VI)
  - *Bridging and IBM Networking Command Reference* (Module VI)
  - *Configuration Builder Getting Started Guide*
  - *Troubleshooting Internetworking Systems*



## Starting the System and Observing Initial Conditions

When all interfaces are connected, perform a final check of all connections, then power up the system as follows:

- Step 1** Check the external power connection; the power-supply switch should be OFF.
- Step 2** At the power source end of the power cable, make sure the AC or DC connections are securely attached, and that the power source is within the range labeled on the back of the router.
- Step 3** Check the console terminal and make sure it is turned on.
- Step 4** When you have checked all of the connection points, turn ON the system.

The AC power LED on the AC-input power supply (or the input power LED on the DC-input supply) will be on.

- Step 5** Listen for the system fans, which should generate enough noise to be audible.
- Step 6** While the system initializes, the normal LED on the RP (or RSP7000) goes on and stays on.

If this LED does not go on after system initialization, an error has occurred. For troubleshooting advice and recommendations, refer to the *Cisco 7000 Hardware Installation and Maintenance* publication.

- Step 7** During the boot process, the LEDs on most of the interfaces go on in irregular sequence.

Some LEDs may go on and remain on, go out, and go on again for a short time. Some will stay on during the entire boot process if an interface is already configured and brought up (such as the EIP receive LED, which goes on steadily as it detects traffic on the line). Wait until the system boot is complete before attempting to verify the interface processor LED indications.

- Step 8** When the system boot is complete (a few seconds), the RP (or RSP7000) begins to initialize the interface processors. During this initialization, the LEDs on each interface processor behave differently (most flash on and off). The enabled LED on each interface processor goes on when initialization is completed, and the console screen displays a script and system banner similar to the following:

```
GS Software (GS7), Version 10.3(8)
Copyright (c) 1986-1995 by Cisco Systems, Inc.
Compiled Wed 10-May-95 11:06
```

- Step 9** Configure the interfaces.

When you start up the router for the first time, the system automatically enters the **setup** command facility, which determines which interfaces are installed, and prompts you for configuration information for each interface. On the console terminal, after the system displays the system banner and hardware configuration, you will see the following System Configuration Dialog prompt:

```
--- System Configuration Dialog ---
At any point you may enter a questions mark '?' for help.
Refer to the 'Getting Started' Guide for additional help.
Default settings are in square brackets '[']. continue with
configuration dialog? [yes]:
```

You have the option of proceeding with the **setup** command facility to configure the interfaces, or exit from setup and use configuration commands to configure global (system-wide) and interface-specific parameters. You do not have to configure the interfaces immediately; however, you cannot enable the interfaces or connect them to any networks until you have configured them.

Many of the interface processor LEDs will not go on until you have configured the interfaces. To verify correct operation of each interface, complete the first-time startup procedures and configuration, then refer to the LED descriptions in the appendix “Reading LED Indicators” in the *Cisco 7000 Hardware Installation and Maintenance* publication to check the status of the interfaces.

If the system does not complete each of these steps, proceed to the chapter “Troubleshooting the Installation,” in the *Cisco 7000 Hardware Installation and Maintenance* publication, for troubleshooting recommendations and procedures.

## Software Configuration Register Settings at Startup

Use the following information *only* if you have an RP running Cisco IOS Release 10.0 or later, or an RSP7000 processor in your Cisco 7000; otherwise, the RP uses a hardware configuration register, and you should refer to the section “Setting the Boot Jumper on the RP,” in the chapter “Installing the Cisco 7000,” for the appropriate settings.

Bits 0 through 3 of the software configuration register form the *boot field*. The boot field specifies a number in binary and functions as follows:

- When the boot field is set to either 0 or 1 (0-0-0-0 or 0-0-0-1), the system ignores any boot instructions in the system configuration file.
- When the boot field is set to 1 (the factory default), the system boots the first image in the onboard bootflash single in-line memory module (SIMM).
- When the boot field is set to 0, you must boot the operating system manually by giving a **b** (or **boot**) command to the system bootstrap program or *rom monitor*.

You can enter the **boot** command only, or include additional boot instructions with the command such as the name of a file stored in Flash memory or a file that you specify for booting from a network server. If you use the **boot** command without specifying a file or any other boot instructions, the system boots from the default Flash image (the first image in onboard Flash memory). Otherwise, you can instruct the system to boot from a specific Flash image (using the **boot system flash filename** command), or boot from a network server by sending broadcast TFTP requests (using the **boot system filename** command), or send a direct TFTP request to a specific server (using the **boot system filename address** command).

The **boot** command can also be used to boot images stored in the Personal Computer Memory Card International Association (PCMCIA) Flash memory cards located in slot 0 or slot 1 on the RSP2. If you set the boot field to any bit pattern other than 0 or 1, the system uses the resulting number to form a filename for netbooting.

To form this filename, the system starts with *cisco* and links the octal equivalent of the boot field value and the processor type in the following format:

*cisco<bootfieldvalue>-<processorname>*; for example, *cisco2-RSP* or *cisco2-RP*.

The system uses the filename to invoke the system image by netbooting. However, if the configuration file contains any boot instructions, the system uses those boot instructions instead of the filename it computed from the configuration register settings. You must set the boot field for the boot functions you require.

For more detailed information on the software configuration register features and Flash memory card functionality, refer to the *Cisco 7000 Hardware Installation and Maintenance* publication. For information on the **boot** command and function, refer to the section “Booting the Cisco 7000 for the First Time.”

## Booting the Cisco 7000 for the First Time

The router is administered using the Cisco command interpreter, called the EXEC. You must boot and log in to the router before you can enter an EXEC command. For security purposes the EXEC has two levels of access to commands, user EXEC mode and privileged EXEC mode. To enter the privileged mode you must enter the enable secret password (which is optional, but must first have been saved in memory) on systems running Cisco Internetwork Operating System (Cisco IOS) Release 10.2(3) or later, or the enable password on systems running Cisco IOS releases prior to Release 10.2(3) or when using the boot ROM software.

At the ROM monitor prompt, view what is in onboard Flash memory using the following:

```
rommon 1 > dir bootflash:
  File size           Checksum           File name
  3277967 bytes (0x32048f)  0x6b331e30       rsp-k-m.103-8
rommon 2 >
```

If you have a 7000 Series Route Switch Processor (RSP7000) or a Route Processor (RP) with a PCMCIA Flash memory card in the Flash memory card slot, view the Flash memory PCMCIA card in slot 0 using the following:

```
rommon 2 > dir slot0:
  File size           Checksum           File name
  3054276 bytes (0x2e9ac4)  0x97788495       rsp-k-m.103-8
rommon 3 >
```

If you have an RSP7000, view the Flash memory PCMCIA card in slot 1 using the following:

```
rommon 2 > dir slot1:
  File size           Checksum           File name
  3054276 bytes (0x2e9ac4)  0x97788495       rsp-k-m.103-8
rommon 3 >
```

Boot from one of these images using the following:

```
rommon 3 > boot slot0:rsp-k-m.103-8 (or slot 1 with the RSP7000)
rommon 3 > boot bootflash:rsp-k-m.103-8
```

If you did not change the configuration register setting, the next reload will go back to the default configuration register setting. The factory default configuration register setting for systems is 0x102, and for RSP spares the default is 0x101.

## Using the Enable Secret and the Enable Password

The commands available at the user level are a subset of those available at the privileged level. Because many privileged-level EXEC commands are used to set operating parameters, you should password-protect these commands to prevent unauthorized use.

There are two commands you can use to do this, depending on which release of the Cisco IOS software you have:

- **enable secret** *password* (which is a very secure, encrypted password).
- **enable** *password* (which is a less secure, or nonencrypted, password).

You must enter the correct password to gain access to privileged-level commands. The enable secret password is available in Cisco IOS Release 10.2(3) or later. When you are running from the boot ROM, the enable password might be used depending on your ROM level.

The passwords should be different for maximum security. If you enter the same password for both during the setup script, the system will accept it, but you will receive a warning message indicating that you should enter a different password.

An enable secret password can contain from 1 to 25 uppercase and lowercase alphanumeric characters; an enable password can contain any number of uppercase and lowercase alphanumeric characters. In both cases, a number cannot be the first character. Spaces are also valid password characters; for example, “two words” is a valid password. Leading spaces are ignored; trailing spaces are recognized.

# Configuring the Cisco 7000

You can complete a basic configuration of the Cisco 7000 using one of the procedures described in the following sections:

- Performing a Basic Configuration Using AutoInstall
- Performing a Basic Manual Configuration Using the Setup Facility
- Performing a Basic Configuration Using the Configuration Mode

Follow the procedure that best fits the needs of your network configuration.

---

**Note** You will need to acquire the correct network addresses from your system administrator or consult your network plan to determine correct addresses before you can complete the router configuration.

---

Before continuing the configuration process, check the current state of the router by entering the **show version** command. The **show version** command will display the release of Cisco IOS software that is available on the router.

## Performing a Basic Configuration Using AutoInstall

The AutoInstall process is designed to configure the router automatically after connection to your wide-area network (WAN). For AutoInstall to work properly, a Transmission Control Protocol/Internet Protocol (TCP/IP) host on your network must be preconfigured to provide the required configuration files. The TCP/IP host may exist anywhere on the network, as long as the following two conditions are maintained:

- 1 The host must be on the remote side of the router's synchronous serial connection to the WAN.
- 2 User Datagram Protocol (UDP) broadcasts to and from the router and the TCP/IP host must be enabled.

This functionality is coordinated by your system administrator at the site where the TCP/IP host is located. You should not attempt to use AutoInstall unless the required files have been provided on the TCP/IP host. See the appropriate software configuration publications for information on how AutoInstall works.

Take the following steps to prepare your router for the AutoInstall process:

- Step 1** Attach the appropriate synchronous serial cable to a synchronous serial interface on the router.
- Step 2** Turn ON power to the router.

The router will load the operating system image from Flash memory. If the remote end of the WAN connection is connected and properly configured, the AutoInstall process will begin. If the AutoInstall process completed successfully, you might want to write the configuration data to the router's nonvolatile random-access memory (NVRAM). Perform the following step to complete this task:

- Step 3** At the # prompt, enter the **copy running-config startup-config** command if you are running Cisco IOS Release 11.0 or later, or the **write memory** command if you are running a Cisco IOS release earlier than 11.0:

```
Hostname# copy running-config startup-config
```

Taking this step will save the configuration settings that the AutoInstall process created in the router. If you fail to do this, your configuration will be lost the next time you reload the router.

### Performing a Basic Manual Configuration Using the Setup Facility

If you do not plan to use AutoInstall, do not connect the router's serial (WAN) cable to the channel service unit/data service unit (CSU/DSU). This will prevent the router from attempting to run the AutoInstall process. The router will attempt to run AutoInstall whenever you start it if the serial (WAN) connection is connected on both ends and the router does not have a configuration stored in NVRAM. It can take several minutes for the router to determine that AutoInstall is not set up to a remote TCP/IP host.

Once the router has determined that AutoInstall is not configured, it will default to the setup facility. If the serial (WAN) cable is not connected, the router will boot from Flash memory and go into the setup facility.

---

**Note** You can run the setup facility any time you are at the enable prompt (#) by entering the **setup** command.

---

### Configuring the Global Parameters

When you first start the setup program, you must configure the global parameters. The global parameters are used for controlling system-wide settings. Use the following procedure to enter the global parameters:

- Step 1** Connect a console terminal to the console port on the RP or 7000 RSP, and then boot the router to the user EXEC prompt (`Router>`).
- Step 2** When you have booted from Flash memory, the following information will appear after about 30 seconds. When you see this information displayed, you have successfully booted your router:

```
System Bootstrap, Version 5.3(0.3), SOFTWARE  
Copyright (c) 1986-1995 by cisco Systems  
RP1 processor with 16384 Kbytes of main memory  
F3: 8336+3474931+165004 at 0x1000
```



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cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, California 95134-1706

Cisco Internetwork Operating System Software  
IOS (tm) GS Software (GS7-K-M), Version 10.3(8), RELEASE SOFTWARE  
(fc1)  
Copyright (c) 1986-1995 by cisco Systems, Inc.  
Compiled Wed 01-Nov-95 13:55 by vattran  
Image text-base: 0x00001000, data-base: 0x0061E5B4

RP (68040) processor with 16384K bytes of memory.  
G.703/E1 software, Version 1.0.  
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.  
Bridging software.  
1 EIP controller (2 Ethernet).  
2 FSIP controllers (4 Serial).  
2 Ethernet/IEEE 802.3 interfaces.  
4 Serial network interfaces.  
128K bytes of non-volatile configuration memory.  
4096K bytes of flash memory sized on embedded flash.  
8192K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).  
Notice: NVRAM invalid, possibly due to write erase.

---

**Note** The first two sections of the configuration script (the banner and the installed hardware) appear only at initial system startup. On subsequent uses of the **setup** command facility, the script begins with the System Configuration Dialog.

---

--- System Configuration Dialog ---

At any point you may enter a question mark '?' for help.  
Refer to the 'Getting Started' Guide for additional help.  
Use ctrl-c to abort configuration dialog at any prompt.  
Default settings are in square brackets '['].  
Would you like to enter the initial configuration dialog? [yes]:

- Step 3** Enter **yes** or press **Return** when asked if you want to enter the configuration dialog and if you want to see the current interface summary. Press **Return** to accept the default (yes):

Would you like to enter the initial configuration dialog? [yes]:

First, would you like to see the current interface summary? [yes]:

In the following example, the summary shows a router at first-time startup. That is, nothing has been configured, and the summary reflects that fact.

Any interface listed with OK? value "NO" does not have a valid configuration.

Interface	IP-Address	OK?	Method	Status	Protocol
Ethernet0/0	unassigned	NO	not set	down	down
Serial3/0	unassigned	NO	not set	down	down

- Step 4** Choose which protocols to support on your interfaces. For Internet Protocol (IP)-only installations, you can accept the default values for most of the questions.

A typical minimal configuration using IP, IPX, and AppleTalk follows, and continues through Step 10:

Configuring global parameters:

Enter host name [Router]: **Router**

**Step 5** Enter the enable secret password and the enable password:

The enable secret is a one-way cryptographic secret used instead of the enable password when it exists.

Enter enable secret: **barney**

The enable password is used when there is no enable secret and when using older software and some boot images.

Enter enable password: **betty**

**Step 6** The Simple Network Management Protocol (SNMP) is the most widely supported open standard for network management. It provides a means to access and set configuration and run-time parameters of routers and communication servers. SNMP defines a set of functions that can be used to monitor and control network elements.

Enter **yes** or **no** to accept or refuse SNMP management:

Configure SNMP Network Management? [yes]:  
Community string [public]:

**Step 7** For the following query, do not enable CLNS:

Configure CLNS? [no]: **no**

**Step 8** For the following queries, enable routing on AppleTalk and IPX:

Configure AppleTalk? [no]: **yes**  
Multizone networks? [no]: **yes**

Configure IPX? [no]: **yes**

**Step 9** For the following queries, do not enable Vines, XNS, DECnet, or bridging:

Configure Vines? [no]: **no**  
Configure XNS? [no]: **no**  
Configure DECnet? [no]: **no**  
Configure bridging? [no]: **no**

**Step 10** In most cases you will use IP routing. If you are using IP routing, you must also select an interior routing protocol. You can specify only one of two interior routing protocols to operate on your system using setup: Interior Gateway Routing Protocol (IGRP) or Routing Information Protocol (RIP).

Enter **yes** (the default) or press **Return** to configure IP and then select an interior routing protocol (such as IGRP) for IP:

```
Configure IP? [yes]:
Configure IGRP routing? [yes]:
Your IGRP autonomous system number [1]: 15
```

---

**Note** The following sample display includes a continuous listing of all configuration parameters selected in Steps 4 through 10. These parameters are shown in the order in which they appear on your console terminal.

Only IP, IPX, and AppleTalk are the selected protocols for this example.

---

```
Configuring global parameters:

Enter host name [Router]:

The enable secret is a one-way cryptographic secret used
instead of the enable password when it exists.

Enter enable secret: barney

The enable password is used when there is no enable secret
and when using older software and some boot images.

Enter enable password: betty
Enter virtual terminal password: fred
Configure SNMP Network Management? [yes]:
Configure AppleTalk? [no]: y
Configure CLNS? [no]:
Configure IPX? [no]:
Configure Vines? [no]:
Configure XNS? [no]:
Configure DECnet? [no]:
Configure CLNS? [no]:
```

```

Configure bridging? [no]:
Configure IP? [yes]:
Configure IGRP routing? [yes]:
    Your IGRP autonomous system number [15]:
Configure Apollo? [no]:

```

**Step 11** Save your settings to NVRAM. (Refer to the section “Saving the Settings to NVRAM and Reviewing Your Configuration.”)

## Configuring Interfaces

Following are steps to configure interfaces to allow communication over a LAN or WAN. To configure the interface parameters, you will need your interface network addresses and subnet mask information. Consult with your network administrator for these.

### Configuring Ethernet Interfaces

Following is the procedure for configuring an Ethernet interface:

**Step 1** In the following example, the system is being configured for an Ethernet LAN using IP. Respond as follows, using your own addresses and mask at the setup prompts:

```

Configuring interface parameters:

Configuring interface Ethernet0/0:
  Is this interface in use? [no]: yes
  Configure IP on this interface? [no]: yes
    IP address for this interface: 1.1.1.10
    Number of bits in subnet field [0]:
    Class A network is 1.0.0.0, 0 subnet bits; mask is 255.0.0.0

```

**Step 2** Determine if you want to enable IPX on this interface. If yes, enter the unique IPX network number:

```

Configure IPX on this interface? [no]: yes
  IPX network number [2]:

```

- Step 3** Enter **yes** to use AppleTalk on the interface, enter **yes** to configure for extended AppleTalk networks, and then enter the cable range number. Enter the zone name, and any other additional zones that will be associated with your local zone:

```
Configure AppleTalk on this interface? [no]: yes
Extended AppleTalk network? [no]: yes
AppleTalk starting cable range [0]:
```

- Step 4** Save your settings to NVRAM. (Refer to the section “Saving the Settings to NVRAM and Reviewing Your Configuration.”) If additional Ethernet interfaces are available in your system, you are prompted for their configurations as well.

### Configuring a Synchronous Serial Interface

The synchronous serial interfaces are configured to allow connection to WANs through a CSU/DSU. Take the following steps to configure the serial ports:

- Step 1** Enter **yes** to configure serial port 0:

```
Configuring interface Serial0/0:
Is this interface in use? [no]: yes
```

- Step 2** Determine which protocols you want to allow on the synchronous serial interface and enter the appropriate responses:

```
Configure IP unnumbered on this interface? [no]:
IP address for this interface: 1.1.1.20
Number of bits in subnet field [0]:
Class A network is 1.0.0.0, 0 subnet bits; mask is 255.0.0.0

Configure IPX on this interface? [no]: yes
IPX network number [2]:

Configure AppleTalk on this interface? [no]: yes
Extended AppleTalk network? [no]:
AppleTalk network number [1]:
```

- Step 3** Save your settings to NVRAM. (Refer to the section “Saving the Settings to NVRAM and Reviewing Your Configuration.”) If additional synchronous serial interfaces are available in your system, you are prompted for their configurations as well.

**Note** The following sample display includes a continuous listing of all interface configuration parameters selected for Ethernet and synchronous serial interfaces. These parameters are shown in the order in which they appear on your console terminal.

Only one Ethernet and one synchronous serial interface are configured for this example.

---

Configuring interface parameters:

Configuring interface Ethernet0/0:

```
Is this interface in use? [no]: yes
Configure IP on this interface? [no]: yes
  IP address for this interface: 1.1.1.10
  Number of bits in subnet field [0]:
    Class A network is 1.0.0.0, 0 subnet bits; mask is 255.0.0.0
Configure IPX on this interface? [no]: yes
  IPX network number [2]: 10
Configure AppleTalk on this interface? [no]: yes
  Extended AppleTalk network? [no]: yes
  AppleTalk starting cable range [0]:
```

Configuring interface Serial1/0:

```
Is this interface in use? [no]: yes
Configure IP on this interface? [no]: yes
Configure IP unnumbered on this interface? [no]:
  IP address for this interface: 1.1.1.20
  Number of bits in subnet field [0]:
    Class A network is 1.0.0.0, 0 subnet bits; mask is 255.0.0.0
Configure IPX on this interface? [no]: yes
  IPX network number [2]:
Configure AppleTalk on this interface? [no]: yes
  Extended AppleTalk network? [no]:
  AppleTalk network number [1]:
```

The following configuration command script was created:

```
hostname Router
enable secret 5 $1$u8z3$PMYY8em./8sszhzk78p/Y0
enable password s
line vty 0 4
password s
snmp-server community public
```

## Configuring the Cisco 7000

---

```
ip routing
no vines routing
ipx routing
appletalk routing
no apollo routing
no decnet routing
no xns routing
no clns routing
no bridge 1
! Turn off IPX to prevent network conflicts.
interface Ethernet0/0
no ipx network
interface Ethernet0/1
no ipx network
!
interface Ethernet0/0
ip address 1.1.1.10 255.0.0.0
appletalk cable-range 0-0 0.0
appletalk discovery
no mop enabled
!
interface serial1/0
ip address 1.1.1.20 255.0.0.0
ip route-cache cbus
no keepalive
!
!
router igrp 15
network 1.0.0.0
!
end

Use this configuration? [yes/no]: yes
[OK]
Use the enabled mode 'configure' command to modify this configuration.

Press RETURN to get started!
```

The Cisco 7000 is now minimally configured and ready to use. Use the **setup** command if you want to modify the parameters after the initial configuration. To perform more complex configurations, enter the **configure** command.

For information on additional interface configuration and information on more specific system configurations, refer to the section “If You Need More Configuration Information.”



## Performing a Basic Configuration Using the Configuration Mode

You can configure the Cisco 7000 manually if you prefer not to use the setup facility or AutoInstall. Take the following steps to configure the router manually:

**Step 1** Connect a console terminal to the console port of your RP or 7000 RSP.

**Step 2** When you are asked if you want to enter the initial dialog, answer **no** to go into the normal operating mode of the router:

```
Would you like to enter the initial dialog? [yes]: no
```

**Step 3** After a few seconds you will see the user EXEC prompt (`Router>`). Type **enable** to enter enable mode. Configuration changes can only be made in enable mode:

```
Router> enable
```

The prompt will change to the privileged EXEC prompt:

```
Router#
```

**Step 4** Enter the **config terminal** command at the enable prompt to enter configuration mode from the terminal:

```
Router# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
```

At the `Router(config)#` prompt, enter the **interface** *type slot/port* command to enter the interface configuration mode:

```
Router(config)# interface serial slot/port
Router(config-int)#
```

In either of these configuration modes, you can enter any changes to the router's configuration. Press **Ctrl-Z** to exit either configuration mode.

**Step 5** Save your settings to NVRAM. (Refer to the section “Saving the Settings to NVRAM and Reviewing Your Configuration.”)

The Cisco 7000 is now minimally configured and will boot with the configuration you have entered. To see a list of the configuration commands available to you, enter `?` at the prompt or press the **help** key while in configuration mode.

### Checking the Settings

You can check the value of the settings you entered by entering the following commands at the # prompt: **show running-config** if you are running Cisco IOS Release 11.0 or later, or **write terminal** if you are running a Cisco IOS Release earlier than 11.0.

```
Router# show running-config
.
```

### Saving the Settings to NVRAM and Reviewing Your Configuration

To store the configuration or changes to your startup configuration, enter the following commands at the hostname# prompt: **copy running-config startup-config** if you are running Cisco IOS Release 11.0 or later, or **write memory** if you are running a Cisco IOS release earlier than Release 11.0.

```
Router# copy running-config startup-config
```

Entering this command will save the configuration settings that you created in the router using configuration mode. If you fail to do this, your configuration will be lost the next time you reload the router.

To display information stored in NVRAM, use the **show startup-config EXEC** command if you are running Cisco IOS Release 11.0 or later, or the **show config EXEC** command if you are running a Cisco IOS release earlier than 11.0.

## Implementing Other Configuration Tasks

To make advanced configuration changes after you establish the basic startup configuration for your router, refer to the section “If You Need More Configuration Information” for the appropriate configuration publications; these publications contain additional information on using the **configure** command.

The configuration publications also provide information about the following tasks:

- Understanding and working with the user interface on your router
- Booting and rebooting the router
- Setting the configuration register
- Loading configuration files or system images using remote copy (rcp) or Trivial File Transfer Protocol (TFTP)
- Reloading the operating system

## What Do I Do Now?

After you have installed the Cisco 7000 hardware, checked all external connections, turned on the system power, allowed the system to boot up, and minimally configured the system, you might need to perform more complete and complex configurations, which are beyond the scope of this text.

For specific information on system and interface configuration, and, if necessary, troubleshooting, refer to the publications listed in the section “If You Need More Configuration Information.”



# Translated Safety Warnings

---

This appendix repeats in multiple languages the warnings in this guide. In addition, this appendix contains translated warnings that can be used with other documentation related to the Cisco 7000, such as the *Cisco 7000 Hardware Installation and Maintenance* manual and the configuration notes for Cisco 7000 spare components.

## Invisible Laser Radiation Warning



**Warning** Invisible laser radiation may be emitted from the aperture ports of the single-mode FDDI card when no cable is connected. *Avoid exposure and do not stare into open apertures.*

**Waarschuwing** Wanneer geen kabel aangesloten is, kan er onzichtbare laserstraling geëmitteerd worden uit de apertuurpoorten van de enkelvoudige-modus FDDI-kaart ("Fiber Distributed Data Interface" = "Interface van door glasvezels gedistribueerde gegevens"). *Vermijd blootstelling en staar niet in de open aperturen.*

**Varoitus** Yksitoimintoisen FDDI-kortin avoimista porteista saattaa vapautua näkymättömiä lasersäteitä kaapelin ollessa irrotettuna. *Vältä säteilyä ja avoimiin aukkoihin katsomista.*

**Attention** Des rayons laser invisibles peuvent s'échapper des ouvertures prévues pour la carte d'interface des données distribuées par fibres optiques monomode (Fiber Distributed Data Interface ou FDDI) quand un câble n'est pas connecté. *Eviter toute exposition et ne pas approcher les yeux des ouvertures.*

**Warnung** Wenn kein Kabel angeschlossen ist, wird möglicherweise unsichtbare Laserstrahlung von den Steckanschlüssen der Monomode-FDDI-Karte (Glasfaserdatenübertragungs-Schnittstelle; Fiber Distributed Data Interface) ausgestrahlt. *Schützen Sie sich vor Strahlung, und blicken Sie nicht direkt in offene Steckanschlüsse.*

**Avvertenza** Radiazioni laser invisibili potrebbero essere emesse dalle porte di apertura della scheda FDDI (Fiber Distributed Data Interface - Interfaccia di dati distribuiti a fibre) a modo singolo quando il cavo non è stato collegato. *Evitare l'esposizione a tali radiazioni e non fissare alcuna porta aperta.*

**Advarsel** Usynlig laserstråling kan emitteres fra åpningsutgangene på FDDI-kort med kabel av monomodusfiber når de ikke er tilkoblet en ledning. *Unngå utsettelse for stråling, og stirr ikke inn i åpne åpninger.*

**Aviso** Radiação laser invisível poderá ser emitida através das portas de abertura da placa FDDI (Interface de Dados Distribuídos por Fibra Óptica) de modo simples, mesmo quando não houver nenhum cabo ligado. *Evite exposição e não espreite por estas aberturas.*

**¡Advertencia!** La tarjeta FDDI modo sencillo puede emitir radiaciones láser invisibles por los orificios de los puertos cuando no se haya conectado ningún cable. *Evitar la exposición y no mirar fijamente los orificios abiertos.*

**Warning!** Osynlig laserstrålning kan avges från portöppningarna för FDDI-kortet för enkelmodsfiber när ingen kabel är ansluten (FDDI: Fiber Distributed Data Interface = gränssnitt för dataöverföring med fiberoptik). *Utsätt dig inte för denna strålning och titta inte in i öppningarna.*

## Power Supply Disconnection Warning



**Warning** Before working on a chassis or working near power supplies, unplug the power cord on AC units or disconnect the power at the circuit breaker on DC units.

**Waarschuwing** Voordat u aan een frame werkt of in de nabijheid van voedingen, dient u bij wisselstroom toestellen de stekker van het netsnoer uit het stopcontact te halen en voor gelijkstroom toestellen dient u de stroom uit te schakelen bij de stroomverbreker.

**Varoitus** Kytke irti vaihtovirtalaitteiden virtajohto tai katkaise tasavirtalaitteiden virta suojakytkimellä, ennen kuin teet mitään asennuspohjalle tai työskentelet virtalähteiden läheisyydessä.

**Attention** Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif ou couper l'alimentation des unités en courant continu au niveau du disjoncteur.

**Warnung** Bevor Sie an einem Chassis oder in der Nähe von Netzgeräten arbeiten, ziehen Sie bei Wechselstromeinheiten das Netzkabel ab bzw. schalten Sie bei Gleichstromeinheiten den Strom am Unterbrecher ab.

**Avvertenza** Prima di lavorare su un telaio o intorno ad alimentatori, scollegare il cavo di alimentazione sulle unità CA o scollegare l'alimentazione all'interruttore automatico sulle unità CC.

**Advarsel** Før det utføres arbeid på kabinettet eller det arbeides i nærheten av strømforsyningsenheter, skal strømledningen trekkes ut på vekselstrømsenheter, eller strømmen kobles fra ved strømbryteren på likestrømsenheter.

**Aviso** Antes de trabalhar num chassis, ou antes de trabalhar perto de unidades de fornecimento de energia, desligue o cabo de alimentação nas unidades de corrente alternada, ou desligue a corrente no disjuntor nas unidades de corrente contínua.

**¡Advertencia!** Antes de manipular el chasis de un equipo o trabajar cerca de una fuente de alimentación, desenchufar el cable de alimentación en los equipos de corriente alterna (CA), o cortar la alimentación desde el interruptor automático en los equipos de corriente continua (CC).

**Warning!** Innan du arbetar med ett chassi eller nära strömförsörjningsenheter skall du för växelströmsenheter dra ur nätsladden och för likströmsenheter bryta strömmen vid överspänningsskyddet.

## Power Supply Warning



**Warning** 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.

**Waarschuwing** U dient de voeding niet aan te raken zolang het netsnoer aangesloten is. Bij systemen met een stroomschakelaar zijn er lijnspanningen aanwezig in de voeding, zelfs wanneer de stroomschakelaar uitgeschakeld is en het netsnoer aangesloten is. Bij systemen zonder een stroomschakelaar zijn er lijnspanningen aanwezig in de voeding wanneer het netsnoer aangesloten is.

**Varoitus** Älä kosketa virtalähdettä virtajohdon ollessa kytkettynä. Virrankatkaisimella varustetuissa järjestelmissä on virtalähteen sisällä jäljellä verkkojännite, vaikka virrankatkaisin on katkaistu-asennossa virtajohdon ollessa kytkettynä. Järjestelmissä, joissa ei ole virrankatkaisinta, on virtalähteen sisällä verkkojännite, kun virtajohto on kytkettynä.

**Attention** Ne pas toucher le bloc d'alimentation quand le cordon d'alimentation est branché. Avec les systèmes munis d'un commutateur marche-arrêt, des tensions de ligne sont présentes dans l'alimentation quand le cordon est branché, même si le commutateur est à l'arrêt. Avec les systèmes sans commutateur marche-arrêt, l'alimentation est sous tension quand le cordon d'alimentation est branché.

**Warnung** Berühren Sie das Netzgerät nicht, wenn das Netzkabel angeschlossen ist. Bei Systemen mit Netzschalter liegen Leitungsspannungen im Netzgerät vor, wenn das Netzkabel angeschlossen ist, auch wenn das System ausgeschaltet ist. Bei Systemen ohne Netzschalter liegen Leitungsspannungen im Netzgerät vor, wenn das Netzkabel angeschlossen ist.



**Avvertenza** Non toccare l'alimentatore se il cavo dell'alimentazione è collegato. Per i sistemi con un interruttore di alimentazione, tensioni di linea sono presenti all'interno dell'alimentatore anche quando l'interruttore di alimentazione è in posizione di disattivazione (off), se il cavo dell'alimentazione è collegato. Per i sistemi senza un interruttore, tensioni di linea sono presenti all'interno dell'alimentatore quando il cavo di alimentazione è collegato.

**Advarsel** Berør ikke strømforsyningsenheden når strømledningen er tilkoblet. I systemer som har en strømbryter, er det spenning i strømforsyningsenheden selv om strømbryteren er slått av og strømledningen er tilkoblet. Når det gjelder systemer uten en strømbryter, er det spenning i strømforsyningsenheden når strømledningen er tilkoblet.

**Aviso** Não toque na unidade abastecedora de energia quando o cabo de alimentação estiver ligado. Em sistemas com interruptor, a corrente eléctrica estará presente na unidade abastecedora, sempre que o cabo de alimentação de energia estiver ligado, mesmo quando o interruptor se encontrar desligado. Para sistemas sem interruptor, a tensão eléctrica dentro da unidade abastecedora só estará presente quando o cabo de alimentação estiver ligado.

**¡Advertencia!** No tocar la fuente de alimentación mientras el cable esté enchufado. En sistemas con interruptor de alimentación, hay voltajes de línea dentro de la fuente, incluso cuando el interruptor esté en Apagado (OFF) y el cable de alimentación enchufado. En sistemas sin interruptor de alimentación, hay voltajes de línea en la fuente cuando el cable está enchufado.

**Varning!** Vidrör inte strömförsörjningsenheden när nätsladden är ansluten. För system med strömbrytare finns det nätspänning i strömförsörjningsenheden även när strömmen har slagits av men nätsladden är ansluten. För system utan strömbrytare finns det nätspänning i strömförsörjningsenheden när nätsladden är ansluten.

# Chassis Warning–Rack-Mounting and Servicing



**Warning Warning** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

**Waarschuwing** Om lichamelijk letsel te voorkomen wanneer u dit toestel in een rek monteert of het daar een servicebeurt geeft, moet u speciale voorzorgsmaatregelen nemen om ervoor te zorgen dat het toestel stabiel blijft. De onderstaande richtlijnen worden verstrekt om uw veiligheid te verzekeren:

- Dit toestel dient onderaan in het rek gemonteerd te worden als het toestel het enige in het rek is.
- Wanneer u dit toestel in een gedeeltelijk gevuld rek monteert, dient u het rek van onderen naar boven te laden met het zwaarste onderdeel onderaan in het rek.
- Als het rek voorzien is van stabiliseringshulpmiddelen, dient u de stabilisatoren te monteren voordat u het toestel in het rek monteert of het daar een servicebeurt geeft.

**Varoitus** Kun laite asetetaan telineeseen tai huolletaan sen ollessa telineessä, on noudatettava erityisiä varotoimia järjestelmän vakavuuden säilyttämiseksi, jotta vältytään loukkaantumiselta. Noudata seuraavia turvallisuusohjeita:

- Jos telineessä ei ole muita laitteita, aseta laite telineen alaosaan.
- Jos laite asetetaan osaksi täytettyyn telineeseen, aloita kuormittaminen sen alaosasta kaikkein raskaimmalla esineellä ja siirry sitten sen yläosaan.
- Jos telinettä varten on vakaimet, asenna ne ennen laitteen asettamista telineeseen tai sen huoltamista siinä.

**Attention** Pour éviter toute blessure corporelle pendant les opérations de montage ou de réparation de cette unité en casier, il convient de prendre des précautions spéciales afin de maintenir la stabilité du système. Les directives ci-dessous sont destinées à assurer la protection du personnel:

- Si cette unité constitue la seule unité montée en casier, elle doit être placée dans le bas.
- Si cette unité est montée dans un casier partiellement rempli, charger le casier de bas en haut en plaçant l'élément le plus lourd dans le bas.
- Si le casier est équipé de dispositifs stabilisateurs, installer les stabilisateurs avant de monter ou de réparer l'unité en casier.

**Warnung** Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt. Die folgenden Richtlinien sollen zur Gewährleistung Ihrer Sicherheit dienen:

- Wenn diese Einheit die einzige im Gestell ist, sollte sie unten im Gestell angebracht werden.
- Bei Anbringung dieser Einheit in einem zum Teil gefüllten Gestell ist das Gestell von unten nach oben zu laden, wobei das schwerste Bauteil unten im Gestell anzubringen ist.
- Wird das Gestell mit Stabilisierungszubehör geliefert, sind zuerst die Stabilisatoren zu installieren, bevor Sie die Einheit im Gestell anbringen oder sie warten.

**Avvertenza** Per evitare infortuni fisici durante il montaggio o la manutenzione di questa unità in un supporto, occorre osservare speciali precauzioni per garantire che il sistema rimanga stabile. Le seguenti direttive vengono fornite per garantire la sicurezza personale:

- Questa unità deve venire montata sul fondo del supporto, se si tratta dell'unica unità da montare nel supporto.
- Quando questa unità viene montata in un supporto parzialmente pieno, caricare il supporto dal basso all'alto, con il componente più pesante sistemato sul fondo del supporto.
- Se il supporto è dotato di dispositivi stabilizzanti, installare tali dispositivi prima di montare o di procedere alla manutenzione dell'unità nel supporto.

**Advarsel** Unngå fysiske skader under montering eller reparasjonsarbeid på denne enheten når den befinner seg i et kabinett. Vær nøye med at systemet er stabilt. Følgende retningslinjer er gitt for å verne om sikkerheten:

- Denne enheten bør monteres nederst i kabinettet hvis dette er den eneste enheten i kabinettet.
- Ved montering av denne enheten i et kabinett som er delvis fylt, skal kabinettet lastes fra bunnen og opp med den tyngste komponenten nederst i kabinettet.
- Hvis kabinettet er utstyrt med stabiliseringsutstyr, skal stabilisatorene installeres før montering eller utføring av reparasjonsarbeid på enheten i kabinettet.

**Aviso** Para se prevenir contra danos corporais ao montar ou reparar esta unidade numa estante, deverá tomar precauções especiais para se certificar de que o sistema possui um suporte estável. As seguintes directrizes ajudá-lo-ão a efectuar o seu trabalho com segurança:

- Esta unidade deverá ser montada na parte inferior da estante, caso seja esta a única unidade a ser montada.
- Ao montar esta unidade numa estante parcialmente ocupada, coloque os itens mais pesados na parte inferior da estante, arrumando-os de baixo para cima.
- Se a estante possuir um dispositivo de estabilização, instale-o antes de montar ou reparar a unidade.

**¡Advertencia!** Para evitar lesiones durante el montaje de este equipo sobre un bastidor, o posteriormente durante su mantenimiento, se debe poner mucho cuidado en que el sistema quede bien estable. Para garantizar su seguridad, proceda según las siguientes instrucciones:

- Colocar el equipo en la parte inferior del bastidor, cuando sea la única unidad en el mismo.
- Cuando este equipo se vaya a instalar en un bastidor parcialmente ocupado, comenzar la instalación desde la parte inferior hacia la superior colocando el equipo más pesado en la parte inferior.
- Si el bastidor dispone de dispositivos estabilizadores, instalar éstos antes de montar o proceder al mantenimiento del equipo instalado en el bastidor.

**Warning!** För att undvika kroppsskada när du installerar eller utför underhållsarbete på denna enhet på en ställning måste du vidta särskilda försiktighetsåtgärder för att försäkra dig om att systemet står stadigt. Följande riktlinjer ges för att trygga din säkerhet:

- Om denna enhet är den enda enheten på ställningen skall den installeras längst ned på ställningen.
- Om denna enhet installeras på en delvis fylld ställning skall ställningen fyllas nedifrån och upp, med de tyngsta enheterna längst ned på ställningen.
- Om ställningen är försedd med stabiliseringsdon skall dessa monteras fast innan enheten installeras eller underhålls på ställningen.

## Chassis Lifting Warning



**Warning** Two people are required to lift the chassis. Grasp the chassis underneath the lower edge and lift with both hands. To prevent injury, keep your back straight and lift with your legs, not your back. To prevent damage to the chassis and components, never attempt to lift the chassis with the handles on the power supplies or on the interface processors, or by the plastic panels on the front of the chassis. These handles were not designed to support the weight of the chassis.

**Waarschuwing** Er zijn twee mensen nodig om het frame op te tillen. Het frame dient onder de onderste rand vastgegrepen en met beide handen omhooggetild te worden. Om te voorkomen dat u letsel oploopt, dient u uw rug recht te houden en met behulp van uw benen, niet uw rug, te tillen. Om schade aan het frame en de onderdelen te voorkomen, mag u nooit proberen om het frame op te tillen aan de handvatten op de voedingen of op de interface-processors of aan de kunststof panelen aan de voorkant van het frame. Deze handvatten zijn niet ontworpen om het gewicht van het frame te dragen.

**Varoitus** Asennuspohjan nostamiseen tarvitaan kaksi henkilöä. Ota ote asennuspohjan alareunasta ja nosta molemmin käsin. Pitäen selkäsi suorana nosta jalkojen (ei selän) avulla, jotta välttäisit loukkaantumista. Älä yritä nostaa asennuspohjaa virtalähteen tai liitäntäproessorin kahvoista tai asennuspohjan etuosan muovipaneeleista, jotta estät asennuspohjan ja rakenneosien vaurioitumisen. Näitä kahvoja ei ole suunniteltu kestämään asennuspohjan painoa.

**Attention** Il faut deux personnes pour soulever le châssis. Le saisir par son rebord inférieur et soulever des deux mains. Pour éviter tout trauma de la région lombaire, garder le dos droit et soulever la charge en redressant les jambes. Pour éviter d'endommager le châssis et ses composants, ne jamais tenter de le soulever par les poignées des blocs d'alimentation ou des processeurs d'interface, ni par les panneaux en plastique à l'avant du châssis. Ces poignées ne sont pas prévues pour supporter le poids du châssis.

**Warnung** Zum Anheben des Chassis werden zwei Personen benötigt. Fassen Sie das Chassis unterhalb der unteren Kante an und heben es mit beiden Händen an. Um Verletzungen zu vermeiden, ist der Rücken aufrecht zu halten und das Gewicht mit den Beinen, nicht mit dem Rücken, anzuheben. Um Schäden an Chassis und Bauteilen zu vermeiden, heben Sie das Chassis nie an den Kunststoffabdeckungen vorne am Chassis oder mit den Griffen am Netzgerät oder an den Schnittstellenprozessoren an. Diese Griffe sind nicht so konstruiert, daß sie das Gewicht des Chassis tragen könnten.

**Avvertenza** Il telaio va sollevato da due persone. Afferrare il telaio al di sotto del bordo inferiore e sollevare con entrambe le mani. Per evitare infortuni, mantenere la schiena diritta e sollevare il peso con le gambe, non con la schiena. Per evitare danni al telaio ed ai componenti, non provare mai a sollevare il telaio tramite le maniglie sugli alimentatori o sui processori di interfaccia oppure tramite i pannelli in plastica sulla parte anteriore del telaio. Queste maniglie non sono state progettate per sostenere il peso del telaio.

**Advarsel** Det er nødvendig med to personer for å løfte kabinettet. Ta tak i kabinettet under den nedre kanten, og løft med begge hender. Unngå personskade ved å holde ryggen rett og løfte med bena, ikke ryggen. Unngå skade på kabinettet og komponentene ved å aldri prøve å løfte kabinettet etter håndtakene på strømforsyningsenhetene, grensesnittprosessorene eller i plastpanelene foran på kabinettet. Disse håndtakene er ikke beregnet på å tåle vekten av kabinettet.

**Aviso** São necessárias duas pessoas para levantar o chassis. Agarre o chassis imediatamente abaixo da margem inferior, e levante-o com ambas as mãos. Para evitar lesões, mantenha as suas costas direitas e levante o peso com ambas as pernas, sem forçar as costas. Para prevenir danos no chassis e nos seus componentes, nunca tente levantá-lo pelas asas das unidades abastecedoras de energia, nem pelos processadores de interface, ou pelos painéis plásticos localizados na frente do chassis. Estas asas não foram criadas para suportar o peso do chassis.

**¡Advertencia!** Se necesitan dos personas para levantar el chasis. Sujete el chasis con las dos manos por debajo del borde inferior y levántelo. Para evitar lesiones, mantenga la espalda recta y levántelo con la fuerza de las piernas y no de la espalda. Para evitar daños al chasis y a sus componentes, no intente nunca levantar el chasis por las asas de las fuentes de alimentación o de los procesadores de interfase, ni por los paneles de plástico situados en el frontal del chasis. Las asas no han sido diseñadas para soportar el peso del chasis.

**Warning!** Det krävs två personer för att lyfta chassit. Fatta tag i chassit under den nedre kanten och lyft med båda händerna. För att undvika skador skall du hålla ryggen rak och lyfta med benen, inte ryggen. Chassit och delarna kan skadas om du försöker lyfta chassit i handtagen på strömförsörjningsenheterna eller gränssnittsprocessorerna, eller i plastpanelerna på chassits framsida. Handtagen är inte konstruerade för att hålla chassits tyngd.

## Electric Shock Warning



**Warning** This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit.

**Waarschuwing** Dit toestel kan meer dan één netsnoer hebben. Om het risico van een elektrische schok te verminderen, dient u de stekkers van de twee netsnoeren uit het stopcontact te halen voordat u het toestel een servicebeurt geeft.

**Varoitus** Tässä laitteessa saattaa olla useampi kuin yksi virtajohto. Irrota molemmat virtalähteestä tulevat johtimet ennen laitteen huoltamista, jotta vältät sähköiskun vaaran.

**Attention** Il est possible que cette unité soit munie de plusieurs cordons d'alimentation. Pour éviter les risques d'électrocution, débrancher les deux cordons d'alimentation avant de réparer l'unité.

**Warnung** Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten.

**Avvertenza** Questa unità potrebbe essere dotata di più di un cavo di alimentazione. Per ridurre il rischio di scossa elettrica, scollegare i due cavi di alimentazione prima di procedere alla manutenzione dell'unità.

## Lightning Activity Warning

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**Advarsel** Denne enheten kan være utstyrt med mer enn én strømledning. Koble fra de to strømledningene før det utføres reparasjonsarbeid på enheten for å redusere faren for elektriske støt.

**Aviso** Esta unidade poderá ter mais do que um cabo de alimentação. Para reduzir o risco de choque eléctrico, desligue os dois cabos de alimentação antes de efectuar reparações na unidade.

**¡Advertencia!** Puede ser que este equipo posea más de un cable de alimentación. Para reducir el riesgo de descarga eléctrica, desenchufar los dos cables antes de proceder al mantenimiento de la unidad.

**Warning!** Denna enhet kan vara försedd med mer än en nätsladd. För att minska risken för elektriska stötar skall båda nätsladdarna dras ur innan du utför underhållsarbete på enheten.

## Lightning Activity Warning



**Warning** Do not work on the system or connect or disconnect cables during periods of lightning activity.

**Waarschuwing** Tijdens onweer dat gepaard gaat met bliksem, dient u niet aan het systeem te werken of kabels aan te sluiten of te ontkoppelen.

**Varoitus** Älä työskentele järjestelmän parissa äläkä yhdistä tai irrota kaapeleita ukkosilmalla.

**Attention** Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.

**Warnung** Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.

**Avvertenza** Non lavorare sul sistema o collegare oppure scollegare i cavi durante un temporale con fulmini.

**Advarsel** Utfør aldri arbeid på systemet, eller koble kabler til eller fra systemet når det tordner eller lyner.



**Aviso** Não trabalhe no sistema ou ligue e desligue cabos durante períodos de mau tempo (trovoada).

**¡Advertencia!** No operar el sistema ni conectar o desconectar cables durante el transcurso de descargas eléctricas en la atmósfera.

**Warning!** Vid åska skall du aldrig utföra arbete på systemet eller ansluta eller koppla loss kablar.

## AC Power Supply Warning



**Warning** The AC power supply for the Cisco 7000 and Cisco 7010 has double pole/neutral fusing.

**Waarschuwing** De wisselstroom voeding voor de Cisco 7000 en Cisco 7010 heeft tweepolige/neutrale zekeringen.

**Varoitus** Cisco 7000:n ja Cisco 7010:n vaihtovirtalähteessä on kaksinapainen/nollajohtimellinen liitäntä.

**Attention** L'alimentation en courant alternatif du Cisco 7000 et du Cisco 7010 est munie de doubles fusibles pôle/neutre.

**Warnung** Das Wechselstrom-Netzgerät für den Cisco 7000 und Cisco 7010 ist mit zweipoliger/neutraler Sicherung ausgestattet.

**Avvertenza** L'alimentatore CA per il Cisco 7000 ed il Cisco 7010 è dotato di fusibili a polo doppio/neutro.

**Advarsel** Vekselstrømsforsyningsenheten for Cisco 7000 og Cisco 7010 har både topolede og nøytrale sikringer.

**Aviso** O fornecimento de corrente alternada ao Cisco 7000 e ao o Cisco 7010 possui fusão bipolar/neutra.

**¡Advertencia!** La fuente de alimentación de corriente alterna (CA) para los equipos Cisco 7000 y Cisco 7010 posee doble fusible, para el polo activo y el neutro.

**Warning!** Strömförsörjningsenheten för växelström för Cisco 7000 och Cisco 7010 har dubbel pol-/neutralsäkring.

## DC Power Supply Warning



**Warning** When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

**Waarschuwing** Wanneer geslagen bedrading vereist is, dient u bedrading te gebruiken die voorzien is van goedgekeurde aansluitingspunten, zoals het gesloten-lus type of het grijperschop type waarbij de aansluitpunten omhoog wijzen. Deze aansluitpunten dienen de juiste maat voor de draden te hebben en dienen zowel de isolatie als de geleider vast te klemmen.

**Varoitus** Jos säikeellinen johdin on tarpeen, käytä hyväksyttyä johdinliitäntää, esimerkiksi suljettua silmukkaa tai kourumaista liitäntää, jossa on ylöspäin käännetyt kiinnityskorvat. Tällaisten liitäntöjen tulee olla kooltaan johtimiin sopivia ja niiden tulee puristaa yhteen sekä eristeen että johdinosan.

**Attention** Quand des fils torsadés sont nécessaires, utiliser des douilles terminales homologuées telles que celles à circuit fermé ou du type à plage ouverte avec cosses rebroussées. Ces douilles terminales doivent être de la taille qui convient aux fils et doivent être refermées sur la gaine isolante et sur le conducteur.

**Warnung** Wenn Litzenverdrahtung erforderlich ist, sind zugelassene Verdrahtungsabschlüsse, z.B. für einen geschlossenen Regelkreis oder gabelförmig, mit nach oben gerichteten Kabelschuhen zu verwenden. Diese Abschlüsse sollten die angemessene Größe für die Drähte haben und sowohl die Isolierung als auch den Leiter festklemmen.

**Avvertenza** Quando occorre usare trecce, usare connettori omologati, come quelli a occhiello o a forcilla con linguette rivolte verso l'alto. I connettori devono avere la misura adatta per il cablaggio e devono serrare sia l'isolante che il conduttore.

**Advarsel** Hvis det er nødvendig med flertrådede ledninger, brukes godkjente ledningsavslutninger, som for eksempel lukket sløyfe eller spadetype med oppoverbøyde kabelsko. Disse avslutningene skal ha riktig størrelse i forhold til ledningene, og skal klemme sammen både isolasjonen og ledere.

**Aviso** Quando forem requeridas montagens de instalação eléctrica de cabo torcido, use terminações de cabo aprovadas, tais como, terminações de cabo em circuito fechado e planas com terminais de orelha voltados para cima. Estas terminações de cabo deverão ser do tamanho apropriado para os respectivos cabos, e deverão prender simultaneamente o isolamento e o fio condutor.

**¡Advertencia!** Cuando se necesite hilo trenzado, utilizar terminales para cables homologados, tales como las de tipo "bucle cerrado" o "espada", con las lengüetas de conexión vueltas hacia arriba. Estos terminales deberán ser del tamaño apropiado para los cables que se utilicen, y tendrán que sujetar tanto el aislante como el conductor.

**Warning!** När flertrådiga ledningar krävs måste godkända ledningskontakter användas, t.ex. kabelsko av slutet eller öppen typ med uppåtvänd tapp. Storleken på dessa kontakter måste vara avpassad till ledningarna och måste kunna hålla både isoleringen och ledaren fastklämda.

## DC Power Disconnection Warning



**Warning** Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.

**Waarschuwing** Voordat u een van de onderstaande procedures uitvoert, dient u te controleren of de stroom naar het gelijkstroom circuit uitgeschakeld is. Om u ervan te verzekeren dat alle stroom UIT is geschakeld, kiest u op het schakelbord de stroomverbreker die het gelijkstroom circuit bedient, draait de stroomverbreker naar de UIT positie en plakt de schakelaarhendel van de stroomverbreker met plakband in de UIT positie vast.

**Varoitus** Varmista, että tasavirtapiirissä ei ole virtaa ennen seuraavien toimenpiteiden suorittamista. Varmistaaksesi, että virta on KATKAISTU täysin, paikanna tasavirrasta huolehtivassa kojetaulussa sijaitseva suojakytkin, käännä suojakytkin KATKAISTU-asentoon ja teippaa suojakytkimen varsi niin, että se pysyy KATKAISTU-asennossa.

**Attention** Avant de pratiquer l'une quelconque des procédures ci-dessous, vérifier que le circuit en courant continu n'est plus sous tension. Pour en être sûr, localiser le disjoncteur situé sur le panneau de service du circuit en courant continu, placer le disjoncteur en position fermée (OFF) et, à l'aide d'un ruban adhésif, bloquer la poignée du disjoncteur en position OFF.

**Warnung** Vor Ausführung der folgenden Vorgänge ist sicherzustellen, daß die Gleichstromschaltung keinen Strom erhält. Um sicherzustellen, daß sämtlicher Strom abgestellt ist, machen Sie auf der Schalttafel den Unterbrecher für die Gleichstromschaltung ausfindig, stellen Sie den Unterbrecher auf AUS, und kleben Sie den Schaltergriff des Unterbrechers mit Klebeband in der AUS-Stellung fest.

**Avvertenza** Prima di svolgere una qualsiasi delle procedure seguenti, verificare che il circuito CC non sia alimentato. Per verificare che tutta l'alimentazione sia scollegata (OFF), individuare l'interruttore automatico sul quadro strumenti che alimenta il circuito CC, mettere l'interruttore in posizione OFF e fissarlo con nastro adesivo in tale posizione.

**Advarsel** Før noen av disse prosedyrene utføres, kontroller at strømmen er frakoblet likestrømkretsen. Sørg for at all strøm er slått AV. Dette gjøres ved å lokalisere strømbryteren på brytertavlen som betjener likestrømkretsen, slå strømbryteren AV og teipe bryterhåndtaket på strømbryteren i AV-stilling.

**Aviso** Antes de executar um dos seguintes procedimentos, certifique-se que desligou a fonte de alimentação de energia do circuito de corrente contínua. Para se assegurar que toda a corrente foi DESLIGADA, localize o disjuntor no painel que serve o circuito de corrente contínua e coloque-o na posição OFF (Desligado), segurando nessa posição a manivela do interruptor do disjuntor com fita isoladora.

**¡Advertencia!** Antes de proceder con los siguientes pasos, comprobar que la alimentación del circuito de corriente continua (CC) esté cortada (OFF). Para asegurarse de que toda la alimentación esté cortada (OFF), localizar el interruptor automático en el panel que alimenta al circuito de corriente continua, cambiar el interruptor automático a la posición de Apagado (OFF), y sujetar con cinta la palanca del interruptor automático en posición de Apagado (OFF).

**Warning!** Innan du utför någon av följande procedurer måste du kontrollera att strömförsörjningen till likströmskretsen är bruten. Kontrollera att all strömförsörjning är BRUTEN genom att slå AV det överspänningsskydd som skyddar likströmskretsen och tejpa fast överspänningsskyddets omkopplare i FRÅN-läget.

## DC Power Supply Wiring Warning



**Warning** The illustration shows the DC power supply terminal block. Wire the DC power supply using the appropriate lugs at the wiring end, as illustrated. The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Note that the ground wire should always be connected first and disconnected last.

**Waarschuwing** De figuur toont de aansluitstrip van de gelijkstroomvoeding. Breng de bedrading aan voor de gelijkstroomvoeding met behulp van de juiste aansluitpunten aan het draadeinde zoals aangegeven. De juiste bedradingsvolgorde is aarde naar aarde, positief naar positief (lijn naar L) en negatief naar negatief (neutraal naar N). Let op dat de aarddraad altijd het eerst verbonden en het laatst losgemaakt wordt.

**Varoitus** Kuva esittää tasavirran pääterasiasa. Liitä tasavirtalähde johdon avulla käyttäen sopivia kiinnityskorvia johdon päässä kuvan esittämällä tavalla. Oikea kytkentäjärjestys on maajohto maajohtoon, positiivinen positiiviseen (johto L:ään) ja negatiivinen negatiiviseen (nollajohto N:ään). Ota huomioon, että maajohto on aina yhdistettävä ensin ja irrotettava viimeisenä.

**Attention** La figure illustre le bloc de connexion de l'alimentation en courant continu. Câbler l'alimentation en courant continu en fixant les cosses qui conviennent aux extrémités câblées conformément au schéma. La séquence de câblage à suivre est terre-terre, positif-positif (ligne sur L), et négatif-négatif (neutre sur N). Noter que le fil de masse doit toujours être connecté en premier et déconnecté en dernier.

**Warnung** Die Abbildung zeigt den Terminalblock des Gleichstrom-Netzgeräts. Verdrahten Sie das Gleichstrom-Netzgerät unter Verwendung von geeigneten Kabelschuhen am Verdrahtungsende (siehe Abbildung). Die richtige Verdrahtungsfolge ist Erde an Erde, positiv an positiv (Leitung an L) und negativ an negativ (neutral an N). Beachten Sie bitte, daß der Erdungsdraht immer als erster verbunden und als letzter abgetrennt werden sollte.

**Avvertenza** L'illustrazione mostra la morsettiera dell'alimentatore CC. Cablare l'alimentatore CC usando i connettori adatti all'estremità del cablaggio, come illustrato. La corretta sequenza di cablaggio è da massa a massa, da positivo a positivo (da linea ad L) e da negativo a negativo (da neutro a N). Tenere presente che il filo di massa deve sempre venire collegato per primo e scollegato per ultimo.

**Advarsel** Figuren viser likestrømforsyningsenhetens tilkøplingsterminal. Likestrømforsyningsenheten tilkoples ved hjelp av passende kabelsko som festes i enden av ledningene, slik som vist i figuren. Riktig tilkøplingssekvens er jord til jord, positiv til positiv (linje til L), og negativ til negativ (nøytral til N). Husk at jordingsledningen alltid bør tilkoples først og frakoples sist.

**Aviso** A figura mostra o bloco do terminal de fornecimento de corrente contínua. Ligue o fornecimento de corrente contínua utilizando as extremidades apropriadas no final do cabo, conforme ilustrado. A sequência correcta de instalação é terra-a-terra, positivo-positivo (linha para L), e negativo-negativo (neutro para N). Note que o fio de terra deverá ser sempre o primeiro a ser ligado, e o último a ser desligado.

**¡Advertencia!** La figura muestra la caja de bornes de la fuente de alimentación. Cablear la fuente de alimentación de corriente continua, usando las lengüetas de conexión apropiadas, en el extremo del cable tal como se muestra. Las conexiones deben realizarse en el siguiente orden: tierra con tierra, positivo con positivo (la línea con la L) y negativo con negativo (el neutro con la N). Tenga en cuenta que el conductor de tierra siempre tiene que conectarse el primero y desconectarse el último.

**Varning!** Illustrationen visar anslutningsplinten för likströmförsörjningsenheten. Koppla ledningarna till strömförsörjningsenheten med lämpliga kabelskor i ledningsändarna som bilden visar. Korrekt kopplingssekvens är jord till jord, positiv till positiv (linje till L) och negativ till negativ (neutral till N). Observera att jordledningen alltid skall anslutas först och kopplas bort sist.

## Circuit Breaker (30A) Warning



**Warning** 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, 30A U.S. (240 VAC, 20A international) is used on the phase conductors (all current-carrying conductors).

**Waarschuwing** Dit produkt is afhankelijk van de installatie van het gebouw voor kortsluit- (overstroom)beveiliging. Controleer of er een zekering of stroomverbreker van niet meer dan 120 Volt wisselstroom, 30 A voor de V.S. (240 Volt wisselstroom, 20 A internationaal) gebruikt wordt op de fasegeleiders (alle geleiders die stroom voeren).

**Varoitus** Tämä tuote on riippuvainen rakennukseen asennetusta oikosulkusuojauksesta (ylivirtasuojauksesta). Varmista, että vaihevirtajohtimissa (kaikissa virroitetuissa johtimissa) käytetään Yhdysvalloissa alle 120 voltin, 30 ampeerin ja monissa muissa maissa 240 voltin, 20 ampeerin sulaketta tai suojakytkintä.

**Attention** Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifier qu'un fusible ou qu'un disjoncteur de 120 V alt., 30 A U.S. maximum (240 V alt., 20 A international) est utilisé sur les conducteurs de phase (conducteurs de charge).

**Warnung** Dieses Produkt ist darauf angewiesen, daß im Gebäude ein Kurzschluß- bzw. Überstromschutz installiert ist. Stellen Sie sicher, daß eine Sicherung oder ein Unterbrecher von nicht mehr als 240 V Wechselstrom, 20 A (bzw. in den USA 120 V Wechselstrom, 30 A) an den Phasenleitern (allen stromführenden Leitern) verwendet wird.

**Avvertenza** Questo prodotto dipende dall'installazione dell'edificio per quanto riguarda la protezione contro cortocircuiti (sovracorrente). Verificare che un fusibile o interruttore automatico, non superiore a 120 VCA, 30 A U.S. (240 VCA, 20 A internazionale) sia stato usato nei fili di fase (tutti i conduttori portatori di corrente).

**Advarsel** Dette produktet er avhengig av bygningens installasjoner av kortslutningsbeskyttelse (overstrøm). Kontroller at det brukes en sikring eller strømbryter som ikke er større enn 120 VAC, 30 A (USA) (240 VAC, 20 A internasjonalt) på faselederne (alle strømførende ledere).

## Installation Warning

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**Aviso** Este produto depende das instalações existentes de protecção contra curto-circuito (sobrecarga). Assegure-se de que um fusível ou disjuntor não superior a 240 VAC, 20A é utilizado nos condutores de fase (todos os condutores de transporte de corrente).

**¡Advertencia!** Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del propio edificio. Asegurarse de que se utiliza un fusible o interruptor automático de no más de 240 voltios en corriente alterna (VAC), 20 amperios del estándar internacional (120 VAC, 30 amperios del estándar USA) en los hilos de fase (todos aquéllos portadores de corriente).

**Warning!** Denna produkt är beroende av i byggnaden installerat kortslutningsskydd (överströmsskydd). Kontrollera att säkring eller överspänningsskydd används på fasledarna (samtliga strömförande ledare) ¥ för internationellt bruk max. 240 V växelström, 20 A (iþUSA max. 120 V växelström, 30 A).

## Installation Warning



**Warning** See the installation instructions before you connect the system to its power source.

**Waarschuwing** Raadpleeg de installatie-aanwijzingen voordat u het systeem met de voeding verbindt.

**Varoitus** Lue asennusohjeet ennen järjestelmän yhdistämistä virtälähteeseen.

**Attention** Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

**Warnung** Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.

**Avvertenza** Consultare le istruzioni di installazione prima di collegare il sistema all'alimentatore.

**Advarsel** Les installasjonsinstruksjonene før systemet kobles til strømkilden.

**Aviso** Leia as instruções de instalação antes de ligar o sistema à sua fonte de energia.



**¡Advertencia!** Ver las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

**Warning!** Läs installationsanvisningarna innan du kopplar systemet till dess strömförsörjningsenhet.

## TN Power Statement



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

**Waarschuwing** Het apparaat is ontworpen om te functioneren met TN energiesystemen.

**Varoitus** Koje on suunniteltu toimimaan TN-sähkövoimajärjestelmien yhteydessä.

**Attention** Ce dispositif a été conçu pour fonctionner avec des systèmes d'alimentation TN.

**Warnung** Das Gerät ist für die Verwendung mit TN-Stromsystemen ausgelegt.

**Avvertenza** Il dispositivo è stato progettato per l'uso con sistemi di alimentazione TN.

**Advarsel** Utstyret er utfomet til bruk med TN-strømsystemer.

**Aviso** O dispositivo foi criado para operar com sistemas de corrente TN.

**¡Advertencia!** El equipo está diseñado para trabajar con sistemas de alimentación tipo TN.

**Warning!** Enheten är konstruerad för användning tillsammans med elkraftssystem av TN-typ.

# SELV Circuit Warning



**Warning** The ports labeled “Ethernet,” “10BaseT,” “Token Ring,” “Console,” and “AUX” are safety extra low voltage (SELV) circuits. SELV circuits should only be connected to other SELV circuits.

**Waarschuwing** De poorten die "Ethernet", "10BaseT", "Token Ring", "Console" en "AUX" zijn gelabeld, zijn veiligheidscircuits met extra lage spanning (genaamd SELV = Safety Extra Low Voltage). SELV circuits mogen alleen met andere SELV circuits verbonden worden.

**Varoitus** Portit, joissa on nimet "Ethernet", "10BaseT", "Token Ring", "Console" ja "AUX", ovat erityisen pienen jännityksen omaavia turvallisuuspiirejä (SELV-piirejä). Tällaiset SELV-piirit tulee yhdistää ainoastaan muihin SELV-piireihin.

**Attention** Les ports étiquetés «Ethernet», «10BaseT», «Token Ring», «Console» et «AUX» sont des circuits de sécurité basse tension (Safety Extra Low Voltage ou SELV). Les circuits SELV ne doivent être interconnectés qu'avec d'autres circuits SELV.

**Warnung** Die mit "Ethernet", "10BaseT", "Token Ring", "Console" und "AUX" beschrifteten Buchsen sind Sicherheitsschaltungen mit extraniedriger Spannung (Safety Extra Low Voltage, SELV). SELV-Schaltungen sollten ausschließlich an andere SELV-Schaltungen angeschlossen werden.

**Avvertenza** Le porte contrassegnate da “Ethernet”, “10BaseT”, “TokenRing”, “Console” e “AUX” sono circuiti di sicurezza con tensione molto bassa (SELV). I circuiti SELV (Safety Extra Low Voltage - Tensione di sicurezza molto bassa) devono essere collegati solo ad altri circuiti SELV.

**Advarsel** Utgangene merket "Ethernet", "10BaseT", "Token Ring", "Console" og "AUX" er lavspenktretser (SELV) for ekstra sikkerhet. SELV-kretser skal kun kobles til andre SELV-kretser.

**Aviso** As portas "Ethernet", "10BaseT", "Token Ring", "Console", and "AUX" são circuitos de segurança de baixa tensão (SELV). Estes circuitos deverão ser apenas ligados a outros circuitos SELV.

**¡Advertencia!** Los puertos "Ethernet", "10BaseT", "Token Ring", "Console" y "AUX" son circuitos de baja señal (Safety Extra Low Voltage = SELV) que garantizan ausencia de peligro. Estos circuitos SELV deben ser conectados exclusivamente con otros también de tipo SELV.

**Warning!** De portar som är märkta "Ethernet", "10BaseT", "Token Ring", "Console" och "AUX" är SELV-kretsar, d.v.s. skyddskretsar med extra låg spänning (SELV: Safety Extra-Low Voltage = skyddsklenspänning). SELV-kretsar får endast anslutas till andra SELV-kretsar.

## Chassis Warning–Disconnecting Telephone-Network Cables



**Warning** Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages.

**Waarschuwing** Voordat u het frame opent, dient u de verbinding met het telefoonnetwerk te verbreken door de kabels te ontkoppelen om zo contact met telefoonnetwerk-spanningen te vermijden.

**Varoitus** Vältä joutumista kosketuksiin puhelinverkostojännitteiden kanssa irrottamalla puhelinverkoston kaapelit ennen asennuspohjan aukaisemista.

**Attention** Avant d'ouvrir le châssis, débrancher les câbles du réseau téléphonique afin d'éviter tout contact avec les tensions d'alimentation du réseau téléphonique.

**Warnung** Bevor Sie das Chassis öffnen, ziehen Sie die Telefonnetzkabel aus der Verbindung, um Kontakt mit Telefonnetzspannungen zu vermeiden.

**Avvertenza** Prima di aprire il telaio, scollegare i cavi della rete telefonica per evitare di entrare in contatto con la tensione di rete.

**Advarsel** Før kabinettet åpnes, skal kablene for telenettet kobles fra for å unngå å komme i kontakt med spenningen i telenettet.

**Aviso** Antes de abrir o chassis, desligue os cabos da rede telefónica para evitar contacto com a tensão da respectiva rede.

## Product Disposal Warning

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**¡Advertencia!** Antes de abrir el chasis, desconectar el cableado dirigido a la red telefónica para evitar contacto con voltajes de la propia red.

**Varning!** Koppla loss ledningarna till telefont nätet innan du öppnar chassit så att kontakten med telefontnätsspänningen bryts.

## Product Disposal Warning



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

**Waarschuwing** Dit produkt dient volgens alle landelijke wetten en voorschriften te worden afgedankt.

**Varoitus** Tämän tuotteen lopullisesta hävittämisestä tulee huolehtia kaikkia valtakunnallisia lakeja ja säännöksiä noudattaen.

**Attention** La mise au rebut définitive de ce produit doit être effectuée conformément à toutes les lois et réglementations en vigueur.

**Warnung** Dieses Produkt muß den geltenden Gesetzen und Vorschriften entsprechend entsorgt werden.

**Avvertenza** L'eliminazione finale di questo prodotto deve essere eseguita osservando le normative italiane vigenti in materia.

**Advarsel** Endelig disponering av dette produktet må skje i henhold til nasjonale lover og forskrifter.

**Aviso** A descartagem final deste produto deverá ser efectuada de acordo com os regulamentos e a legislação nacional.

**¡Advertencia!** El desecho final de este producto debe realizarse según todas las leyes y regulaciones nacionales.

**Varning!** Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter.

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