



Preparing to Install the Cisco ICS 7750

This chapter describes steps you must follow and concepts you should understand before installing the Cisco Integrated Communications System 7750 (Cisco ICS 7750). The chapter includes the following sections:

- [Safety, page 2-2](#)
- [Site Requirements, page 2-7](#)
- [Required Tools and Equipment, page 2-17](#)
- [Unpacking the Box, page 2-21](#)
- [Verifying Contents, page 2-23](#)
- [Peripheral Equipment, page 2-25](#)
- [Installation Guidelines, page 2-25](#)
- [Conforming with Safety and Compliance Regulations, page 2-28](#)

Safety

Read the warnings in this section before installing the system. For translations of these and other warnings that appear in this guide, see the document *Regulatory Compliance and Safety Information for the Cisco ICS 7750*.

General Safety Precautions

Read the warnings in this section before installing or working on the system.



Warning

Read the installation instructions before you connect the system to its power source.



Warning

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



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, 15A U.S. (240 VAC, 16A international) is used on the phase conductors (all current-carrying conductors).



Warning

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



Warning

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

**Warning**

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

**Warning**

The device is designed to work with TN power systems.

**Warning**

The system processing engine (SPE) contains a lithium battery. There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD occurs when electronic printed circuit cards are improperly handled. ESD can result in complete or intermittent failures. Always follow ESD-prevention procedures when removing and replacing cards and other system components:

- Ensure that the chassis is electrically connected to earth ground.
- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact.
- Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground.
- To properly guard against ESD damage and shocks, the wrist strap must be used correctly. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

**Caution**

For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

**Caution**

Static voltages as low as 30 volts can cause latent damage to circuitry. Be sure to observe all standard antistatic procedures when handling electronic equipment and components. For example, wear a grounding strap.

**Warning**

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

Safety with Electricity

Follow these guidelines when working on equipment powered by electricity:

- Locate the emergency power-off switch in the room in which you are working. Then, if an electrical accident occurs, you can quickly shut the power *off*.
- Disconnect all power before installing or removing a Cisco ICS 7750 chassis.
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.

If an electrical accident occurs, proceed as follows:

- Use caution; do not become a victim yourself.
- Turn *off* power to the chassis.
- If possible, send another person to get medical aid. Otherwise, determine the condition of the victim, and then call for help.
- Determine whether the victim needs rescue breathing or external cardiac compressions; then take appropriate action.

Telephone Wiring Guidelines

Follow these guidelines when working with any equipment that is connected to telephone wiring or to other network cabling.



Warning

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

- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in a wet location unless the jack is specifically designed for it.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Lifting and Reaching Safety Precautions

Follow these guidelines when moving or lifting the chassis:



Warning

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Lift the unit only by using handles that are an integral part of the chassis, or by grasping the chassis underneath its lower edge.



Warning

Two people are required to lift the chassis. To prevent injury, keep your back straight and lift with your legs, not your back.

Electromagnetic Interference Considerations

As with any electrical or electronic equipment, EMI can be created by the operation of the equipment, and the equipment may be susceptible to EMI.

Protect the equipment against EMI to help ensure correct operation of the system. There should be no X-ray equipment, handheld transceivers, or microwave, radio, or television transmitters in the equipment room.

Strong EMI, especially when caused by lightning or nearby radio transmitters, can destroy the cards or other components in the Cisco ICS 7750 and can even create an electrical hazard by conducting power surges through power lines into installed equipment.



Note

To prevent or remedy interference problems, you may need to consult electromagnetic compatibility (EMC) experts.

If signal wires exceed recommended cabling distances, or if signal wires pass between buildings, you should give special consideration to the effect that a lightning strike in your vicinity might have on electrical equipment.

The electromagnetic pulse (EMP) generated by lightning or other high-energy phenomena can drive enough energy into conductors to damage or destroy electronic equipment. If you have experienced such problems, you should consult EMC experts to ensure that you have adequate electrical surge suppression and shielding of signal cables in your Cisco ICS 7750 operating environment.

Site Requirements

This section describes requirements and considerations related to site where you intend to install the Cisco ICS 7750, as follows:

- [Placement Recommendations, page 2-7](#)
- [Cooling of the System, page 2-7](#)
- [Weight Distribution Within a Rack, page 2-8](#)
- [Floor Loading Considerations, page 2-8](#)
- [Power and Grounding Requirements, page 2-8](#)
- [Environmental Requirements, page 2-12](#)
- [Cabling Guidelines, page 2-13](#)

Placement Recommendations

Before you begin to set up and cable your Cisco ICS 7750, be sure to adhere to these guidelines:

- Place the system in a stable area free of excess movement and jarring.
- Install the system safely and keep the cables and cords out of the way.
- Make sure that the setup is comfortable for users.
- Allow room for proper cooling air flow.
- Place the system where it can be easily serviced (front and rear).
- Place the system in an area free of excess heat, dust, smoke, and ESD.

Cooling of the System

It is essential to properly cool all of the equipment in a rack-mounted system. The components of the system require an input air temperature below 40°C (104°F).

Four internal, DC-powered fans cool the system's drives, cards, and power supplies in the front of the chassis. The fans are housed in a front-accessible fan tray.

To ensure adequate cooling:

- Provide at least 3 inches of space at the front and back of the system.
- Ensure that all panels are in place.
- Fill or cover all card slots with blank panels.

Weight Distribution Within a Rack

To avoid hazards associated with uneven mechanical loading of the rack, plan your installation so that the weight of the equipment is evenly distributed in the rack. Where possible (within the limitations of equipment and cabling), mount the heaviest units near the bottom of the rack.

Floor Loading Considerations

The floor of the equipment room (the room where you intend to install the system) must support the combined weight of the system and all of the other equipment located in the equipment room. Consider the following when you choose flooring:

- The total weight of the system chassis and peripherals (such as backup power devices and switches)
- The total weight of the support equipment (such as desks and file cabinets)
- Anticipated future additions or expansions

Power and Grounding Requirements

A correctly installed electrical system helps ensure personnel safety and reliable performance. This section provides an overview of the power and grounding requirements for the system.

The system must be correctly grounded before you connect power or install any processor cards. There is a grounding stud on the rear of the system chassis. See the [“Grounding the System” section on page 3-13](#) before connecting power or installing any subsystem cards.

**Warning**

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

Power for the rack system must come from a dedicated circuit breaker. Do not plug any other electrical device into an outlet connected to the circuit breaker serving the rack equipment.

**Caution**

Data loss can occur if the circuit is overloaded and the circuit breaker trips.

Circuit Breakers and Receptacles

Make sure that the circuit breakers that furnish power to the system are the correct size to protect the system. Verify that all receptacles are wired for 3-wire power distribution (hot, neutral, and ground).

All power receptacles servicing any equipment that is directly cable-connected to the system must have a single, common grounding point. The unshielded (ground) wire must be at true ground potential with a resistance (measured at the power panel bus) of 5 ohms or less between the bus bar and earth.

Power Circuit Protection

Power disruptions occur for a number of reasons, including faulty wiring, acts of nature, and power company outages. You need to plan your system installation so that equipment is protected from three types of power problems:

- **Excessive power.** Unprotected electronic equipment is vulnerable to power *spikes* (sudden, potentially massive, increases in voltage lasting less than 1/60 of a second) and power *surges* (prolonged increases in voltage lasting as long as several seconds).
- **Inadequate power.** Incoming power is subject to *blackouts* (complete power outages often caused by downed power lines or electrical failures, such as shorts inside a piece of equipment) and by *brownouts* (in-line power reductions of ten percent or more caused by utility company problems or a sudden drain of electricity from a particular part of the power grid).

- Dirty power. Electrical circuits sometimes experience *transients* (brief high-speed electrical fluctuations caused by lightning or improper grounding) or *noise* (electromagnetic or radio frequency interference in the power signal caused by disruption from the external power grid or by feedback from local mechanical devices such as printers and copiers).

Power Protection Guidelines

Consider the following guidelines when planning for and installing electrical equipment:

- Provide reliable backup power. Use at least one uninterruptible power supply (UPS) with the Cisco ICS 7750. UPSs protect the system against power spikes and surges as well as noise. Depending on the number and power of their batteries, UPSs can also provide reliable power under blackout conditions. For Catalyst 3524-PWR XL switches, plan to use one or more Cisco Redundant Power System (RPS) 300s.



Note

For additional information about backup power, see “[Redundant Power](#)” later in this chapter. For information about installing and using backup power systems with the Cisco ICS 7750, refer to the *User’s Manual APC Smart-UPS* or the *Cisco RPS 300 Redundant Power System Hardware Installation Guide*.

- Use a line filter. Protect the power circuit with an electrical line filter that prevents power spikes from reaching the system.
- Use a common circuit breaker panel. All branch circuits that provide power to the system must come from the same circuit breaker panel. Failure to use a common circuit breaker can cause power to flow in the data cables interconnecting system devices.
- Prevent overloading. To prevent the overloading of branch circuits, check the manual or rating plate of all devices, and verify that the sum of the ampere (A) ratings does not exceed two-thirds of the branch rating. Laser printers and some other devices periodically cause heavy short-duration loads that exceed their published ampere ratings. Connect these devices to a branch circuit separate from the branch circuit that powers the system chassis.

- Use power strips with care. Using power strips with separate circuit breakers does not add additional protection and can cause unwanted power interruption. Ensure that all power strips use at least #16 American Wire Gage (AWG) ground wire (the best choice is #14 AWG or larger) to connect the host to earth ground during normal use.
- Use third-wire ground. All branch circuits must have a third-wire type of ground for the branch circuit that only goes to the circuit breaker panel. Conduit ground is unacceptable for any portion of the system.
- Watch for power fluctuations. Blinking lights or fluctuating lighting intensity at the system site indicate that there are power problems that can result in system degradation. Check the electrical installation to ensure proper system operation.

**Caution**

Use of surge suppressors and transient suppressors can result in system damage from transients. Do not use surge suppressors or transient suppressors without careful and expert power system analysis.

Redundant Power

Because power problems can vary in scale, careful planning is required to protect your system. Simple power problems include dislodged power cords, tripped circuit breakers, and local power supply failures.

**Note**

You can take precautions against problems such as dislodged power cords, but these fall outside the scope of this publication. This section focuses on issues related to planning for large power outages.

General power outages are usually more common than failures in a particular device's power system. Because some network topologies place key network applications in a centralized, corporate location, a large-scale power failure could result in lost revenue for every minute your network is down—particularly if your network carries voice and data traffic.

If power fails at a remote site, all connections to that remote site will be terminated unless they are otherwise protected. Generally, power failures in a remote office are more serious when network services are widely distributed. To protect against such failures, use a UPS.

Grounding the Chassis

When rack-mounting, mount the Cisco ICS 7750 chassis with the supplied bolts to ensure that there is a good electrical connection between the bolts and the mounting surface.

**Note**

The chassis must be at *earth ground* (grounded through a copper rod or pipe driven into the earth). Earth grounding is important because it protects the system from lightning and static and establishes a zero voltage reference.

**Caution**

Failure to observe proper grounding practices can result in noise, electrostatic discharge, and radio frequency interference (RFI) problems.

Environmental Requirements

The physical environment for storage, transport, and operation of the Cisco ICS 7750 must meet the specifications shown in the [Cisco ICS 7750 System Description](#).

Do not store the system in an area subject to extreme variations in temperature or humidity. Extremely high and low temperatures can degrade system reliability. Low humidity can increase static electricity buildup, and high humidity can affect the performance of disks and printers.

Other Environmental Factors

In addition to temperature and humidity, the following environmental factors must be controlled in the area where the system is installed:

- **Static electricity.** Static discharge can damage circuitry permanently, interrupt system operation, and cause data to be lost. Static electricity can be caused by physical vibration, friction, separation of material, low humidity, carpeting, floor wax, and plastic-soled shoes. Use antistatic wrist straps, antistatic sprays, and floor mats, as appropriate.
- **Vibration.** Vibration can cause the slow deterioration of mechanical parts and, if severe, it can cause disk errors.

- **Dust.** Accumulated dust can scratch the contacts on cards, potentially resulting in intermittent failures; can increase the static electricity in the environment; and can cause components to operate at high temperatures.
- **Lighting.** Direct sunlight in the equipment room can cause devices with light sensors (such as disk units) to malfunction. Lighting must not be powered from the equipment room service panel.
- **Structural features.** Use sealed concrete, vinyl, or mastic tile for flooring, and ensure that it meets the floor loading requirements.

Cabling Guidelines

This section summarizes important considerations for installing power cords and cables.

Power Cords and Cables

The system chassis has one or two detachable AC power cords. Place the chassis within 6 feet of the electric receptacle.



Caution

Do not use extension cords to hook the system or any of its associated components to a power source. Extension cords are intended for use only with low-voltage appliances. Use of extension cords with the system can result in equipment or property damage.

Evaluating Existing Cables

Understanding and documenting the installed cable in your facility can help you plan for network scalability and availability and can also help you identify potential problems with your network.

Consider the following issues:

- Labels. The extent and accuracy of the labeling on network equipment and cables affect your ability to implement and test enhancements to the network. Ensure that labels are easy to read and are accessible.
- Cross-campus network connections. In a campus (multiple-building) environment, document the connections between buildings, including the number of pairs of wires and the type of wiring (or wireless technology) in use.

Planning for Cable Installation

When planning cable installation, follow these guidelines:

- Do not run signal cables parallel to AC power cables if they are within 4 inches of each other.
- Do not install signal cables close to electric motors, power-line regulators, relays, or power supplies.
- Avoid laying signal cables close to air conditioners, copy machines, water coolers, and other similar equipment that generates power-line noise.
- Do not run signal cables near equipment that generates radio frequency interference, such as radio transmitters.
- Do not expose cables to moisture or heat. If you install signal cables outdoors, use a conduit or raceway to protect them from lightning and other weather.
- Allow for the presence of heavily traveled railroad tracks or highways, which can potentially disturb cables between buildings. Avoid construction or manufacturing areas where heavy equipment or digging could result in cable breakages.
- If cabling needs to cross a public street or property owned by other companies, consult with legal experts concerning right-of-way issues.
- Use shielded cable to ensure radio frequency compatibility.
- Use the shortest possible cable between system processing engine (SPE) cards and peripherals.
- To ensure maximum protection for equipment and operators, examine the protective grounds at each power outlet to make sure that they are adequate.

- Protect external interconnecting cables from physical damage without endangering users. Install the cables under a raised floor, if possible.
- Avoid tight cable pulls against sharp edges.

**Caution**

To avoid damaging equipment or components during cabling, unplug all other devices in the system before you begin with the installation of any additional units.

Determining Cabling Distances

The size of your network and the distances between network interface connections depend in part on the following factors:

- Signal type
- Signal speed
- Transmission medium

The distance and rate limits referenced in the following sections are the IEEE-recommended maximum speeds and distances for purposes of signaling. You should use this information as a guideline in planning your network connections.

Setting Up Ethernet and Fast Ethernet Connections

The maximum distances for Ethernet and Fast Ethernet network segments and connections depend on the type of transmission cable being used. The terms *10BaseT* and *100BaseT* are standard abbreviations for the following:

- 10-Mbps transmission rate (10) or 100-Mbps transmission rate (100)
- Using baseband technology (Base)
- By means of twisted-pair wires (T)

The maximum transmission distance between stations for Ethernet and Fast Ethernet connections that use Category 5 (100 Mbps) cables is 328 feet (100 meters).

**Note**

If you intend to lay new cable, we recommend that you use Category 5 (100BaseT) or faster media.

Setting Up Serial Connections

Serial signals travel a limited distance at any given baud rate—the slower the baud rate, the greater the distance that the signal can travel over the connection.

Table 2-1 shows the relationship between baud rate and distance for signals traveling over an Electronic Industries Alliance/Telecommunications Industry Association (EIA/TIA-232) serial connection.

Table 2-1 Baud Rate Versus Transmission Distance

Baud Rate (bps)	Distance (ft)	Distance (m)
2400	200	60
4800	100	30
9600	50	15
19200	25	7.6
38400	12	3.7
56000	8.6	2.6

Wire Routing

To plan wire routing, establish the starting point and the termination point of each cable relative to the location of the terminal devices in the building. Then examine the construction of the building to determine the best wiring routes. Consider the following when you plan the wire routing:

- Wires can run in the open, along baseboards, ceiling mouldings, or door and window casings. They may also be concealed inside floor conduits that travel between distribution frames and jacks.

- National and local building codes specify the types of telephone wire that you can run in each type of ceiling.
- Cables that run vertically should be run inside a wall, pole, or similar facility for vertical wire drops.

**Caution**

Data degradation can occur if wires travel near strong EMI sources. (See [“Required Tools and Equipment”](#) for additional information.)

Termination Points

Cables can terminate at the following locations:

- The equipment room
- Intermediate distribution frames (typically, on each floor in telephone utility closets)
- Wall jacks or terminal boxes (located near terminal devices)

**Tip**

Always keep a record of all termination point information.

Required Tools and Equipment

You need the following tools and parts to install and maintain the system. If you need additional equipment, contact a customer service representative for ordering information.

- A number-1 Phillips screwdriver for installing the cable management bracket (recommended) and mounting the system.
- A 6-mm open-end wrench for adjusting the grounding lug.
- ESD-prevention equipment or the disposable ESD-preventive wrist strap included in the hardware accessory kit.
- Antistatic mat, foam pad, or bag for removed cards or modules. (Put removed components inside an antistatic bag if you plan to return them to the factory; if you are replacing components, place them on an antistatic mat or foam pad.)

- Software:
 - Cisco ICS 7750 System Software CD. The specific CD needed will vary, depending on the System Software version to be installed.

**Note**

The System Software CD is needed only if you are replacing the SPE310 running System Manager.

- (Optional) Application CDs for applications to be installed on the SPE310(s) (for example, Cisco CallManager Software for the Cisco ICS 7750).
- Cables and adapters (included with the hardware accessory kit):
 - 1 straight-through Category 5 Ethernet cable.
 - 1 RJ-45-to-DB-9 adapter.
 - 1 console (rolled EIA/TIA-232) cable.

PC Requirements

You need a PC (or laptop computer) to complete initial system configuration, to upload and install software bundles, and to perform system management tasks. The PC also needs to be physically near the ICS 7750 chassis, to allow for console (serial) and direct Ethernet connections.

Ensure that the PC meets the following requirements:

- CPU: Pentium-class 266-MHz or faster.
- Memory: At least 64 MB of RAM.
- Hardware:
 - CD-ROM drive
 - Network interface card (NIC)
 - Available COM port
 - PC keyboard with PS/2-style or Universal Serial Bus (USB) connector
 - Windows-compatible mouse with PS/2-style or USB or connector

**Note**

If you are using a USB keyboard with a USB mouse, you will need a pass-through USB port on the keyboard for connecting the mouse. Alternatively, you can use a USB hub, to which you can connect both the keyboard and mouse, and then connect to one of the USB ports on the SPE310 through the hub's uplink port. Either the pass-through USB port or a USB hub is needed because one of the two USB ports on the SPE310 card is needed for the CD-ROM drive. See the [“Using USB Devices” section on page 3-26](#) for more details on using USB devices.

- Monitor: SVGA monitor or LCD display with at least 800 x 600 resolution and at least 256 colors (1024 x 768 resolution is recommended).
- Operating system: Microsoft Windows 98, Windows Me, Windows NT, Windows 2000, or Windows XP.
- Web browser: Netscape Communicator 4.7 or later, or Internet Explorer 5.01 or later. In addition, the browser must have Java plug-in version 1.3.1 or later installed.
- Communication software: Microsoft Terminal Services Client (For download information, see the [“Installing Microsoft Terminal Services Client” section on page 4-10.](#)) and terminal emulation software (such as HyperTerminal).

Installing Microsoft Terminal Services Client

If Microsoft Terminal Services Client is not installed on your PC, there are two ways to install it:

- [Installing Microsoft Terminal Services Client from the Web](#)
- [Installing Microsoft Terminal Services Client from the SPE310 Running System Manager](#)

Installing Microsoft Terminal Services Client from the Web

Complete the following steps to install the software from the web:

-
- Step 1** Open Netscape Communicator or Microsoft Internet Explorer.
 - Step 2** From www.microsoft.com, click this path: **Downloads: Windows: Windows 2000: Downloads: Recommended Updates: Terminal Services Advanced Client**.
 - Step 3** Follow the instructions to download and install Microsoft Terminal Services Client on a PC.
-

Installing Microsoft Terminal Services Client from the SPE310 Running System Manager

The Microsoft Terminal Services Client installer is available on all SPE310s. Complete the following steps to install Microsoft Terminal Services Client on a PC from the SPE310:

-
- Step 1** On the PC, choose **Start > Run**.
 - Step 2** Enter the following command to open Windows Explorer:
`explorer`
 - Step 3** In Windows explorer, choose **Tools > Map Network Drive**.
The Map Network Drive dialog appears.



Note The following steps are for Windows 2000. If you are using a different Windows operating system on the PC, the steps might differ slightly.

- Step 4** In the Folder field, enter `\\<SPE310 IP address>\c$`.
- Step 5** Click **Connect using a different user name**.
The **Connect as** dialog appears.
- Step 6** In the User name field, enter **administrator**.
- Step 7** In the Password field, enter your administrator password (the default is *changeme*).

- Step 8** Click **OK**.
- Step 9** Click **Finish**.
- Step 10** On the PC, navigate to <drive>\W2KS\system32\clients\tsclient\win32\disks, where <drive> is the letter of the PC hard drive (such as D:) that you mapped from the SPE310.
- Step 11** Copy the disk1 and disk2 folders from the SPE310 to the PC.
- Step 12** On the PC, navigate to the disk1 folder.
- Step 13** Double-click **setup.exe**.
- Step 14** Follow the instructions to install Microsoft Terminal Services Client on the PC.
-

Unpacking the Box

Complete the following steps (see [Figure 2-1](#)) to unpack the Cisco ICS 7750 chassis:



Warning

Do not stack the chassis on any other equipment. If the chassis falls, it can cause severe bodily injury and equipment damage.

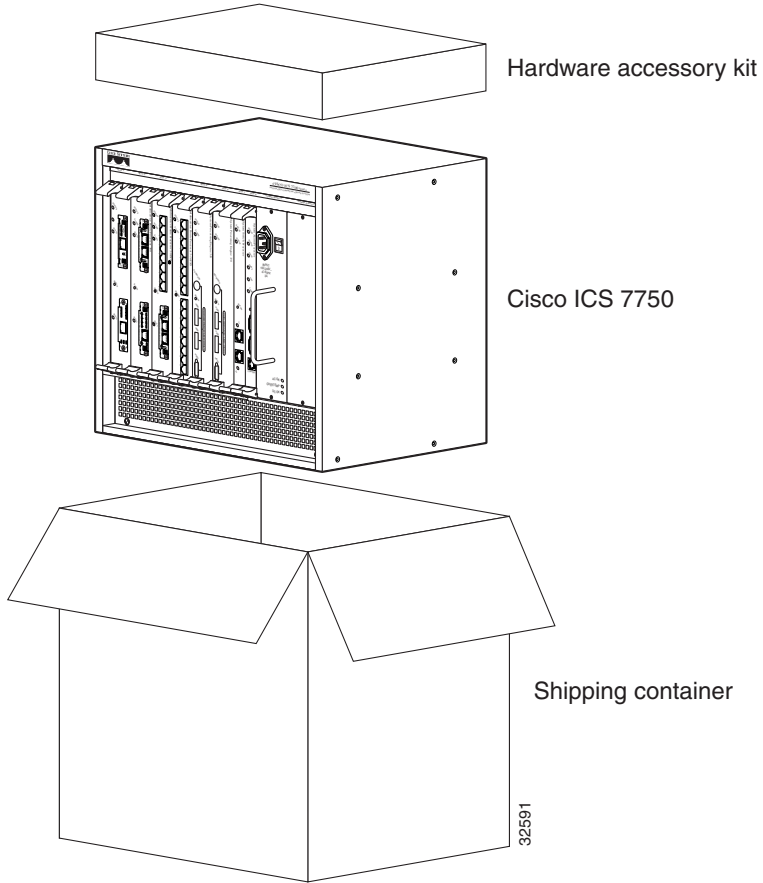
- Step 1** Make sure that the packing carton is upright.
- Step 2** Carefully cut the sealing tape with a box cutter, and open the box.
- Step 3** Remove the cardboard packing, any foam packaging material, and protective plastics. Save all boxes and packing material in case you need to repack the equipment in the future.
- Step 4** Carefully lift the chassis out of the carton, and move it to the location designated for the installation.
-



Note

If you intend to use the Cisco ICS 7750 in a desktop installation, this might be a good time to install the rubber feet that are in the accessory kit.

Figure 2-1 Unpacking the System



Verifying Contents

Your Cisco ICS 7750 chassis comes with all cards, power supply modules, and system software preinstalled. The Cisco ICS 7750 Hardware Accessory Kit should contain the items shown in [Table 2-2](#)

Table 2-2 Cisco ICS 7750 Hardware Accessory Kit Contents

Quantity	Description
1	Open Me First bag, which includes <ul style="list-style-type: none"> • Cisco ICS 7750 Installation and Configuration Guide • ICS System Manager CD-ROM¹ • Two Ethernet crossover cables (yellow with a black stripe) • Ethernet straight-through cable (yellow) • Microsoft Windows 2000 service pack and hot fixes CD-ROM
1	Rack-mount kit, which includes <ul style="list-style-type: none"> • Two rack-mount ears for mounting the chassis in a standard 19-inch rack • Eight screws for attaching rack-mount ears
1	Desktop-mounting kit, which includes <ul style="list-style-type: none"> • Two chassis-to-switch brackets • Two switch-to-switch brackets • Ten screws for attaching brackets
1	Cable management bracket, including three screws to attach the bracket to the chassis
1	RJ-45-to-DB-9 adapter
1	RJ-45-to-DB-25 adapter
1	TEAC USB CD-ROM drive

Table 2-2 Cisco ICS 7750 Hardware Accessory Kit Contents (continued)

Quantity	Description
1	CD-ROM drive installation kit, which includes <ul style="list-style-type: none"> • One CD-ROM drive tray • One USB cable
4	Rubber feet for desktop mounting
1	Power cable, appropriate for the power connection used in your country
1	Console cable (blue)
1	PS/2 keyboard/mouse “Y” splitter cable
1	Disposable ESD strap
10	Plastic cable ties
1	Warranty card
1	Warranty information booklet
1	<i>Release Notes for the Cisco ICS 7750 for System Software Release 2.4.0</i>
1	<i>Installing Memory, PVDM, and VPN Modules in ASI Cards, MRP Cards, and SPE Cards in the Cisco ICS 7750</i>

1. The ICS System Manager CD contains the ICS System software and required Microsoft service packs and hot fixes.

Cisco ICS 7750 Documentation Set

If you ordered a set of printed manuals for the Cisco ICS 7750 (customer order number DOCS-7750=), the set should contain the following items:

- [Cisco ICS 7750 Installation and Configuration Guide](#)
- [Cisco ICS 7750 System Description](#)
- [Cisco ICS 7750 Troubleshooting Guide](#)

Peripheral Equipment

Table 2-3 lists product installation documentation for peripheral equipment that you can use with the Cisco ICS 7750.

Table 2-3 Peripheral Equipment Documentation

Equipment	Documentation
Catalyst 3524-PWR XL switch	<ul style="list-style-type: none"> • Quick Start Guide: Catalyst 3500 Series XL Switches. • “Installing and Starting Up the Switch” chapter in the Catalyst 3500 Series XL Hardware Installation Guide.
Cisco RPS 300 (redundant power supply for Catalyst switches)	Refer to the “Installation” chapter in the Cisco RPS 300 Redundant Power System Hardware Installation Guide .
Uninterruptible power supply (UPS)	Refer to the <i>User’s Manual APC Smart-UPS</i> .
Cisco IP Phones	<ul style="list-style-type: none"> • Getting Started with the Cisco IP Phone 7910. • Cisco IP Phone Models 7960 and 7940 User Guide. • Cisco IP Phone Administration Guide for Cisco CallManager. • Catalyst 3500 Series XL Hardware Installation Guide.

Installation Guidelines

This section describes Cisco ICS 7750 installation guidelines and contains information about the following:

- [System Redundancy](#)
- [Cable Management](#)
- [Maximum Number of Cards](#)

System Redundancy

You should install the system for maximum data, voice, and power redundancy. Follow these guidelines to ensure system redundancy:

- If you are connecting more than one Catalyst switch to the Cisco ICS 7750, connect each of the two Ethernet ports on the system switch processor to a separate Catalyst switch. (See [Figure 3-5](#) and [Figure 3-6](#).)
- For information on installing the system for power redundancy, see [“Redundant Power” section on page 2-11](#)

Cable Management

To more easily manage cables that are connected to the system, install the cards with the greatest number of connected cables as far left in the chassis as possible. For example, an MRP300 card with two 2-port WICs installed is best installed in slot 1. This prevents the cables that are connected to the card from obscuring the front panels of other cards.

The system is shipped with a cable management bracket. See the [“Installing the Cable Management Bracket” section on page 3-2](#) for instructions on how to install it.

Maximum Number of Cards

Table 2-4 lists the number of cards that the Cisco ICS 7750 supports.

Table 2-4 Number of Cards and Modules Supported

Card or Module	Chassis Slot	Minimum Required	Maximum Allowed
ASI81, MRP3-8FXS, ASI160, MRP3-16FXS, or MRP3-8FXOM1	1 through 6	0	5
MRP200 or MRP300	1 through 6	0	5
System switch processor (SSP)	7	1	1
System alarm processor (SAP)	8	1	1
SPE310 ¹	1 through 6 ²	1	5
Power supply	POWER SUPPLY 1 or POWER SUPPLY 2	1	2

1. SPE310s are required in order to run system software release 2.1.0 and later.
2. The SPE310 running System Manager is installed in Slot 6 by default.

Interchangeable Card Slots

You can install the following cards in any combination in the six interchangeable slots (slot 1 through slot 6):

- Analog station interface (ASI) cards
- Multiservice route processor (MRP) cards
- SPE310s

Fixed Card Slots

You must install the following cards in fixed slots in the chassis:

- SSP—slot 7 (the slot just to the left of the SAP slot). The SSP slot is black. It is designed so that the SSP is the only card that can be installed in it.
- SAP—slot 8 (the far-right slot to the left of the power supply modules). The SAP slot is red. It is designed so that the SAP is the only card that can be installed in it.

Conforming with Safety and Compliance Regulations

When installed as described in this document, the Cisco ICS 7750 chassis complies with the safety and regulatory standards applicable to component-level equipment. Do not install non-Cisco components or modified Cisco components in the Cisco ICS 7750 chassis. The system installer is responsible for installing your system in accordance with the procedures described in this guide and in overall conformance with the safety requirements and compliance regulations as described in the document *Regulatory Compliance and Safety Information for the Cisco ICS 7750*.