



Doc. No. 78-1055-03

700-Watt AC-Input Power Supply Installation and Replacement Instructions

Product Numbers: PWR/7-AC and PWR/7-AC=

This document contains instructions for installing or replacing a 700-watt (W), AC-input power supply in the Cisco 7000 and Cisco 7507 chassis.

Note The AC-input power supply installation and functionality is identical for both chassis; therefore, throughout this document, both chassis are referred to as *the chassis*, with differences clearly noted.

One 700W power supply is standard equipment in the chassis. A second, identical power supply, when installed, provides redundant power. In systems with redundant power, the power supplies are load-sharing and fully hot-swappable; you can remove and replace one supply, while the remaining supply immediately ramps up to full power to maintain uninterrupted system operation.

The sections in this document include the following:

- Product Overview, page 2
- Installation Safety, ESD Precautions, and Tools Required, page 6

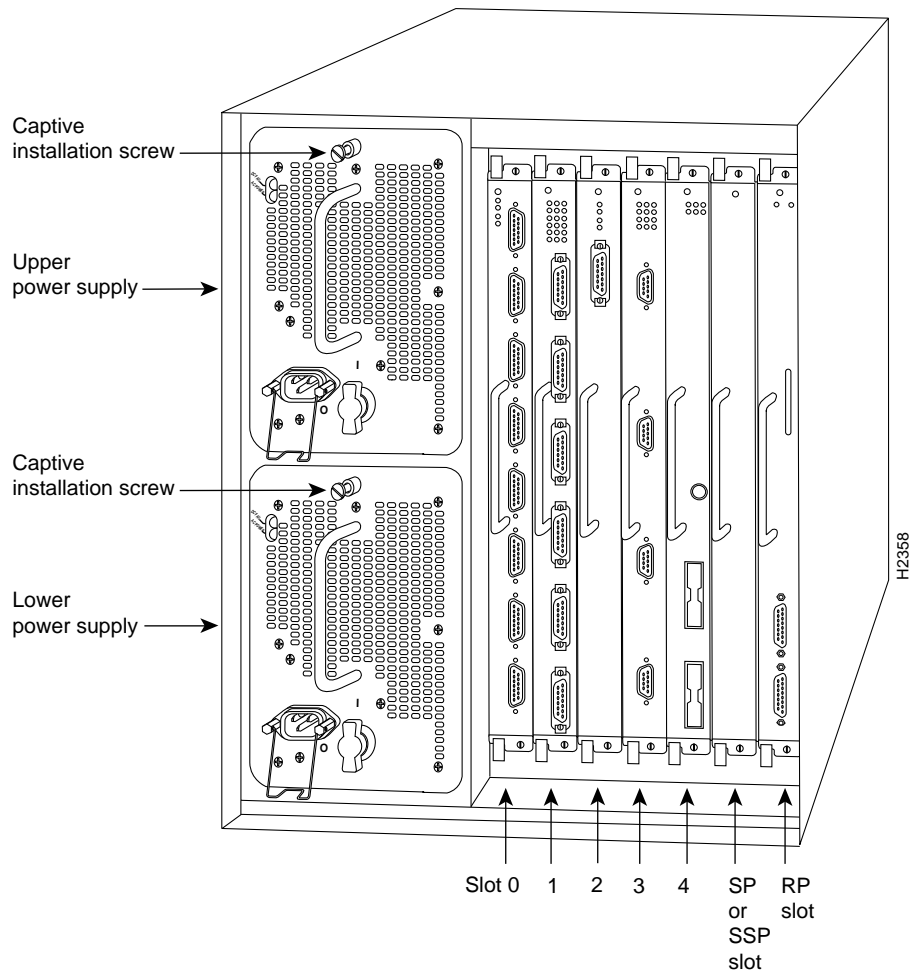
Note The following section, “Installation,” provides instructions for adding or replacing a power supply in a system that is already operating. If you are installing a new system, and you ordered a copy, refer to the *Cisco 7000 Hardware Installation and Maintenance* or *Cisco 7507 Hardware Installation and Maintenance* publications. Because the chassis are shipped without the power supplies installed, refer to one of these publications for initial power supply installation and startup procedures. Both of these publications are also available on UniverCD.

- Installation, page 11
- Cisco Information Online, page 25

Product Overview

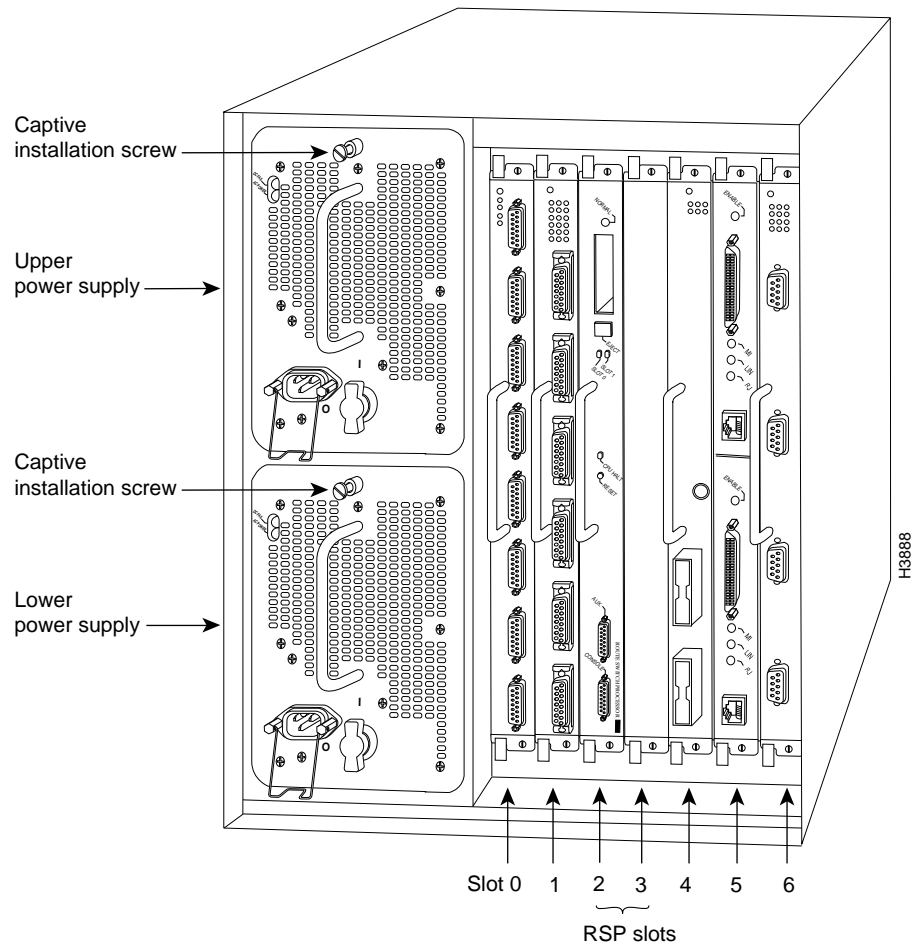
The 700W power supply is a modular power supply for the Cisco 7000 and Cisco 7507 multiprotocol, multimedia routers. One 700W power supply is standard equipment in the chassis. A second, identical power supply, if installed, provides redundant power. Power supplies reside in power supply bays in the rear of the router chassis, as shown in Table 1 on page 4. The lower power supply bay contains the first (standard) power supply, and the upper bay contains the second supply in systems with redundant power. Power supplies reside in power supply bays in the rear of the router chassis, as shown for the Cisco 7000 in Figure 1 and the Cisco 7507 in Figure 2.

Figure 1 AC-Input Power Supplies in the Cisco 7000



The lower power supply bay contains the first (or standard) power supply, and the upper bay contains the second (optional) supply in systems with redundant power.

Figure 2 AC-Input Power Supplies in the Cisco 7507



Caution To prevent tipping the chassis when only one power supply is used, install it in the lower power supply bay to maintain a low center of gravity in the chassis.

Dual power supplies are automatically load-sharing and redundant, which means that you can install or replace a second power supply on line. During normal operation, dual supplies provide system power simultaneously (load sharing). When you remove one supply, the remaining supply immediately ramps up to provide full power and maintain uninterrupted power to the system. Whenever possible, connect each power supply to a separate AC source. For example, connect one to a standard wall outlet and the other to an uninterruptible power supply (UPS). If there is a power failure, the power supply connected to the UPS maintains uninterrupted system power.

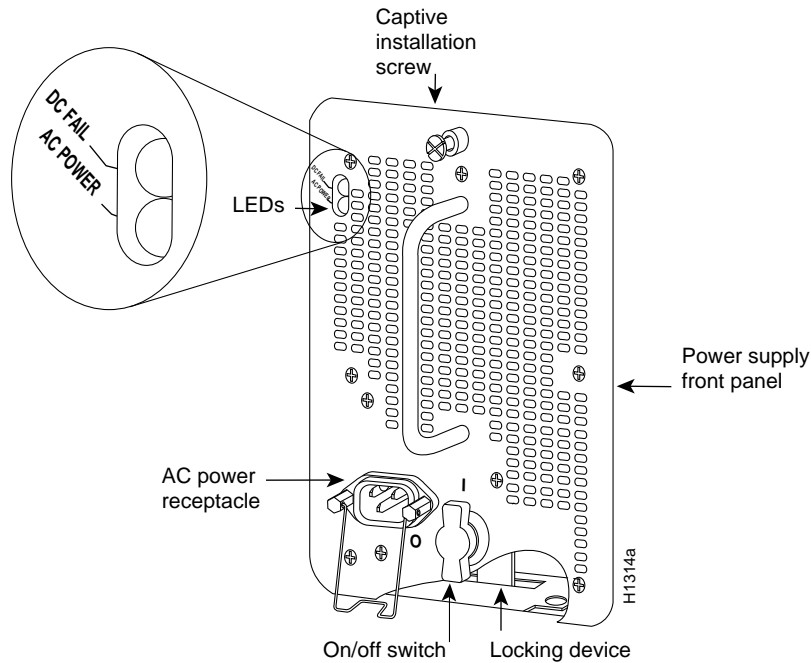
Table 1 lists the chassis power specifications for the AC-input power supply.

Table 1 AC-Input Power Supply Specifications

Description	Specification
Power supply	700 watts (W) maximum
Input voltage	100 to 240 VAC wide input with power factor corrector (PFC)
AC current rating	12A maximum @ 100 VAC, 6A maximum @ 240 VAC, with chassis fully configured
Frequency	50 to 60 Hz autoranging
Power dissipation	282W minimum configuration 626W maximum configuration 530W typical with maximum configuration
Heat dissipation	4100 Btu/hr (1200W)

On the chassis front panel, the upper power and lower power LEDs go on when the power supply in the corresponding bay is installed and supplying power to the system. Both the upper and lower power LEDs should go on in systems with redundant power. In addition to the chassis front panel LEDs, each power supply contains AC power and DC fail LEDs and individual power switches, which are shown in Figure 3.

Figure 3 Power Supply and Status Indicators



The green AC power LED indicates that the power supply is turned on and is receiving input AC power. The yellow DC fail LED is normally off, but goes on if the power supply shuts down for any of the following reasons:

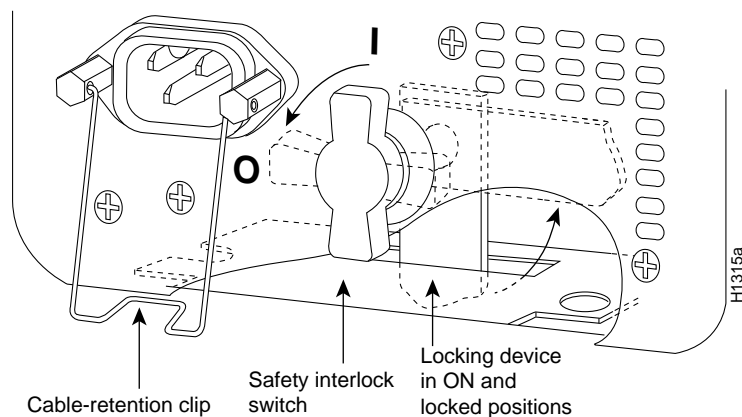
- Power supply DC section failure, which could be caused by loss of AC power (input line failure or operator turned off system power) or an actual failure in the power supply
- Power supply shutdown, initiated by the power supply because it detected an out-of-tolerance temperature or voltage condition in the power supply

In systems with a single power supply, and in systems with redundant power when both power supplies are shutting down, the DC fail LED goes on momentarily as the system ramps down, but goes out when the power supply has completely shut down. In systems with redundant power and one power supply still active, the DC fail LED on the failed power supply will remain lit (powered by the active supply).

A modular power cord connects each power supply to the site power source. A cable retention clip on the power supply AC receptacle prevents the cable from accidentally being pulled out. The power supplies feature the following three safety interlock features:

- A safety interlock on/off switch (see Figure 4) on each power supply prevents the power supply from being removed from the chassis when the power supply switch (labeled *O* for the off position, and *I* for the on position) is in the on (*I*) position. When the switch is on, a metal tab extends into a slot in the chassis. When the switch is turned off (*O*), the tab is raised and clears the slot.

Figure 4 Power Supply Safety Interlocks



- A captive installation screw at the top of the power supply front panel (see Figure 3) provides electrical grounding and prevents the power supply from vibrating or sliding out of the bay and dislodging from the power connectors in the backplane.
- A cable retention clip prevents the power supply power cord from accidentally being pulled out of the power supply socket. (See Figure 4.) The clip snaps up around the body of the cable connector or between the ribbed segments of the cable strain relief behind the connector.

The power supplies are self-monitoring. Each supply monitors its own temperature and internal voltages. An internal fan in each power supply draws cooling air from the front of the chassis, through the power supply, and out the back of the chassis. An air dam keeps the power supply airflow separate from that of the rest of the chassis (which is cooled by the system blower).

For a complete description of the power supply, refer to the *Cisco 7000 Hardware Installation and Maintenance* or *Cisco 7507 Hardware Installation and Maintenance* publications.

Installation Safety, ESD Precautions, and Tools Required

Before you begin this installation, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment. This section also provides power requirements to consider if you are adding a second power supply to your system for redundant power, and lists of the tools and parts you need to perform this installation.



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.

Waarschuwing Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel 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.

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.

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.

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.

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.

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.

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.

¡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.

Warning! 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.

Safety Guidelines

The following guidelines will help to ensure your safety and protect the equipment. This list is not inclusive of all potentially hazardous situations, so *be alert*.

- Never try to lift the chassis by yourself; *two people are required* to lift the chassis.



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 translations of this safety warning text, refer to the section “Chassis Lifting Warning” on page 19.)

- Always disconnect all power cords and interface cables before moving the chassis.



Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. (For translations of this safety warning text, refer to the section “Lightning Activity Warning” on page 20.)



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 translations of this safety warning text, refer to the section “Power Supply Warning” on page 21.)



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. (For translations of this safety warning text, refer to the section “Electric Shock Warning” on page 22.)



- Keep tools and chassis components away from walk areas.
- Do not work alone if potentially hazardous conditions exist.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

Lifting the Chassis Safely

This section is only applicable if you *do not* have clear access to the power supply bays and must move a rack-mounted chassis. If you *do* have clear access to the power supply bays, proceed to the next section “Safety with Electricity.” If space behind a rack-mounted chassis is limited, or if access to the power supply bays is partially blocked by a power strip or other equipment, you may have to slide the chassis partially out of the front of the rack in order to insert the power supplies. At least one person will have to support the front of the chassis while another person pushes it outward from the back and inserts the power supply. If you suspect that pushing the chassis out the front of the rack may topple the rack, make sure enough people are available to support the rack while you perform this procedure. The chassis weighs approximately 120 pounds with 1 power supply and 7 interface processors installed. Whenever you move or lift the chassis or any heavy object, follow these guidelines:



Warning To avoid injury, never attempt to lift an object that may be too heavy for you to lift safely.

- Never move suddenly or twist your body while supporting a heavy object.



Caution To prevent damage, never attempt to lift the chassis with the handles on the power supplies or the interface processors. These handles are not designed to support the weight of the chassis.

- Before sliding a chassis forward in a rack, ensure that doing so will not cause the rack to topple forward. If you suspect it might, obtain additional assistance to help support the rack before moving the chassis.

Safety with Electricity

You can remove or install a redundant (second) power supply without turning off the other supply. Before removing a redundant power supply, ensure that the first supply is powered on to ensure uninterrupted operation. Follow these basic guidelines when working with any electrical equipment:

- Before beginning any procedures requiring access to the chassis interior, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before moving a chassis.
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

In addition, use the guidelines that follow when working with any equipment that is connected to telephone wiring or other network cabling:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- 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.

AC Power

The 700W, wide-input power supply uses a power factor corrector (PFC) that allows it to operate on input voltage and current within the ranges of 100–240 VAC and 50–60 Hz. When two power supplies are installed, the redundant power option assures that power to the chassis continues uninterrupted in the event that one power supply fails. It also provides uninterrupted power if an input power line fails *only if the power supplies are connected to separate input lines*. For maximum reliability, connect one power supply to a standard wall outlet and the other to a separate source, such as an uninterruptible power supply (UPS). If only one input line is available, and you must connect both power supplies to the same source, the redundant power supply will provide continuous power if the first power supply fails. It cannot, however, provide power backup if the input power fails. Table 1 on page 4 lists system power specifications including input voltage and operating frequency ranges.



Warning The AC power supply for the Cisco 7000 and Cisco 7507 has double pole/neutral fusing. (For translations of this safety warning text, refer to the section “AC Power Supply Warning” on page 22.)

Tools and Parts Lists

This section lists the tools you will need to complete this installation. In most cases, you need only a screwdriver to install or replace a power supply. However, if the chassis is mounted in a rack and access to the power supply bays is partially blocked by a power strip or other equipment, or if you have less than three feet of working space at the rear of the rack, you may need to move the chassis, which requires additional tools.

Tools List

You need the following tools to install or replace a power supply:

- A 1/4-inch flat-blade or Number 2 Phillips screwdriver to install the power supply. Earlier power supplies (the first few hundred shipped) have a slotted-head captive installation screw.
- If the chassis is mounted in an equipment rack and cables from other equipment fall in front of the power supply bays, you will need cable ties to temporarily anchor the cables out of the way.
- If access to the power supply bays is partially blocked by a power strip or other permanent rack fixture, you will need a 1/4-inch flat-blade screwdriver to temporarily detach the ears from the equipment rack mounting strips.

Before beginning the power supply installation, check the installation screws on all power supplies and check the area around the power supply bays to determine which tools you will need.

Parts List

The new or replacement power supply and the power cord shipped with it are the only parts you need to complete this installation. If you remove a power supply and leave the bay empty, install a cover plate over the empty bay. The chassis is shipped with a cover plate installed over the upper bay. If the plate is not available, contact a service representative to order a replacement (Product Number MAS-7KPSCOVER).

Circuit Breaker (15A) 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, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors). (For translations of this safety warning text, refer to the section "Circuit Breaker (15A) Warning" on page 23.)

Installation

The following section describes the procedures for removing an existing power supply and installing a new one. It also contains procedures for installing power supplies in rack-mounted chassis when the power supply bays are partially blocked.

Note If your chassis is mounted in an equipment rack, check the back of the rack before proceeding to ensure that you have enough space to insert the power supply into the bay. The power strips provided in some equipment racks might partially block access to the chassis power supply bay. If so, you will have to slide the front of the chassis out of the rack far enough to allow the power supplies to clear the power strip.

If cables from other equipment are in front of the bay, move them aside and temporarily secure them with cable ties. If you must remove a rack-mounted chassis from the rack, proceed to the following section, “Removing a Rack-Mounted Chassis.” Otherwise, if you now have clear access to the power supply bays, proceed to the section “Removing a Power Supply” on page 13 to replace an existing supply, or to the section “Inserting a Power Supply” on page 14 to install a new power supply for redundant power.

In systems with redundant power, you can install, remove, or replace one of the power supplies without affecting system operation. When power is removed from one supply, the redundant power feature causes the second supply to ramp up to full power and maintain uninterrupted system operation.

Note This procedure is not for new system installation; perform this procedure only if you have already connected the system to network interfaces and performed the first-time startup procedures in the *Cisco 7000 Hardware Installation and Maintenance* or *Cisco 7507 Hardware Installation and Maintenance* publications.

Removing a Rack-Mounted Chassis

This section describes how to proceed if your system is installed in an equipment rack and you do not have clear access to the power supply bays. If the chassis is not in a rack, or if you already have clear access to the power supply bays, you do not need to perform these steps. Proceed to the sections that follow. If you determine that moving the chassis is unavoidable, you will need to disconnect all power and interface cables. Be sure to label the cables to avoid crossing them when you reconnect them to the chassis. The configuration worksheet provided at the end of this document can help you reconnect the cables to the correct ports if you complete it as you disconnect cables from the interface processors. (For the Cisco 7000, refer to Figure 6, and for the Cisco 7507, refer to Figure 7.)



Caution This procedure might shift the chassis' center of gravity toward the front of the rack and may cause the rack or the chassis to tip. Before performing this procedure, ensure that you have sufficient help (people) to support the rack and the chassis to prevent them from tipping or falling.

To slide the chassis out of the front of the rack to gain access to the power supply bays, do the following:

- Step 1** Check the power supply bays. If cables from other equipment fall in front of the power supply bay, carefully gather the cables (using care not to strain them) and use cable ties to anchor them away from the power supply bays. If no other equipment blocks access to the bay, proceed to the sections that follow.
- Step 2** Before proceeding, ensure that at least one other person is available to support the front of the chassis as you push it out the front of the rack and insert the power supplies.
- Step 3** Turn all power supplies OFF and disconnect all power and interface cables from the rear of the chassis. Use the configuration worksheet provided at the end of this document to record interface port connections and avoid crossing cables when you reconnect them. (For the Cisco 7000, refer to Figure 6, and for the Cisco 7507, refer to Figure 7.)
- Step 4** Use a 1/4-inch flat-blade screwdriver to loosen the four binderhead screws that secure the left and right ears to the front mounting strips on the equipment rack.



Caution To prevent damage, never attempt to lift or support the front of the chassis with the plastic front panels. The panels can break away and allow the chassis to drop.

- Step 5** Position at least one person in front of the rack to support the front undersides of the chassis and prevent it from falling as you push it forward out of the rack. Grasp the chassis along the metal undersides *behind* the plastic front panels. If possible, position two people in front of the rack, one person to support each side of the chassis.



Caution The next step might shift the chassis' center of gravity to the front of the rack and may cause the rack or the chassis to tip or fall. Before proceeding, ensure that you have sufficient assistance to prevent the rack from toppling and the chassis from falling out of the rack.

- Step 6** From the rear of the equipment rack, slowly push the chassis forward out of the rack until there is enough clearance for the power supplies to be inserted into the bay.
- Step 7** If the chassis is installed near the bottom of the rack, allow the bottom front edge of the chassis to rest on the floor while you install the power supplies. If the chassis is too high in the rack for this to be practical, proceed to the sections "Removing a Power Supply" or "Inserting a Power Supply" and perform the steps as quickly as possible.
- Step 8** When the power supply is installed, push the chassis back into the rack until the ears meet the mounting strip on both sides of the equipment rack.
- Step 9** Secure each ear to the rack mounting strip with two binder-head screws.
- Step 10** Reconnect all interface cables to the ports on the rear of the chassis. If you completed the configuration worksheet before you disconnected the cables, use it as a guideline to reconnect the cables. (For the Cisco 7000, refer to Figure 6, and for the Cisco 7507, refer to Figure 7.)
- Step 11** Proceed to "Checking the Installation" on page 15 to apply power and check the installation.

Removing a Power Supply

If you are replacing the power supply in a single-supply system, remove the existing supply from the lower bay first, if possible, and install the new power supply in the lower bay to maintain a low center of gravity in the chassis (you will have to interrupt system operation to do so). Always install a filler plate over an empty power supply bay to prevent electrical shock and to protect the backplane connectors from contamination.

Follow these steps to remove a power supply:

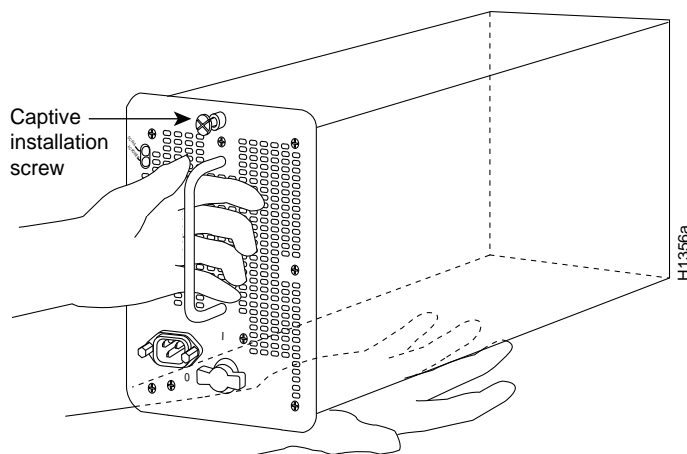
- Step 1** On the power supply to be removed, turn the switch to OFF (O). The interlock tab will retract into the unit.
- Step 2** Disconnect the power cord from the power source.
- Step 3** On the power supply, push the cable retention clip down and remove the power cord from the AC receptacle.
- Step 4** Use a screwdriver to loosen the captive installation screw on the supply. (See Figure 3.)
- Step 5** Grasp the power supply handle and pull the supply out of the bay. Place one hand underneath to support the bottom of the supply as you pull it out of the bay. (See Figure 5.)



Warning Use both hands to handle power supplies. Each weighs 20 pounds.

Note If the power supply resists when you attempt to pull it out of the bay, the switch is probably not fully in the off (O) position, or the captive installation screw at the top of the supply is not fully loosened. Turn the power switch fully counterclockwise to off (O), and check the captive installation screw, then try removing the supply again.

Figure 5 Handling a Power Supply



- Step 6** If the power supply bay is to remain empty, install a cover plate (Product Number MAS-7KBLANK) over the opening and secure the captive mounting screw.



Warning Keep hands and fingers out of the power supply bays. High voltage is present on the power backplane when the system is operating.

If you are installing a replacement power supply, proceed to the next section. Otherwise, reconnect all power and interface cables on the rear of the chassis and restart the system.

Inserting a Power Supply

Always install the first power supply in the lower power supply bay and the second, if any, in the upper bay. In systems with dual power supplies and when separate power sources are available, connect each power supply to separate input lines, so in case of an input line failure, the second source will most likely still be available.

Step 1 Always fill the lower power supply bay first. If you will install the new power supply in the upper bay and a cover plate is installed over it, use a screwdriver to loosen the captive screw and remove the plate.

Note If you remove a cover plate from a power supply bay, save the plate and replace it whenever the system is operating with one power supply.

Step 2 Check the switch on the face of the power supply, and place it in the OFF (O) position. The interlock tab should not extend out of the unit.

Step 3 Hold the power supply by the handle and place your other hand underneath to support the bottom. (See Figure 5.)



Caution To prevent dropping power supplies, use two hands to remove and install power supplies. Each power supply weighs 20 pounds.

Step 4 The power supply has rollers on the bottom end. Place the rollers inside the bay and position the power supply so that it is aligned to go straight into the bay.

Step 5 Push the power supply all the way into the bay. Do not use unnecessary force; firmly push the supply back into the bay until the power supply front panel is flush with the chassis rear panel.



Caution When inserting a power supply into the bay, do not use unnecessary force; slamming the power supply into the bay can damage the connectors on the rear of the supply and inside the chassis.

Step 6 Use a screwdriver to tighten the captive installation screw on the top of the power supply.



Caution Always tighten the captive installation screw at the top of the power supply before turning on the power switch. This screw prevents the power supply from shifting away from the internal connector and provides proper grounding for the supply.

Step 7 Push the cable retention clip down, away from the power cord port, and plug in the power cord.

Step 8 To secure the cable in the power supply AC receptacle, push the cable retention clip up until it snaps into place around the connector.

Step 9 Connect the opposite end of the power cord to an AC source.



Caution 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 10 If you are installing or replacing a second power supply, repeat steps 1 through 9 for the second power supply.

Step 11 Proceed to the section “Checking the Installation” to apply power and check the installation.

Checking the Installation

To complete the installation you turn the power supply on and observe the LEDs on the power supply to verify that the new supply is operating properly.

Step 1 Review the descriptions of the power supply LEDs on page 5.

Step 2 Check the following components to make sure they are secure:

- Each power supply is inserted all the way into its bay, and the captive installation screw is tightened.
- All power supply cables are inserted into the power supply and secured with the cable retention clip.
- At the power-source end of the power cable, make sure the connector is securely installed in a grounded outlet and that the source power is within the range labeled on the back of the router.
- When two supplies are present, make sure the second cord is connected to a separate source if possible.

Step 3 Turn the power supply ON (I) by turning the switch clockwise one-quarter turn.

Note If the power supply switch resists, the power supply is probably not fully inserted into the bay. Turn the power switch fully counterclockwise to off (O), pull the power supply out of the bay about 2 inches, then push the power supply firmly back into the slot. Do not slam the supply into the slot; doing so can damage the connectors on the supply and the backplane. Tighten the captive installation screw before proceeding.

Step 4 Verify that the AC power LED on the power supply goes on.

- If the AC power LED fails to go on, loosen the captive installation screw, turn the switch to OFF (O), and pull the power supply out of the bay a few inches. Reinsert the power supply and push it firmly into the bay to ensure that the power supply connector are properly seated in the backplane.
- Check both ends of the power cord connections to ensure they are securely plugged into the ports.

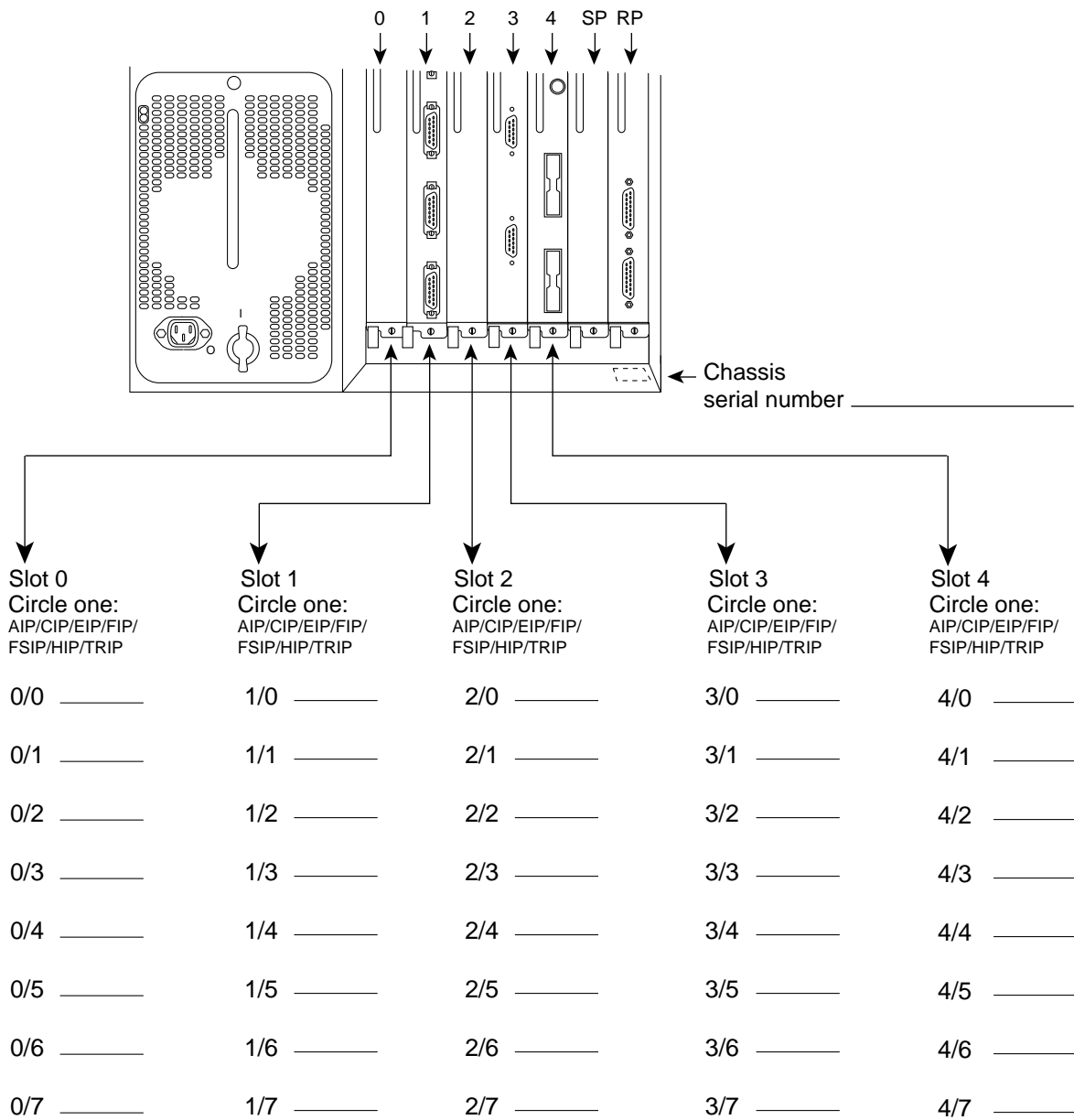
Step 5 Verify that the DC fail LED stays off.

- If the DC fail LED goes on, move the power supply to the other bay if possible and turn the power switch ON (I). If the LEDs go on properly when the supply is installed in the other bay, suspect a faulty backplane power connector.
- If the DC fail LED goes on when the power supply is installed in the other bay, suspect a power supply failure or an adverse environmental condition (the power supply has detected an overvoltage or overtemperature condition and has shut down).
- If two power supplies are installed, and the DC fail LED goes on at only one power supply, assume that the power supply or AC source is faulty.
- If the DC fail LED goes on, and the two supplies are connected to the same AC source, suspect that the AC source is faulty, or that an overvoltage or overtemperature condition is causing the power supplies to shut down.
- If the DC fail LED goes on, and the two supplies are connected to separate AC sources, assume that an overvoltage or overtemperature condition is causing the power supplies to shut down.

If the power supply fails to operate properly after several attempts to initialize it, refer to the note on page 25 of this document and contact a service representative for assistance.

This completes the power supply installation. Refer to the *Cisco 7000 Hardware Installation and Maintenance* or *Cisco 7507 Hardware Installation and Maintenance* publications for installation-related troubleshooting procedures, and to the *Router Products Configuration Guide* publication for descriptions and examples of software features and commands.

Figure 6 Cisco 7000 Port Configuration Worksheet



Router name _____ Prepared by _____

Location _____ Date _____

H1324a

Figure 7 Cisco 7507 Port Configuration Worksheet

Slot 0	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
Circle one: AIP/CIP/EIP/FEIP/FIP/ FSIP/HIP/TRIP/MIP	Circle one: AIP/CIP/EIP/FEIP/FIP/ FSIP/HIP/TRIP/MIP	RSP2	RSP2	Circle one: AIP/CIP/EIP/FEIP/FIP/ FSIP/HIP/TRIP/MIP	Circle one: AIP/CIP/EIP/FEIP/FIP/ FSIP/HIP/TRIP/MIP	Circle one: AIP/CIP/EIP/FEIP/FIP/ FSIP/HIP/TRIP/MIP
0/0 _____	1/0 _____			4/0 _____	5/0 _____	6/0 _____
0/1 _____	1/1 _____			4/1 _____	5/1 _____	6/1 _____
0/2 _____	1/2 _____			4/2 _____	5/2 _____	6/2 _____
0/3 _____	1/3 _____			4/3 _____	5/3 _____	6/3 _____
0/4 _____	1/4 _____			4/4 _____	5/4 _____	6/4 _____
0/5 _____	1/5 _____			4/5 _____	5/5 _____	6/5 _____
0/6 _____	1/6 _____			4/6 _____	5/6 _____	6/6 _____
0/7 _____	1/7 _____			4/7 _____	5/7 _____	6/7 _____
Router name _____	Prepared by _____					
Location _____	Date _____					

H38889

Translated Safety Warnings

Following are translations of the safety warnings that appear throughout this publication:

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 dritta 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.

¡Atención! 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.

Lightning Activity Warning



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

Waarschuwing Tijdens onweer dat gevaar 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).

¡Atención! 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.

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 virtälähdettä 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.

¡Atención! 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.

Warning! 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.

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.

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.

¡Atención! 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.

AC Power Supply Warning



Warning The AC power supply for the Cisco 7000 and Cisco 7507 has double pole/neutral fusing.

Waarschuwing De wisselstroom voeding voor de Cisco 7000 en Cisco 7507 heeft tweepolige/neutrale zekeringen.

Varoitus Cisco 7000:n ja Cisco 7507:n vaihtovirtalähteessä on kaksinapainen/nollajohtimellinen liitäntä.

Attention L'alimentation en courant alternatif du Cisco 7000 et du Cisco 7507 est munie de doubles fusibles pôle/neutre.

Warnung Das Wechselstrom-Netzgerät für den Cisco 7000 und Cisco 7507 ist mit zweipoliger/neutraler Sicherung ausgestattet.

Avvertenza L'alimentatore CA per il Cisco 7000 ed il Cisco 7507 è dotato di fusibili a polo doppio/neutro.

Advarsel Vekselstrømsforsyningsenheten for Cisco 7000 og Cisco 7507 har både topolede og nøytrale sikringer.

Aviso O fornecimento de corrente alternada ao Cisco 7000 e ao o Cisco 7507 possui fusão bipolar/neutra.

¡Atención! La fuente de alimentación de corriente alterna (CA) para los equipos Cisco 7000 y Cisco 7507 posee doble fusible, para el polo activo y el neutro.

Warning! Strömförsörjningsenheten för växelström för Cisco 7000 och Cisco 7507 har dubbel pol-/neutralsäkring.

Circuit Breaker (15A) 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, 15A U.S. (240 VAC, 10A 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, 15 A voor de V.S. (240 Volt wisselstroom, 10 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, 15 ampeerin ja monissa muissa maissa 240 voltin, 10 ampeerin sulaketta tai suojakytintä.

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., 15 A U.S. maximum (240 V alt., 10 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, 10 A (bzw. in den USA 120 V Wechselstrom, 15 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, 15 A U.S. (240 VCA, 10 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, 15 A (USA) (240 VAC, 10 A internasjonalt) på faselederne (alle strømførende ledere).

Aviso Este produto depende das instalações existentes para protecção contra curto-circuito (sobrecarga). Assegure-se de que um fusível ou disjuntor não superior a 240 VAC, 10A é utilizado nos condutores de fase (todos os condutores de transporte de corrente).

¡Atención! 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), 10 amperios del estándar internacional (120 VAC, 15 amperios del estándar USA) en los hilos de fase (todos aquellos portadores de corriente).

Translated Safety Warnings

Warning! Denna produkt är beroende av i byggnaden installerat kortslutningsskydd (överströmsskydd). Kontrollera att säkring eller överspänningskydd används på fasledarna (samtliga strömförande ledare) ¥ för internationellt bruk max. 240 V växelström, 10 A (i USA max. 120 V växelström, 15 A).

Cisco Information Online

Cisco Information Online (CIO) is Cisco Systems' primary, real-time support channel. Maintenance customers and partners can self-register on CIO to obtain additional content and services.

Available 24 hours a day, 7 days a week, CIO provides a wealth of standard and value-added services to Cisco's customers and business partners. CIO services include product information, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CIO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously—a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CIO (called "CIO Classic") supports Zmodem, Kermit, Xmodem, FTP, Internet e-mail, and fax download options, and is excellent for quick access to information over lower bandwidths. The WWW version of CIO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CIO in the following ways:

- WWW: <http://www.cisco.com>
- Telnet: [cio.cisco.com](telnet://cio.cisco.com)
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; data bits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CIO's Frequently Asked Questions (FAQ), contact cio-help@cisco.com. For additional information, contact cio-team@cisco.com.

Note If you are a network administrator and need personal technical assistance with a Cisco product that is under warranty or covered by a maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com. To obtain general information about Cisco Systems, Cisco products, or upgrades, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with the *Cisco 7000 Hardware Installation and Maintenance* or *Cisco 7507 Hardware Installation and Maintenance* publication. (1055a700.fm)

Catalyst, CD-PAC, CiscoFusion, Cisco IOS, CiscoPro, CiscoView, CiscoVision, CiscoWorks, ControlStream, EtherChannel, HubSwitch, LAN²LAN, LAN²LAN Enterprise, LAN²LAN Remote Office, LAN²PC, Newport Systems Solutions, *Packet*, PC²LAN/X.25, Point and Click Internetworking, RouteStream, SMARTnet, SwitchProbe, SynchroniCD, *The Cell*, VirtualStream, WNIC, Workgroup Director, Workgroup Stack, and XCI are trademarks, Access by Cisco and Bringing the power of internetworking to everyone are service marks, and Cisco, Cisco Systems, the Cisco Systems logo, EtherSwitch, IGRP, Kalpana, LightStream, and UniverCD are registered trademarks of Cisco Systems, Inc. All other trademarks, service marks, registered trademarks, or registered service marks mentioned in this document are the property of their respective owners.

Copyright © 1995, Cisco Systems, Inc.
All rights reserved. Printed in USA
958(2)R