# Catalyst 6509-NEB Switch and Cisco OSR-7609 Router Upgrade Note

**Product Number: WS-6509-NEB-UPGRD=**

This publication describes how to upgrade your Catalyst 6509-NEB switch or Cisco OSR-7609 Router to use the Supervisor Engine 720 and the Supervisor Engine 32.

**Note** **AC-Input Systems**—If your switch or router is using an AC-input power supply, you are required to install the WS-CAC-3000W power supply. The 3000 W AC-input provides a power output to power the fan tray.

**Note** **DC-Input Systems**—If your switch or router is using a DC-input power supply, you are required to install the WS-CDC-2500W or PWR-4000-DC power supply. You must provide a separate, direct connection to power the fan tray. Each input of the fan tray is rated 10 A @ -40 to -60 VDC.

**Caution** It is important that you follow the steps in this document in the order they are presented.

## CISCO SYSTEMS

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# Contents

This publication consists of the following sections:

# Safety Overview

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement.

⚠ **Warning** **IMPORTANT SAFETY INSTRUCTIONS**

**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. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.** Statement 1071

**SAVE THESE INSTRUCTIONS**

⚠ **Warning** **Before performing any of the following procedures, ensure that power is removed from the DC circuit.** Statement 1003

⚠ **Warning**  **This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.** Statement 1028

⚠ **Warning**  **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

⚠ **Warning**  **Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.** Statement 1034

⚠ **Warning**  **This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.** Statement 1045

⚠ **Warning**  **When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046

# Parts List

The following items are included in the upgrade kit:

- One high speed fan tray

  The high speed fan tray provides additional cooling for the Supervisor Engine 720 and the Supervisor Engine 32.

  The high speed fan tray requires external power, either from the 3000 W AC-input power supply or from an external DC power source. The fan tray ships with power wires secured at each terminal block. Use these wires to connect the fan tray to the 3000 W AC-input power supply using the supplied cable, or remove them to connect to a DC power source.

- One panel safety cover

  The panel safety cover provides increased chassis airflow.

- Two fan tray power cables (for AC-input systems)

  The fan tray power cable provides a connection between the fan tray and the 3000 W AC-input power supply. Two cables are provided for systems with redundant power supplies.

# Required Tools

These tools are required to perform the installation:

- Number 1 Phillips-head screwdriver
- Number 2 Phillips-head screwdriver
- Flat-blade screwdriver (for DC-input systems)

# Installation Guidelines

Follow these guidelines when upgrading the chassis:

- If your switch or router is using an AC-input power supply, you are required to install the WS-CAC-3000W power supply. The 3000 W AC-input provides a power output to power the fan tray.

- If your switch or router is using a DC-input power supply, you are required to install the WS-CDC-2500W or PWR-4000-DC power supply. You must provide a separate, direct connection to power the fan tray. Each input of the fan tray is rated 10 A @ -40 to -60 VDC.

- Observe the following cautions:

⚠️
**Caution**   It is important that you follow the steps in this document in the order they are presented.

⚠️
**Caution**   Always use an ESD wrist strap when handling modules or coming into contact with internal components.

⚠️
**Caution**   Use both hands to install and remove power supplies. Each Catalyst 6500 series AC-input power supply weighs between 22 pounds (9.9 kg) and 28 pounds (12.6 kg).

⚠️
**Caution**   Do not exert too much pressure on the ejector levers. They will bend and be damaged.

⚠️
**Caution**   In a system with dual power supplies, connect each power supply to a separate input source. In case of a power source failure, the second source will most likely still be available.

# Shutting Down the System

To perform the upgrade, you must shut down the system.

Before you shut down the system, you should first upload the current configuration to a server. This saves time when bringing the module back online. You can recover the configuration by downloading it from the server to the nonvolatile memory of the supervisor engine. For more information, refer to the "Working with Configuration Files" chapter in the *Catalyst 6500 Series Software Configuration Guide*.

To properly shut down the system, follow these steps:

**Step 1**   Upload the current configuration to a server. On any modules running Cisco IOS, save the running configuration.

⚠️
**Warning**   **Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord.** Statement 1

**Warning**   **This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.** Statement 1028

**Step 2**   Depending on how your system is powered, perform one of the two sets of substeps below.

**AC-Input Systems**

a.   Turn the power switch to the Off (0) position on each power supply. Turning the power switch off also disengages a pawl that unlocks the power supply from the chassis.

b.   Disconnect the power cord from the power source.

c.   Loosen the screw on the cable retention device, and disconnect the power cord from the power supply being removed.

> **Note**   The AC power cord for the 4000 W power supply is hard wired and cannot be removed from the supply.

**Warning**   **Before performing any of the following procedures, ensure that power is removed from the DC circuit.** Statement 1003

**DC-Input Systems**

a.   Verify that power is off to the DC circuit for each power supply. As an added safety precaution, you should secure the source DC circuit breaker switch in the OFF position with electrical tape.

b.   Turn the power switch to the Off (0) position on each power supply. Turning the power switch off also disengages a pawl that unlocks the power supply from the chassis.


# Replacing the Panel Safety Cover

This section describes how to remove and install the panel safety cover for the Catalyst 6509-NEB switch and Cisco OSR-7609 Router. A number 1 Phillips-head screwdriver is required to perform this procedure.

**Caution**   Always use an ESD wrist strap when handling modules or coming into contact with internal components.

**Warning**   **Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.** Statement 1034

To remove the panel safety cover, perform these steps:

**Step 1**   Use a number 1 Phillips-head screwdriver to remove the 8 panel screws, 4 each located along the top and bottom of the chassis. (See Figure 1.) Set the screws aside.

**Step 2**   Grasp the panel handle and pull the panel away from the chassis.

*Figure 1     Removing the Panel Safety Cover*



Panel handle

105072
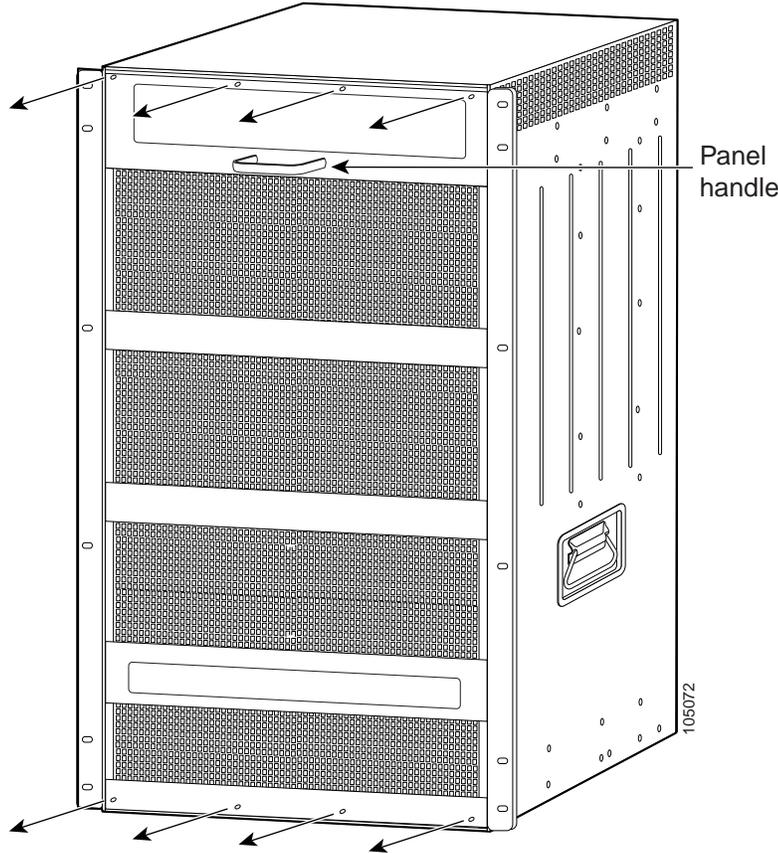
**Step 3**   On the new panel safety cover, grasp the panel handle and press the panel into place, starting at the bottom of the chassis and working up. Be careful not to damage the EMI gasket.

**Step 4**   Use a number 1 Phillips-head screwdriver to install the 8 panel screws, 4 each located along the top and bottom of the chassis. (See Figure 2.)

**Step 5**   Proceed to the "Replacing the Fan Tray" section on page 7 to replace the fan tray.

*Figure 2      Installing the Panel Safety Cover*
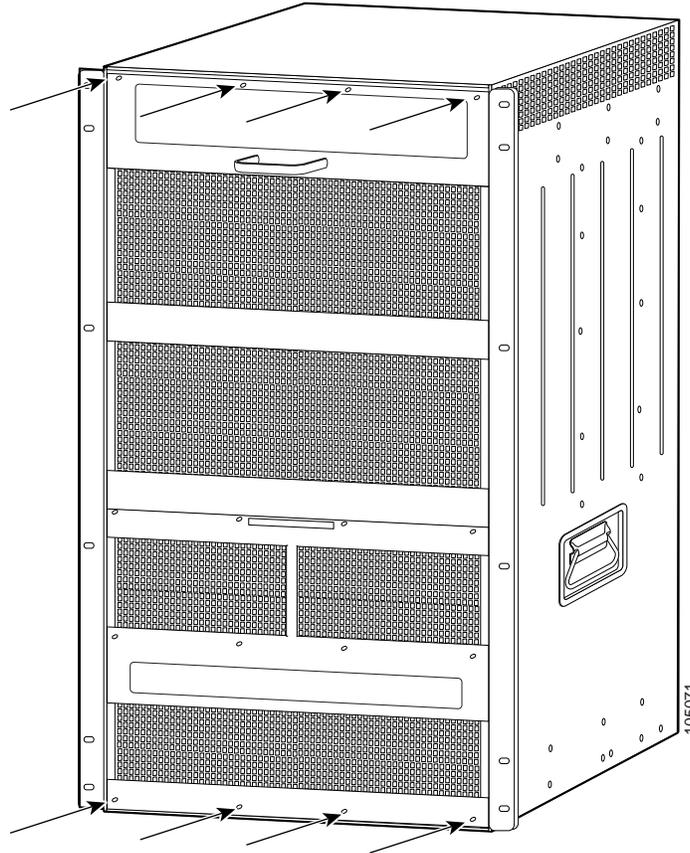


# Replacing the Fan Tray

This section describes how to remove and install the fan tray for the Catalyst 6509-NEB switch and Cisco OSR-7609 Router. A flat-blade or number 2 Phillips-head screwdriver is required to perform this procedure.

# Removing the Fan Tray

⚠

**Warning**   **When removing the fan tray, keep your hands and fingers away from the spinning fan blades. Let the fan blades completely stop before you remove the fan tray.** Statement 258

To remove the existing fan tray, follow these steps:

**Step 1**   Use a flat-blade or number 2 Phillips-head screwdriver to loosen the two captive installation screws on the fan tray by turning them counterclockwise. (See Figure 3.)

*Figure 3      Removing the Fan Tray*
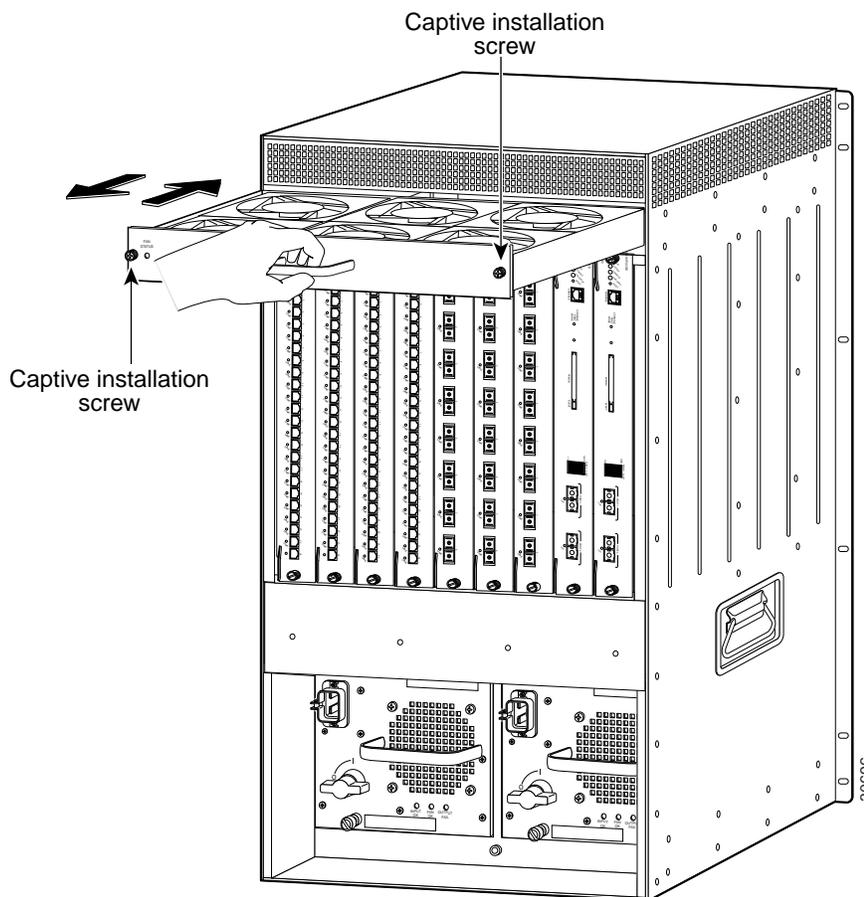


**Step 2**   Grasp the fan tray handle with one hand and pull the fan tray outward about 1 inch; rock it gently, if necessary, to unseat the power connector from the backplane. Wait for the fans to stop spinning.

**Step 3**   Once the fans have stopped spinning, pull the fan tray out further and support the underside of the fan tray with the other hand.

**Step 4**   Pull the fan tray clear of the chassis, and put it in a safe place.

# Installing the High Speed Fan Tray

To install the high speed fan tray, follow these steps:

**Step 1**    Hold the fan tray with the fans facing down and the FAN FAIL LED on the right. (See Figure 4.)

*Figure 4    Installing the High Speed Fan Tray*
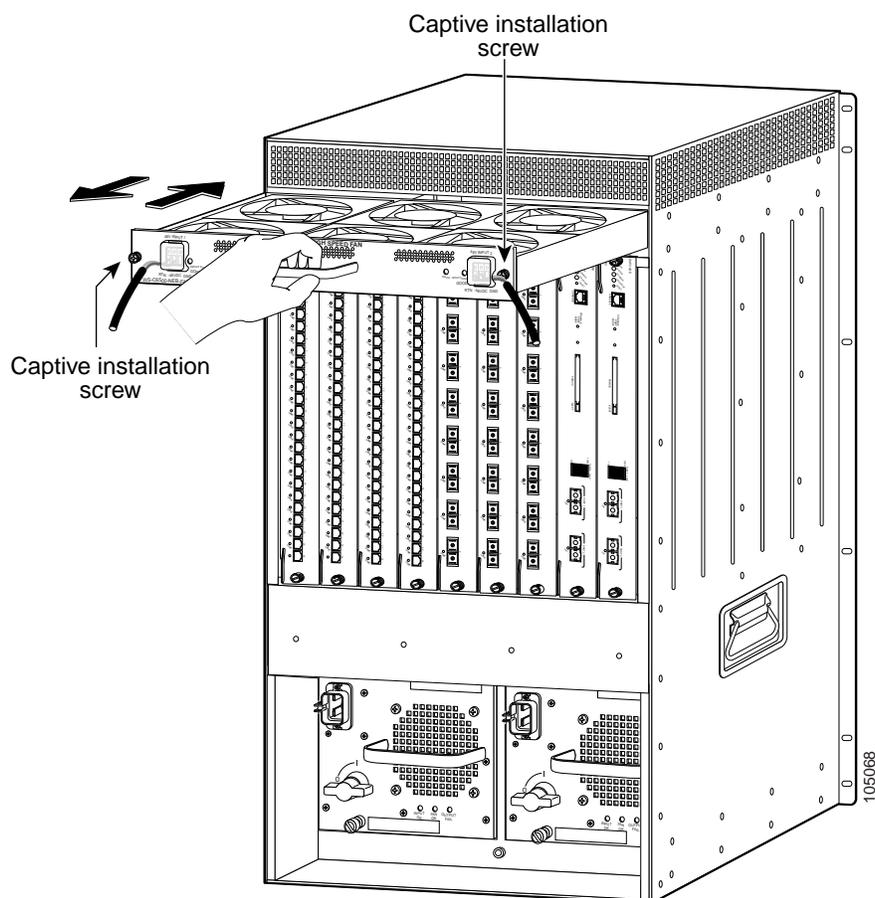


**Step 2**    Place the fan tray into the front chassis cavity so that it rests on the chassis, and then lift the fan tray up slightly, aligning the top and bottom chassis guides.

**Step 3**    Push the fan tray into the chassis until the power connector seats in the backplane and the captive installation screws make contact with the chassis.

**Step 4**    Use a flat-blade or number 2 Phillips-head screwdriver to tighten the captive installation screws.

**Step 5**    Proceed to the "Replacing the Power Supply" section on page 10 to replace the power supply.

# Replacing the Power Supply

✎
**Note** **DC-input systems**—See the "Connecting Site Power to the Fan Tray for DC-Input Systems" section on page 15 to connect site power to the high speed fan tray.

This section describes how to remove and install AC-input power supplies for the Catalyst 6509-NEB switch and Cisco OSR-7609 router.

## Removing an AC-Input Power Supply

⚠
**Warning** **Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.** Statement 1034

To remove an AC-input power supply, follow these steps:

**Step 1** Loosen the captive installation screw. (See Figure 5.)

⚠
**Caution** Use both hands to install and remove power supplies. Each Catalyst 6500 series AC-input power supply weighs between 22 pounds (9.9 kg) and 28 pounds (12.6 kg).

**Step 2** Grasp the power supply handle with one hand, and slide the power supply part of the way out of the chassis. Place your other hand underneath the power supply, as shown in Figure 6, and slide the power supply completely out of the chassis.
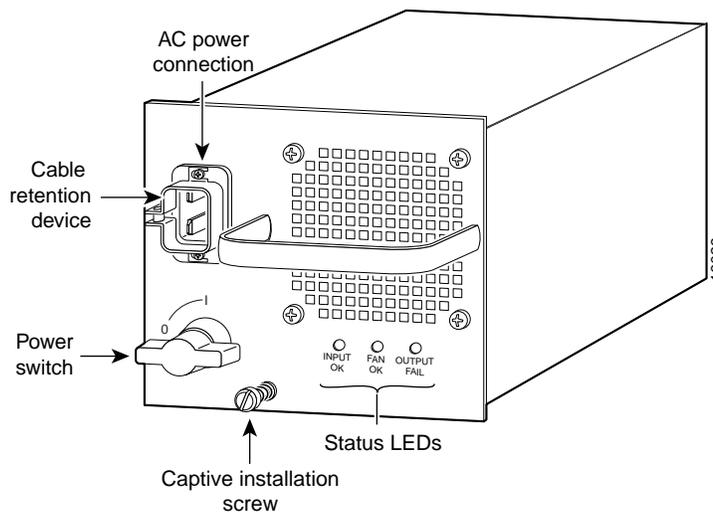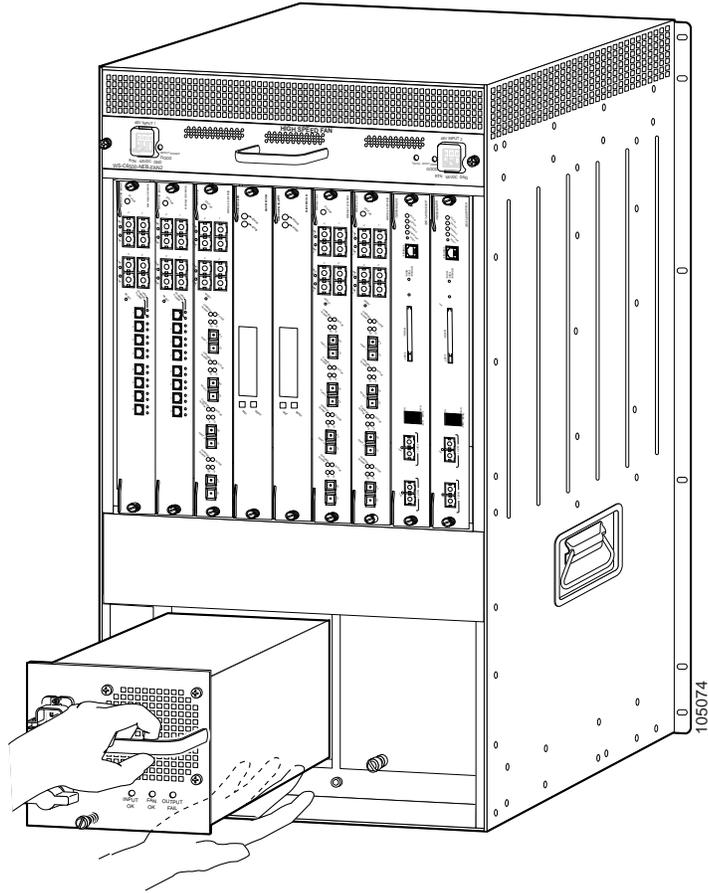
*Figure 5      AC-Input Power Supply Front Panel*

*Figure 6        Removing an AC-Input Power Supply*

# Installing the 3000 W AC-Input Power Supply

⚠️

**Caution**    Use both hands to install and remove power supplies. Each Catalyst 6500 series AC-input power supply weighs between 22 pounds (9.9 kg) and 28 pounds (12.6 kg).

To install the 3000 W AC-input power supply, follow these steps:

**Step 1**    Ensure that the system (earth) ground connection has been made. For ground connection instructions, refer to the installation guide for your hardware platform.

**Step 2**    Verify that the power switch is in the Off (0) position on the power supply you are installing. (See Figure 7.)

*Figure 7*        *3000 Watt AC-Input Power Supply Front Panel*
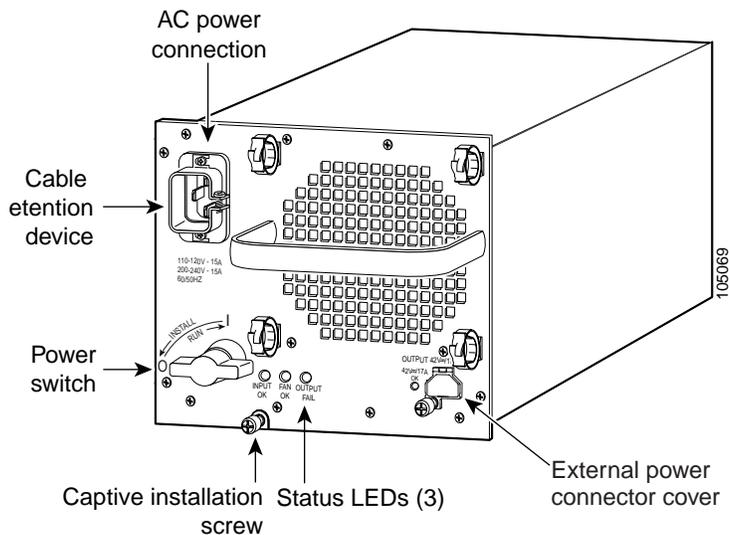


**Step 3**    Grasp the power supply handle with one hand. Place your other hand underneath the power supply, as shown in Figure 8. Slide the power supply into the power supply bay. Make sure that the power supply is fully seated in the bay.

*Figure 8        Installing the 3000 W Power Supply*
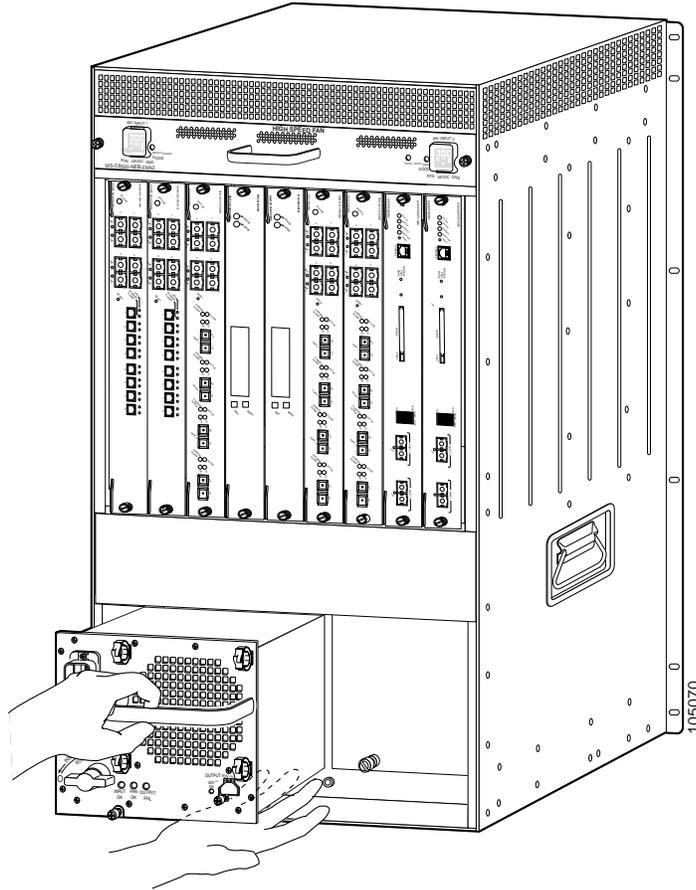


Step 4    Tighten the power supply captive installation screw. (See Figure 7.)

Step 5    If you have a redundant power supply, install it now following the steps in this section.

Step 6    Proceed to the "Connecting Power to the Fan Tray" section on page 13 to connect power to the high speed fan tray.

# Connecting Power to the Fan Tray

The high-speed fan tray requires external power, either from the 3000 W AC-input power supply or from an external DC power source. The fan tray ships with power wires secured at each terminal block.

If you are using the 3000 W AC-input power supply, use the supplied cables to connect the fan tray wires to the power supply.

If you are using a DC-input power supply, remove the wires from the fan tray and connect directly to a DC power source.

The following sections describe how to connect power to the fan tray:

• Installing the Fan Tray Power Cable for AC-Input Systems, page 14

• Connecting Site Power to the Fan Tray for DC-Input Systems, page 15

# Installing the Fan Tray Power Cable for AC-Input Systems

✎
**Note** The fan tray ships with power wires secured at each terminal block. Use these wires to connect the fan tray to the 3000 W AC-input power supply using the supplied cables. If you have redundant power supplies, repeat the steps in this section for the redundant power supply.

To connect the high speed fan tray to the 3000 W AC-input power supply, follow these steps:

**Step 1** Connect the female end of the supplied power cable (see Figure 9) to the fan tray wire connector. Press the two ends together until you hear a click.

*Figure 9    Cable Connectors*



To fan cable            To power supply
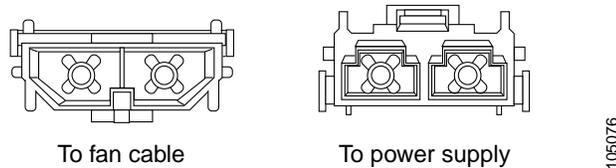
**Step 2** On the power supply, loosen the thumb screw on the external power connector cover and lift up the cover. (See Figure 10.)

*Figure 10    External Power Connector Cover*
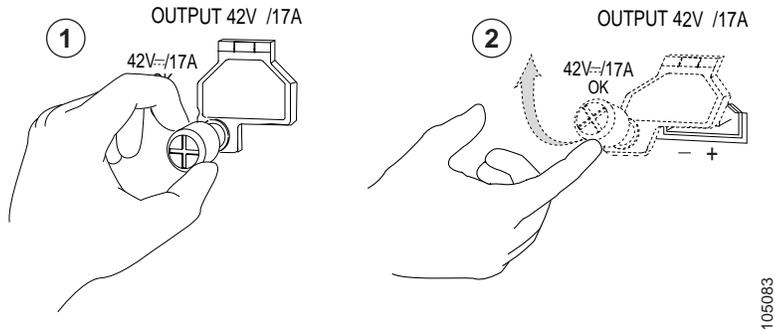


**Step 3** Connect the male end of the supplied power cable to the female end of the external power connector on the power supply until you hear a click.

**Step 4** If you have redundant power supplies, repeat the steps in this section for the redundant power supply.

# Connecting Site Power to the Fan Tray for DC-Input Systems

✎ **Note** To provide redundancy, you may choose to connect each fan terminal block to a separate power source.

✎ **Note** Each input of the fan tray is rated 10 A @ -40 to -60 VDC.

⚠ **Warning** **This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.** Statement 1045
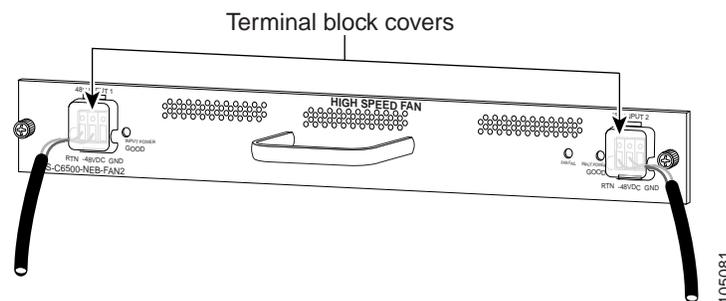
⚠ **Warning** **Before performing any of the following procedures, ensure that power is removed from the DC circuit.** Statement 1003

To connect the high speed fan tray to an external DC power source, follow these steps:

**Step 1** Locate the terminal block covers on the fan tray. (See Figure 11.)

*Figure 11 Terminal Block Covers on Fan Tray*



Terminal block covers

**Step 2** The terminal block cover is held in place by two clips inserted into the fan tray front panel. Press the bottom of the terminal block cover, lift the cover up, and remove the cover. (See Figure 12.)
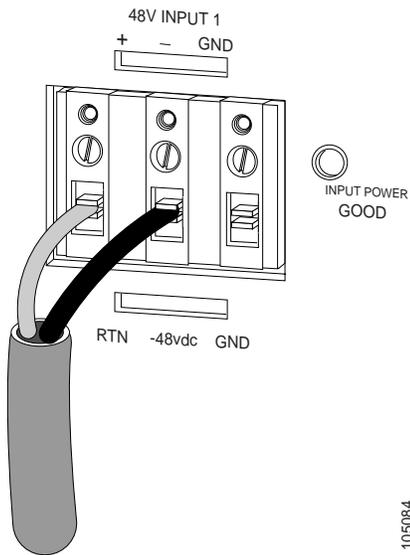
*Figure 12    Removing the Terminal Block Cover*



Terminal block
cover
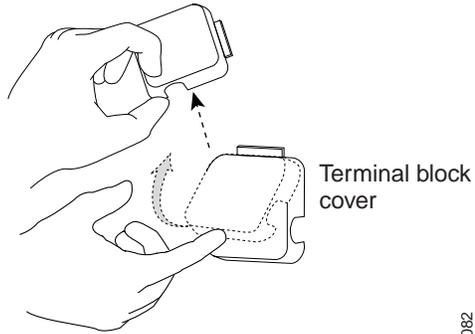
105082

**Step 3**    With a flat blade screwdriver, disconnect the input wires from the terminal block. (See Figure 13.)

*Figure 13    Input Wire Connections on the Terminal Block*



48V INPUT 1
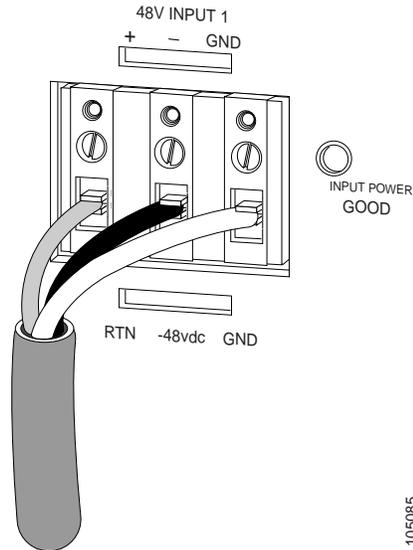
+    –    GND

INPUT POWER
GOOD

RTN    -48vdc    GND

105084

**Step 4**    Connect the DC-input wires to the terminal block (see Figure 14) in this order:

- Ground
- Negative (-)
- Positive (+)

*Figure 14      DC-Input Wire Connections on the Terminal Block*



> ⚠ **Warning**    **When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046

**Step 5**    After ensuring that all wire connections are secure, reinstall the terminal block cover.

# Replacing the Supervisor Engine

Before you can power up the system, you need to remove the supervisor engine from slot 1 (if a redundant supervisor engine is present, remove it from slot 2) and install the Supervisor Engine 720 or the Supervisor Engine 32 in slot 5 or 6.

## Removing the Supervisor Engine

This section describes how to remove an existing supervisor engine from a chassis slot.

To remove a supervisor engine from the chassis, perform these steps:

**Step 1**    Disconnect any network interface cables attached to the supervisor engine.

**Step 2**    Verify that the captive installation screws on all of the modules in the chassis are tight. This step assures that the space created by the removed supervisor engine is maintained.

> ✎ **Note**    If the captive installation screws are loose, the electromagnetic interference (EMI) gaskets on the installed modules will push the modules toward the open slot, reducing the opening size and making it difficult to install the replacement module.

**Step 3** Loosen the two captive installation screws on the supervisor engine.

**Step 4** Place your thumbs on the ejector levers located at the top and bottom of the supervisor engine, and simultaneously rotate the levers outward to unseat the supervisor engine from the backplane connector.

**Step 5** Grasp the edges of the supervisor engine, and slide the supervisor engine straight out of the slot. Do not touch the module circuitry.

**Step 6** Place the supervisor engine on an antistatic mat or antistatic foam.

**Step 7** If the slot is to remain empty, install a module filler plate to keep dust out of the chassis and to maintain proper airflow through the chassis.

# Installing the Supervisor Engine

This section describes how to install the Supervisor Engine 720 or the Supervisor Engine 32 in the Catalyst 6509-NEB switch and the Cisco OSR-7609 Router.

⚠
**Caution**  To prevent ESD damage, handle modules by the carrier edges only.

✎
**Note**  The Supervisor Engine 720 or Supervisor Engine 32 must be installed in slot 5 or 6 of the Catalyst 6509NEB or Cisco OSR7609 chassis.

To install the supervisor engine in the chassis, perform these steps:

**Step 1** Choose a slot for the supervisor engine.

**Step 2** Verify that there is enough clearance to accommodate any interface equipment that you will connect directly to the supervisor engine ports. If possible, place modules between empty slots that contain only module filler plates.

**Step 3** Verify that the captive installation screws are tightened on all modules installed in the chassis. This assures that the EMI gaskets on all modules are fully compressed in order to maximize the opening space for the new module or the replacement module.

✎
**Note**  If the captive installation screws are loose, the EMI gaskets on the installed modules will push adjacent modules toward the open slot, reducing the opening size and making it difficult to install the replacement module.

**Step 4** Remove the module filler plate by removing the two Phillips pan-head screws from the filler plate. To remove a module, see the "Removing the Supervisor Engine" section on page 17.

**Step 5** Fully open both ejector levers on the supervisor engine. (See Figure 15.)

**Step 6** Position the supervisor engine in the slot. (See Figure 15.) Make sure that you align the sides of the module carrier with the slot guides on the top and bottom of the slot.

**Step 7** Carefully slide the supervisor engine into the slot until the EMI gasket along the right edge of the supervisor engine makes contact with the module in the slot adjacent to it and both ejector levers have closed to approximately 45 degrees with respect to the supervisor engine faceplate. (See Figure 16.)

**Step 8** Using the thumb and forefinger of each hand, grasp the two ejector levers and exert a slight pressure to the left, deflecting the module approximately 0.040 inches (1 mm) to create a small gap between the supervisor engine's EMI gasket and the module adjacent to it. (See Figure 16.)

⚠️

**Caution** Do not exert too much pressure on the ejector levers. They will bend and be damaged.

**Step 9** While pressing on the ejector levers, simultaneously close them to fully seat the supervisor engine in the backplane connector. The ejector levers are fully closed when they are flush with the supervisor engine faceplate. (See Figure 17.)

**Step 10** Tighten the two captive installation screws on the supervisor engine.

✎

**Note** Make sure the ejector levers are fully closed before tightening the captive installation screws.

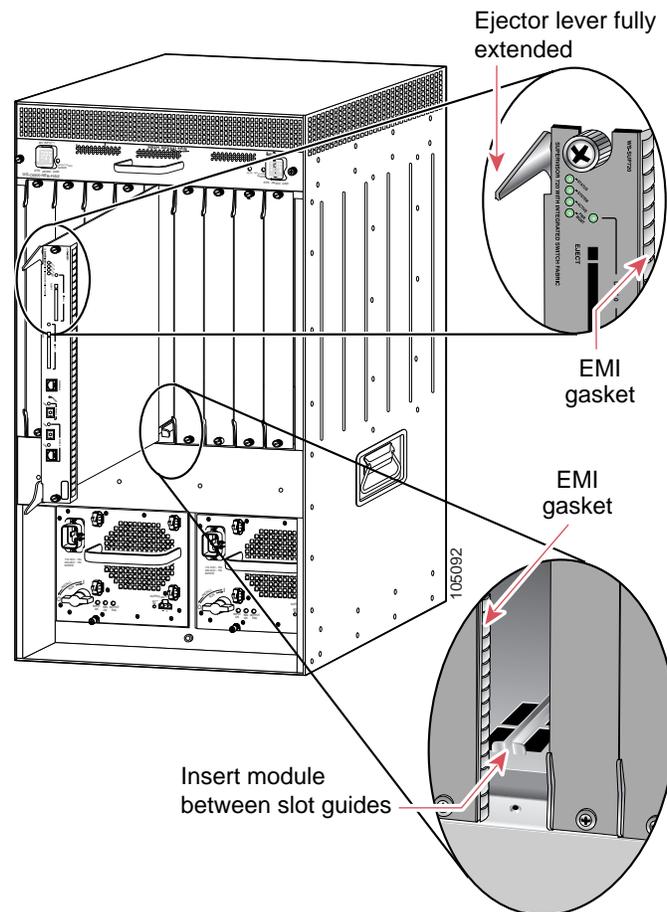*Figure 15    Positioning the Supervisor Engine in the Chassis*



Ejector lever fully extended

EMI gasket

EMI gasket

Insert module between slot guides

105092

*Figure 16      Clearing the EMI Gasket in the Chassis*

Gap between the module
EMI gasket and the
module above it

←— 1 mm —→

Press left

Press left

105093
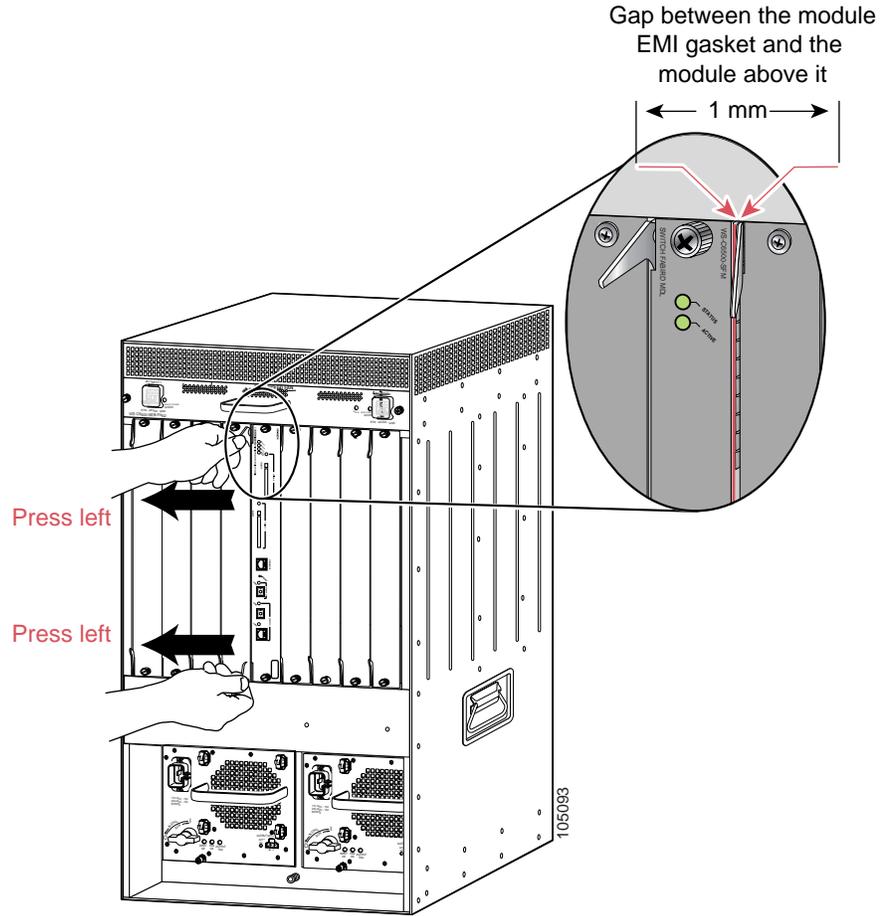
*Figure 17    Ejector Lever Closure in the Chassis*



All ejector levers flush
with module faceplate
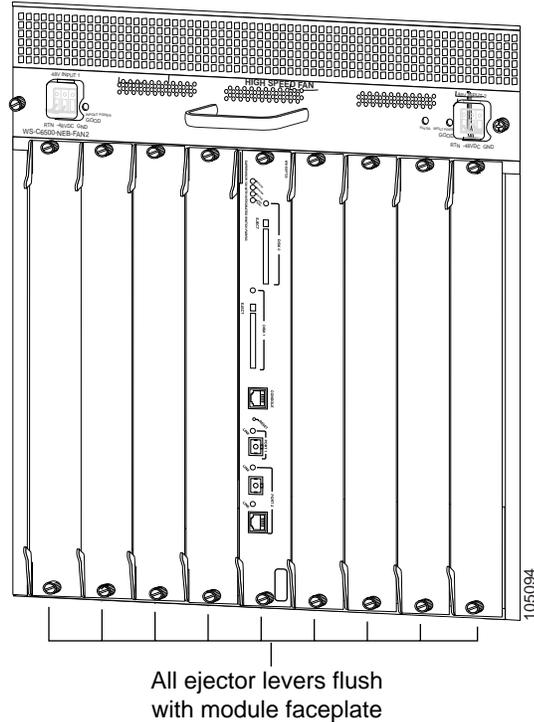
# Powering Up the System

This section describes how to power up the system.

## AC-Input Systems

To power up your AC-input system, follow these steps:

**Step 1**    Plug the power cord into the power supply, and tighten the screw on the cable retention device.

**Step 2**    Connect the other end of the power cord to an AC-input power source.

⚠

**Caution**    In a system with dual power supplies, connect each power supply to a separate input source. In case of a power source failure, the second source will most likely still be available.

**Step 3**    Turn the power switch to the On (|) position on the power supply. Switching the power switch to On also engages a pawl that locks the power supply in the bay.

## DC-Input Systems

To power up your DC-input system, follow these steps:

**Step 1** Remove the tape from the circuit breaker switch handle, and restore power by moving the circuit breaker switch handle to the On (|) position.

**Step 2** Turn the power switch to the On (|) position on the power supply. Turning the power switch on also engages a pawl that locks the power supply in the chassis.

# Verifying Installation

After you have powered up the switch, verify the operation of the newly installed hardware as follows:

**Step 1** Verify power supply operation by checking that the power supply front panel LEDs are in these states:
  • INPUT OK LED is green
  • FAN OK LED is green
  • OUTPUT FAIL LED is not lit
  • 42V LED is green

If the LEDs indicate a power problem, refer to the installation guide for your hardware platform for troubleshooting information.

**Step 2** Verify the high speed fan tray operation by checking that the fan tray LEDs are in these:
  • INPUT POWER GOOD LED is green (there is one LED for each power input; if both inputs are used, verify both LEDs)
  • FAN FAIL LED is green

If the LEDs indicate a problem, refer to the installation guide for your hardware platform for troubleshooting information.

**Step 3** Verify that the supervisor engine STATUS LED is lit. Check the STATUS LED periodically. If the STATUS LED changes from orange to green, the supervisor engine has successfully completed the boot process and is now online. If the STATUS LED remains orange or turns red, the supervisor engine has not successfully completed the boot process and may have encountered an error.

# Related Documentation

For additional information on Catalyst 6500 series switches and command-line interface (CLI) commands, refer to the following publications:

- *Regulatory Compliance and Safety Information for the Catalyst 6500 Series Switches*
- *Regulatory Compliance and Safety Information for the Cisco 7600 Series Routers*
- *Catalyst 6500 Series Switch Installation Guide*
- *Cisco 7609 Router Installation Guide*

# Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

## Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

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## Cisco Product Security Overview

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http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to:

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- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For Emergencies only—security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302

- 1 408 525-6532

**Tip** We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.*x* through 9.*x*.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

# Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

# Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

**Note** Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

# Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

# Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

  http://www.cisco.com/go/guide

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

or view the digital edition at this URL:

http://ciscoiq.texterity.com/ciscoiq/sample/

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

  http://www.cisco.com/en/US/products/index.html

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

  http://www.cisco.com/discuss/networking

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

This document is to be used in conjunction with the documents listed in the "Related Documentation" section.