



Cisco 10005 ESR AC Power Supply Installation

March 30, 2001

This installation note provides procedures for installing and replacing AC power supply modules in a Cisco 10005 edge services router (ESR).

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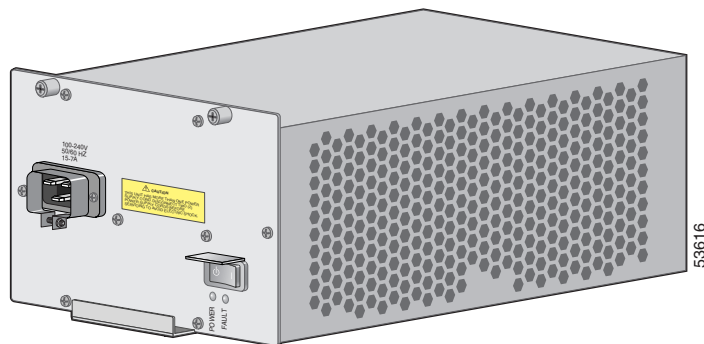
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78-12652-01

Product Description

The AC power supply (Figure 1) provides power conversion directly from the facility AC input power (100 to 240 VAC nominal) to the –48V VDC used internally by the system. Power is delivered to the power supply by the AC power cord. The AC power supply is provided with an IEC 320/C20 AC inlet, rated 16A/250V (20A in North America).

Figure 1 AC Power Supply



The Cisco 10005 chassis has two compartments for power supplies. The chassis can operate with a single power supply; install two power supplies if you need power redundancy.

Prerequisites and Preparation

Before you perform any of the procedures in this guide, we recommend that you:

- Read the safety guidelines in the next section and review the electrical safety and ESD-prevention guidelines in the *Cisco 10005 ESR Hardware Installation Guide*.
- Ensure that you have all of the necessary tools and equipment (see the “Required Tools and Equipment” section on page 6).

- Have access to the following documents during the installation:
 - *Technology of Edge Aggregation: Cisco 10000 Series Edge Services Router* (shipped with your router and available for viewing or download at Cisco.com)
 - *Cisco 10005 ESR Hardware Installation Guide*
 - *Cisco 10000 Series ESR Troubleshooting Guide* (an online document available for viewing or download at Cisco.com)
 - *Cisco 10000 Series ESR Software Configuration Guide* (an online document available for viewing or download at Cisco.com)

Safety Guidelines

Before you begin the installation or replacement procedure, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment.

Safety Warnings

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

Before you install, configure, or perform maintenance on the router, review the documentation for the procedure you are about to perform, paying special attention to the safety warnings. If you need translations of the safety warnings, refer to the “Translated Safety Warnings” appendix of the *Cisco 10005 ESR Hardware Installation Guide*.



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. (To see translations of the warnings that appear in this publication, refer to the appendix "Translated Safety Warnings" in the installation guide that accompanied this device.)

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. (Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het aanhangsel "Translated Safety Warnings" (Vertalingen van veiligheidsvoorschriften) in de installatiegids die bij dit toestel is ingesloten, raadplegen.

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. (Tässä julkaisussa esiintyvien varoitusten käännökset löydät tämän laitteen mukana olevan asennusoppaan liitteestä "Translated Safety Warnings" (käännetyt turvallisuutta koskevat varoitukset).)

Attention

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures. Avant d'accéder à cet équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures courantes de prévention des accidents. Pour obtenir les traductions des mises en garde figurant dans cette publication, veuillez consulter l'annexe intitulée « Translated Safety Warnings » (Traduction des avis de sécurité) dans le guide d'installation qui accompagne cet appareil.

- 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. (Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Anhang mit dem Titel "Translated Safety Warnings" (Übersetzung der Warnhinweise) in der diesem Gerät beiliegenden Installationsanleitung.)
- Avvertenza** Questo simbolo di avvertenza indica un pericolo. Si è in una situazione che può causare infortuni. 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. La traduzione delle avvertenze riportate in questa pubblicazione si trova nell'appendice, "Translated Safety Warnings" (Traduzione delle avvertenze di sicurezza), del manuale d'installazione che accompagna questo dispositivo.
- 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. (Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i vedlegget "Translated Safety Warnings" [Oversatte sikkerhetsadvarsler] i installasjonsveiledningen som ble levert med denne enheten.)
- 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. (Para ver as traduções dos avisos que constam desta publicação, consulte o apêndice "Translated Safety Warnings" - "Traduções dos Avisos de Segurança", no guia de instalação que acompanha este dispositivo).

- ¡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. (Para ver traducciones de las advertencias que aparecen en esta publicación, consultar el apéndice titulado "Translated Safety Warnings," en la guía de instalación que se acompaña con este dispositivo.)
- Varning!** Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador. (Se förklaringar av de varningar som förekommer i denna publikation i appendix "Translated Safety Warnings" [Översatta säkerhetsvarningar] i den installationshandbok som medföljer denna anordning.)
-

Required Tools and Equipment

You need the following tools and equipment to install an AC power supply:

- Number 2 phillips screwdriver.
- Electrostatic discharge (ESD) preventive wrist or ankle strap with connection cord.
- AC power cord compatible with your power outlets. The *Cisco 10005 ESR Hardware Installation Guide* describes AC power cords available for the Cisco 10005 ESR.

Adding or Replacing an AC Power Supply

This section describes how to add or replace an AC power supply in a Cisco 10005 chassis. It contains these procedures:

- [Installing a Second AC Power Supply](#)
- [Replacing an AC Power Supply](#)
- [Troubleshooting the Installation](#)

Installing a Second AC Power Supply

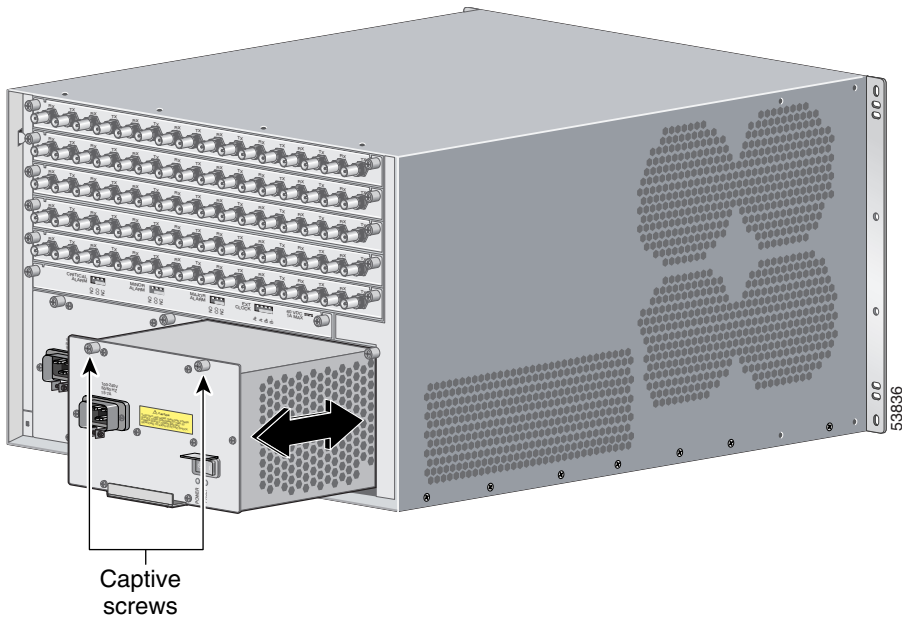
**Warning**

Never install an AC power module and a DC power module in the same chassis.

Follow these steps to install a second AC power supply for redundancy:

-
- Step 1** Put on an antistatic wrist or ankle strap. Attach the strap to the ESD grounding jack on the front of the chassis or to a bare metal surface of the chassis.
 - Step 2** At the rear of the chassis, loosen the captive screws to remove the blank cover from the empty power compartment.
 - Step 3** Before you install the new power supply, push on the left side of the power switch to set the power supply to standby mode.
 - Step 4** Insert the new AC power supply all the way into the power bay to ensure a secure connection to the midplane ([Figure 2](#)). Tighten the captive screws.

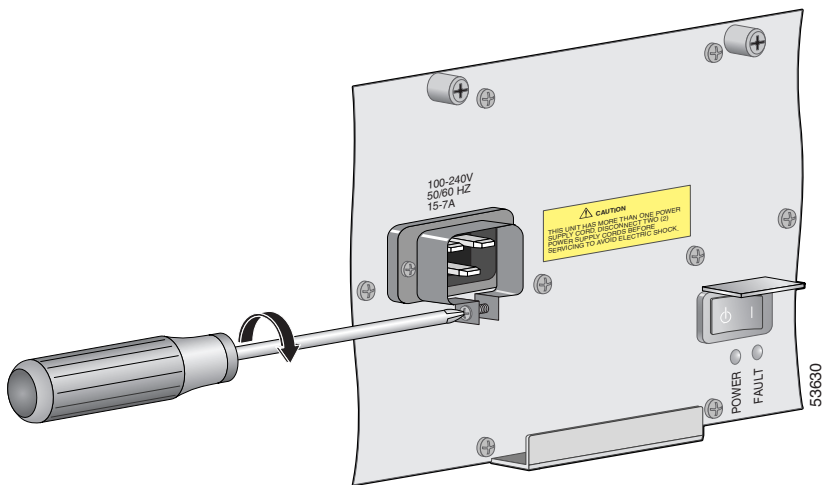
Figure 2 Installing an AC Power Supply



Step 5 Connect the AC power cord to the new power supply.

- Step 6** Snug up the strain relief device that secures the power cord to the power supply. To do this, tighten the screw underneath the connector ([Figure 3](#)).

Figure 3 Tightening AC Power Cord Strain Relief



Warning

Do not over-tighten the strain relief devices that secure the power cords to the power supplies. Because this chassis cannot be switched off completely, you must disconnect the power cords to remove power from the chassis. The power cord serves as the primary disconnect in an emergency.

- Step 7** Plug the power cord into a power receptacle.
When you connect power to the power supply while it is in standby mode, the yellow Fault LED lights.
- Step 8** Set the power switch on the new power supply to the | (On) position.
The green Power LED on the power supply lights, indicating that the power supply is supplying power to the chassis. The yellow Fault LED goes out.

Replacing an AC Power Supply



Warning

Never install an AC power module and a DC power module in the same chassis.

Follow these steps to replace an AC power supply:

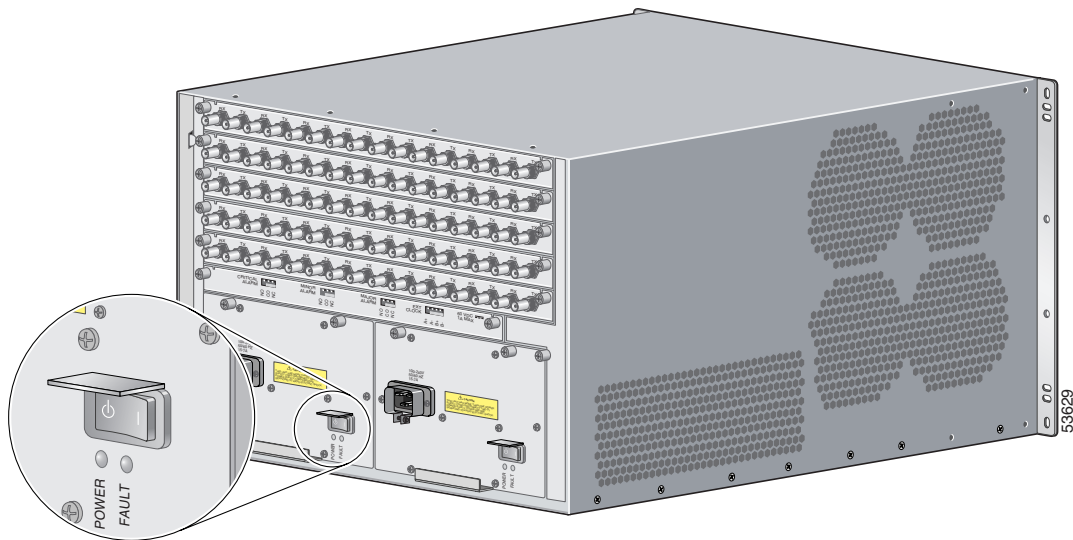
- Step 1** Put on an antistatic wrist or ankle strap. Attach the strap to the ESD grounding jack on the front of the chassis or to the bare metal surface of the chassis.
- Step 2** If your system is configured with redundant power supplies, set only the power switch of the power supply you are replacing to the standby position (Figure 4).



Caution

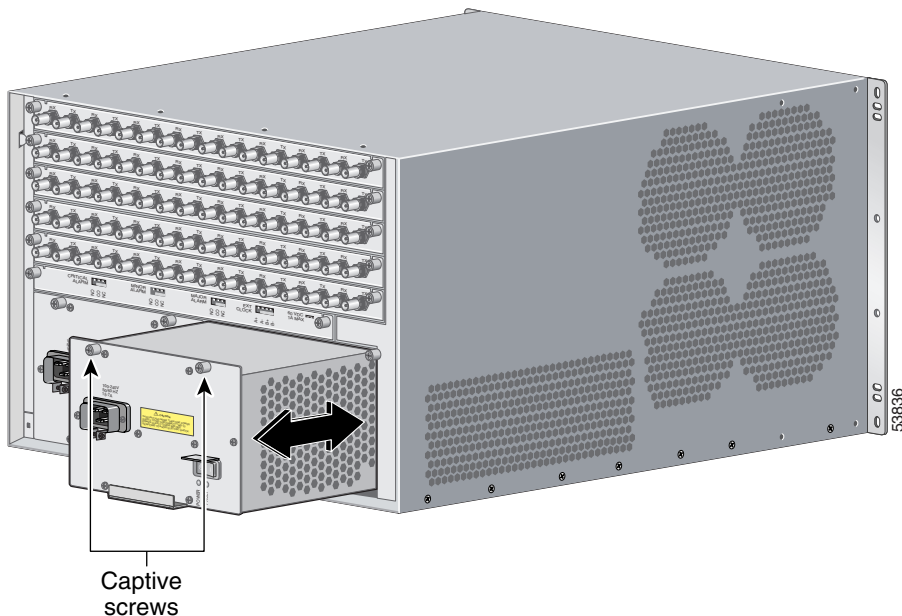
Do not power off both AC power supplies in a redundant system, or the system shuts down and all data traffic stops. Power off only the AC power supply you are replacing.

Figure 4 Setting AC Power Switch to the Standby Position



- Step 3** Disconnect the power cable from the power supply that you are replacing.
- Step 4** Loosen the captive screws on the power supply and pull the power supply from the chassis using the handle on the faceplate.
- Step 5** Before you install the new power supply, make sure that its power switch is set to the standby position (see [Figure 4](#)).
- Step 6** Insert the new AC power supply all the way into the power bay to ensure a secure connection to the midplane ([Figure 5](#)). Tighten the captive screws on the power supply.

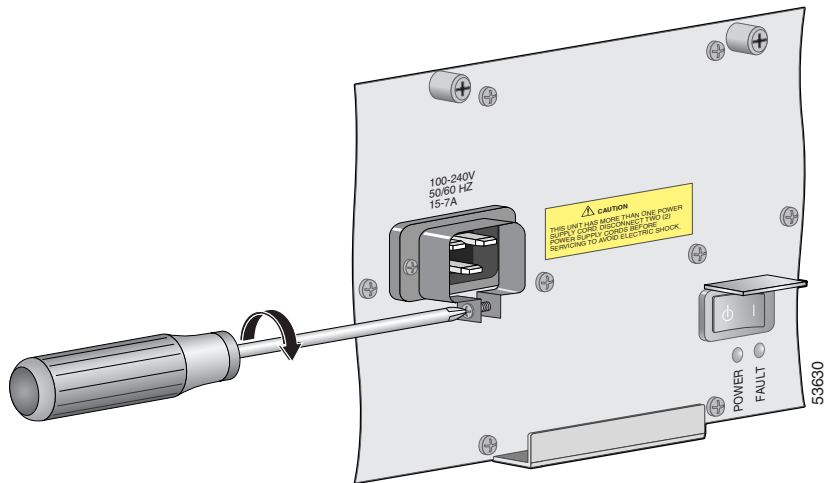
Figure 5 Installing an AC Power Supply



- Step 7** Connect the power cord to the new power supply.

- Step 8** Snug up the strain relief device that secures the power cord to the power supply. To do this, tighten the screw underneath the connector (Figure 6).

Figure 6 Tightening AC Power Cord Strain Relief



Warning

Do not over-tighten the strain relief devices that secure the power cords to the power supplies. Because this chassis cannot be switched off completely, you must disconnect the power cords to remove power from the chassis. The power cord serves as the primary disconnect in an emergency.

- Step 9** Plug the power cord into a power receptacle.
When you connect power to the power supply while it is in standby mode, the yellow Fault LED lights up.
- Step 10** Set the power switch on the new power supply to the | (On) position.
The green Power LED on the power supply lights up, indicating that the power supply is supplying power to the chassis. The yellow Fault LED goes out.

Troubleshooting the Installation

Table 1 contains troubleshooting tips for an AC-powered Cisco 10005 ESR.

Table 1 Troubleshooting AC-Powered Systems

Symptom	Steps to Take
System fails to power on	Check that: <ul style="list-style-type: none"> All power cords are properly connected to the Cisco 10005 and at the power connection end. The power switches are in the I (On) position. The Power LED is on (green). The fan assembly is fully inserted (Fan Status LED is green).
Power supply Fault LED is on (yellow)	<ul style="list-style-type: none"> Make sure the power switch on the power module is set to I (On). For more troubleshooting information, see the <i>Cisco 10000 Series ESR Troubleshooting Guide</i>.

FCC Class B Compliance

The equipment described in this manual generates and might radiate radio-frequency energy. If it is not installed in accordance with Cisco installation instructions, it might cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

Modifying the equipment without written authorization from Cisco might result in the equipment no longer complying with FCC requirements for Class A or Class B digital devices. In that event, your right to use the equipment might be limited by FCC regulations, and you might be required to correct any interference to radio or television communications at your own expense.

You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

Modifications to this product not authorized by Cisco Systems, Inc. could void the FCC approval and negate your authority to operate the product.

Related Documentation

This section lists the manuals in the Cisco 10000 series documentation set.

Manuals for All Cisco 10000 Series Routers

- *Technology of Edge Aggregation: Cisco 10000 Series Edge Services Router*
- *Cisco 10000 Series ESR Performance Routing Engine Installation*
- *Cisco 10000 Series ESR OC-12 Packet Over SONET Line Card Installation*
- *Cisco 10000 Series ESR OC-12 ATM Line Card Installation*
- *Cisco 10000 Series ESR Single-Port Gigabit Ethernet Line Card Installation*
- *Cisco 10000 Series ESR Channelized OC-12 Line Card Installation*
- *Cisco 10000 Series ESR 6-Port Channelized T3 Line Card Installation*
- *Cisco 10000 Series ESR Channelized STM-1 Line Card Installation*
- Release notes for the Cisco 10000 series ESR

These documents, which are available at Cisco.com, are online only:

- *Cisco 10000 Series ESR Software Configuration Guide*
- *Cisco 10000 Series ESR Troubleshooting Guide*

- *Cisco 10000 Series ESR Useful Links*
- Cisco 10000 technical reference documents

Hardware Documents for Cisco 10008 Routers

- *Cisco 10008 ESR Hardware Installation Guide*
- *Cisco 10008 ESR AC Power Entry Module Installation*
- *Cisco 10008 ESR DC Power Entry Module Installation*
- *Cisco 10008 ESR Blower Module Installation*

Hardware Documents for Cisco 10005 Routers

- *Cisco 10005 ESR Hardware Installation Guide*
- *Cisco 10005 ESR Hardware Overview and Maintenance Guide* (online only)
- *Cisco 10005 ESR AC Power Supply Installation*
- *Cisco 10005 ESR DC Power Entry Module Installation*
- *Cisco 10005 ESR Fan Assembly Installation*

Obtaining Documentation

The sections that follow provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS (6387).

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Attn Document Resource Connection
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-9883

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

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To access Cisco.com, go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

Use this document in conjunction with the documents listed in the “[Related Documentation](#)” section.

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